The Social Media Election:

A statistical analysis of social media communications during the 2019 Canadian federal election

Final Paper

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Abstract

As the industry of political communications redefines itself in the digital age, it is important to ensure scholars can continue to measure its effectiveness. In this study, the author uses data analytics and statistics to find connections and correlations between social media variables and the results of the Liberal Party of Canada's (LPC) 2019 federal elections campaign. The uniqueness of this study is that the author doesn't look at just one politician, or one region, but at 338 campaigns running at the same time all striving for the same election outcomes. Using standardized data, the study measures the performance of all 338 LPC candidates' social media presences in relation to raising money for their campaign, gaining positive public opinion and ultimately being elected as a Member of Parliament. The author built a comprehensive database that houses publicly available data, which has more than 272,000 records. The results revealed that the presence of a political candidate on social media, the number of times they post, the popularity of their posts and the use of photos and videos have significant correlations with positive election outcomes.

Keywords: politics, political communications, political campaigns, data science, social media, digital campaigns, statistics

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1 Introduction

More than a decade ago, public relations measurement was one of the top three research topics by academics, practitioners and professional associations (Likely & Watson, 2013). The influx of research coincided with the dawn of social media.

Grunig (2013) stated that relationships are the most important intangible asset a company or entity can have. He goes on to say that public relations professionals are poised to build, cultivate and nurture those relationships (Grunig, 2013). If that is the case, public relations professionals should measure the effectiveness of their relationship-building. Given the number of social media channels we use to build those relationships, and the resulting data we receive from them, social media variables are instrumental to measuring the success of an organization's public relations efforts.

Politics is an industry that heavily relies on relationship building and has seen a massive transformation since the introduction of social media. For many reasons, such as lack of funds (Nanos, 2018), the downfall of journalism (Elmer, Langlois & McKelvey, 2012; Nanos, 2018; Francoli, Greenberg & Waddell, 2016), the rise of mobile phones (Marland, 2016), and even increased engagement with youth in politics (Ryan & Morden, 2019; Francoli et al.,2016), politicians have been forced to put more and more resources into social media during political campaigning. This has led to a new reality for communicators who operate in the world of politics.

Take our current Prime Minister, Justin Trudeau, as an example. He is the first Prime Minister of the Instagram age (Kassam, 2019). "Trudeau seemed to understand better than other politicians how to adapt the old ideas of political marketing to the new realities of social media.

He was a master of the viral video clip or poignant photo that seemed to express the worthiness of his government and the virtue of his politics" (Kassam, 2019, para. 7).

The digital world of networked environments have forced scholars and professionals to “reconceptualize and redefine the very term "political communications" as one that must now account for the ever-expanding capacity for information storage and retrieval, multiple entry points of communication, and expanded sites and modes of self-expression” (Elmer, Langlois & McKelvey, 2012, p. 6). As the industry of political communications redefines itself, it is important to ensure scholars can continue to measure its effectiveness.

In this study, the author uses data analytics and statistics to find connections and correlations between social media variables and the results of the Liberal Party of Canada’s (LPC) 2019 federal election campaign. The federal election produced significant amounts of data, which has allowed the author to use data analytics to objectively measure correlations between social media activity and election results.

The study does not definitively reveal what aspects of social media can predict a win for a political party or candidate, but the goal is to see if certain variables have a stronger correlation with winning candidates. The author hopes this will open a discussion on what features of political communications should be measured, and what characteristics can indicate if a campaign is doing well or not. Because the reality of political communicators is that they have a short window of opportunity to convince their audience to vote for them, their party or their candidate. They need to know if what they are doing is resonating to use their very limited resources efficiently and to guarantee a positive outcome.

2 Literature Review

2.1 Social media in political campaigns

Trudeau was the first leader in Canada to unveil his election platform on Facebook (Delacourt, 2013). The Liberals saw a unique power in Facebook: the ability to connect with people who may not be directly connected or interested in politics. “Liberals were not just looking to take voters from other parties, but reach new voters and non-voters” (Delacourt, 2013, p. 305). This phenomenon stems from multiple changes in the industry.

The decline of traditional, mainstream journalism has been a large factor on leading parties to social media (Elmer, Langlois & McKelvey, 2012; Lapointe, 2019; Francoli et al, 2016). Firstly, social media has changed the way people consume information during elections. Francoli et al. (2016) argue that social media allows voters to contribute to election content with their own comments and online activity, “feeding into algorithms that influence how content appears and is presented to them via their digital portals” (p. 226). Carleton Journalism professor Paul Adams said in a recent article that social media also “breaks down some of the ‘gatekeeper’ roles that the media used to have, and their ability to act as an intermediary between various individuals, communities, and populations and the general public” (Lapointe, 2019, para. 2). In other words, politicians can now communicate directly with their audiences.

However, a direct connection with one’s audience comes with challenges. For one, it means that each potential voter may experience a different campaign, which is tailored to their social media preferences and what their friends online are doing and sharing (Francoli et al., 2016). Nanos (2018) argues that social media has simplified the nuances of politics, “voters are increasingly being drawn into infotainment and making decisions based on image” (p. 150). Political parties have responded to this voter trend by practicing more message cohesion and

centralization (Marland, 2016). This has led to our society making political choices “based on images of politicians rather than on policy details” (Marland, 2016, p. 12).

Elmer, Langlois & McKelvey (2012) describe the 2008 U.S. presidential campaign of Barack Obama as “a concerted effort to sustain specific discourses, sound bites, and images across a number of [social] media sites and over as long a period of time as possible" (p. 8). This effort is known as the network of permanent campaigning, coined by Elmer et al. (2012). In other words, social media has contributed to an endless need for fresh content. Elmer et al. (2012) explain that “circulation has intensified, in part due to the need to repeat a message to capture attention with digital systems that encourage the sharing of information” (p. 15).

Social media has also made it easier for smaller political parties with less money to gain a share of voice (Burke, 2019). For smaller parties, like the New Democrat Party of Canada (NDP), social media content is all they have. The NDP invested more than $130,500 in social media advertising, and by the end of July they saw 0.87 percent increase in public opinion – from 16.79 at the end of June to 17.66 at the end of July (“Weekly National Ballot Tracking”, n.d.). At the same time, the LPC invested more than $690,000, nearly six times more, in social media advertising, and only saw a 0.81 percent increase in public opinion, from 34.98 to 35.79 (“Weekly National Ballot Tracking”, n.d.). While Burke’s (2019) analysis is very rudimentary, she was trying to make the point that even with fewer dollars, the NDP was able to increase their public image just as much, if not more than the bigger parties. Regardless, the comparison between ad spend and public opinion alone is flawed as public opinion is influenced by many external factors (Nanos, 2018). Nevertheless, this study dives into Burke’s theory and tests its validity.

Social media has also given parties the ability to be more efficient with their dollars, from testing ads to more detailed analytics about voters (Delacourt, 2013). The LPC used social media analytics to inform policy messages, to test colour-schemes in ads, and to test which messages brought in more donations (Delacourt, 2013).

And while discussions are happening online, it is difficult to get the attention of voters. In a study by Sysomos, a social media analytics company, seven in 10 tweets get posted without any reaction from the world (Geere, 2010). For those that do get a reaction, only 6 percent get retweeted, 92 percent of which happen in the first hour. Of those that receive a comment (or a reply as commonly referred to on Twitter), 85 percent get one reply, with a rapid drop to only 10.7 percent that get two replies and only 1.53 percent that get three replies (Geere, 2010). These numbers point to a challenge in trying to practice two-way communications by engaging with followers, when so few tweets spark conversations.

Further, in one study by Small et al. (2014), the authors argued that two-way communications between political parties or leaders and voters on social media is limited. Their study found that "when actually engaging in contact, [the] respondents were twice as likely to use telephone and in-person meetings than e-mail or the Internet. Even the post, or snail mail, was more likely to be used" (p. 12). In the same study, only five percent of respondents engaged with politicians online. However, the same study showed that, while a small sample size, younger Canadians were more likely to engage in online political activity. What is unclear in Small et al.'s (2014) study was if politicians were using social media to connect or engage with voters, i.e. were they actively engaging in two-way communications, or were they practicing one-way communications like press agentry (Grunig, 2013). Regardless, Francoli et al. (2016) argue that it is common knowledge that "social media encourages new levels of connection and

interaction between content and audiences" (p. 242). Grunig's (2013) theory of two-way communications is used in this study to test the validity of engaging on social media during a political campaign.

Social media has even changed political fundraising. A political journalist who analyzed the first two financial quarters of the 2019 federal election campaign discussed how "with the growth of social media, parties are increasingly using digital fundraising methods" (Ryckewaert, 2019, p. 11). In one study, Small et. al (2014) discovered there was a 40 percent difference between those who donated offline (70 percent) and those who donated online (30 percent). Granted, even the study authors admitted that in their study, the sample size for those who donated to a political party was quite low. The authors did not specify what the sample size was, but to put the online donations into perspective, it amounted to only 2.5 percent out of a sample size of 2,021 people.

Another challenge social media has introduced into political communications is the issue of bots and fake accounts. In an analysis of the U.S. presidential campaign, both the Donald Trump and Hillary Clinton social media campaigns attracted networks of automated accounts that influenced results (Howard, 2018). Canadian politicians are not immune to this problem. In a study of 34,000 tweets from 4,896 accounts a few weeks before the 2019 federal election was called, researcher Marc Owen Jones found that the hashtag #TrudeauMustGo was being primarily fuelled by bot accounts (Bogart, 2019). Other experts add that in hyper-polarized communities, like the one Jones discovered, "80 per cent of sharing, commenting, and retweeting of a particular hashtag happens within a small segment of the population, further polarizing the audience for which it's deemed relevant" (Bogart, 2019, para. 20). In other words, if an

individual tends to lean more towards a polarizing conservative crowd online, it is very hard to reach them and change their mind or perception on an issue or persuade them to vote Liberal.

Finally, social media communications in politics goes beyond the organic posts of a politician. All social platforms analyzed in this study, except for Facebook (which relies on ad data only), use algorithms to determine which content makes it to a user's feed. Those algorithms rely on metrics such as how recently a photo was posted and its popularity (Devlin, 2019). This means, "in order to keep popping up in followers' feeds without buying ads… businesses need to make their content appealing enough to spark conversation and drive engagement" (para. 5). That is why researchers are seeing a significant shift towards social media advertising, which is included in the dataset of this study with Facebook's ad library. Marland (2016) reinforces this message by saying that "advertising plays a profound role in Canadian political life and public sector branding" (p. 101) – an argument tested in this study. Social media advertising guarantees with some certainty that a message will be seen by a group of people. As this study only looks at the Liberal Party of Canada, it is important to note that the party did invest significantly in social media advertising. In fact, with only 10 days to go in the election, the LPC had already spent $1 million on Facebook ads, which was more than the Conservative Party of Canada and the New Democratic Party of Canada combined (Paez, 2019).

2.2 What influences voters?

Canada's Parliament and voting system were built during a time when people worked and lived in the same electoral district. Members of Parliament (MPs) were expected to understand the issues that affected their constituents from home life to their jobs. In the modern digital world, people work, live and consume news online, meaning the issues that affect their day-to-day realities are no longer confined to an electoral district (Delacourt, 2013). However, at its

purest form, voting is simple for most people. In his book about the Canadian political landscape, Marland (2016) talks about Samuel Popkin, who argues that heuristic cues and information shortcuts result in a voter's decision to vote one way or the other. Popkin explains the process of voting as follows: "rather than embark on broad searches for information, citizens combine the knowledge that they obtain through personal experiences in daily life with what they learn from the media" (Marland, 2016, p. 138). Marland (2016) expands on Popkin's theory by stating that "the evoked public images of a leader and party are more important in vote choice than actual policy positions" (p. 139). Therefore, it is no surprise that Canadians tend to vote for the party leader, according to Marland (2016). He argues that "a voter is more likely to support a leader who shares similar social-demographic, ideological, and/or partisan traits, regardless of other factors" (Marland, 2016, p. 141). Marland (2016) coins this as the leader-centric model of the modern-day political campaign, which is a concept tested in this study.

This doesn't mean local candidates don't have their place, they do. Marland (2016) argues that local MPs are brand advocates for their party. In interviews with 10 Liberal MPs in the leadup to the 2019 federal election, political journalist Mazereeuw (2019) reported that MPs indicated that their constituents were more interested in the priorities of individual candidates, rather than the LPC's or Justin Trudeau's policies. Granted, this statement should be taken with some skepticism, as most local candidates would want to believe and claim their constituents care more about the regional candidate than their leader. Nevertheless, the LPC's senior director of communications credits the success of their fundraising efforts to the strength of their grassroots efforts (Ryckewaert, 2019) – grassroots, meaning the work done by their local MPs and volunteer teams. Furthermore, some studies still show that face-to-face contact is key to mobilizing voters, and that is accomplished by canvassing from local MPs (Marland & Giasson,

2015). In fact, using data from party headquarters, local MPs are tasked with two things: identify supporters and make sure they get out to vote, and identify undecided voters that could be persuaded to vote for the party (Marland & Giasson, 2015). One study by Marland and Giasson (2015) also revealed that most candidates actively invited their followers to vote for the party they represented rather than vote for themselves. The exception to this rule came from candidates who ran in highly competitive ridings. These candidates encouraged voters to vote for them and named themselves directly (Marland & Giasson, 2015).

Scholars still argue that traditional news media can still influence voters (Marland, 2016; Marland & Giasson, 2015; Francoli et al., 2016). And that goes for positive or negative news coverage. Marland (2016) argues "news stories criticizing the advertising [of politicians] generated increased awareness of the proposed program, moving it up on the public agenda. But there is a limit. If controversy drowns out the message, then this is problematic because it eats away at the government's agenda and brand" (p. 76).

Regardless, negative politics, such as attacking another politician, lost some of its appeal in recent elections. Scholars argue that in Canada people tend to see negative political advertising as an American style of political campaigning and reject those types of ads (Marland, 2016; Marland & Giasson, 2015). In fact, the old mantra that people say they don't like negative advertising, but it works, is being debunked. Millions of dollars were spent by both the Conservatives and NDP on highly negative advertising during the 2015 election, and both their support slipped away (Marland & Giasson, 2015). In contrast, in a study of videos uploaded during a pre-election period before an Australian election in 2007, four of the top five videos viewed by the main challenger in the election were negative in focus and slammed the incumbent

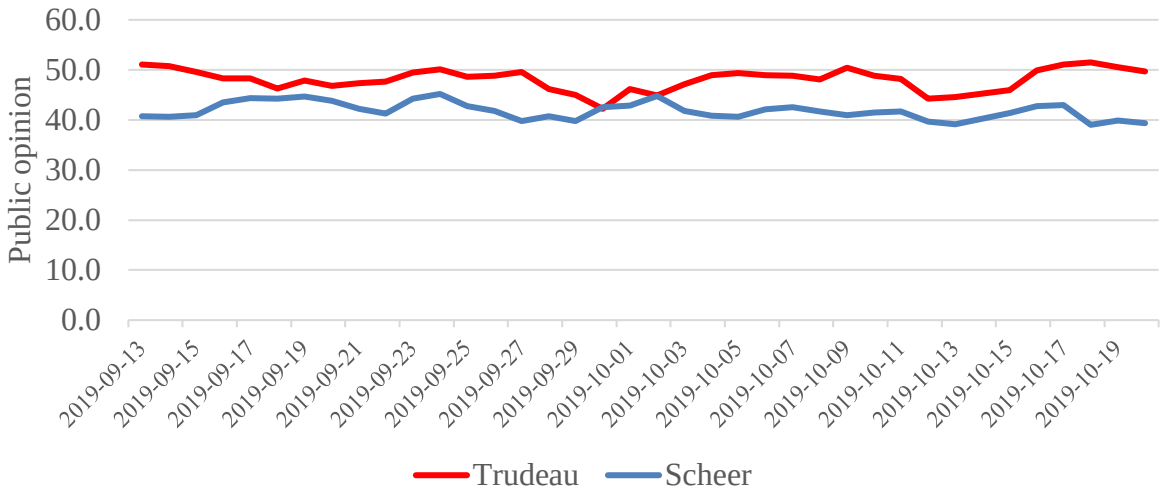
(Elmer, Langlois, McKelvey, 2012). However, this study was done a decade ago and as Marland and Giasson (2015) argue, the times have changed.

For all that, not every voter is the same, nor are they treated the same by political parties and politicians. Marland and Giasson (2015) talk about how political parties today use some form of predictive analytics "based on mathematical algorithms and statistical methodologies to discern voter intention" (p. 16). These data help inform party's messaging and targeting abilities. In her research, Delacourt (2013) saw that parties divided voters into three groups: loyal partisans, transient voters and floating voters. She explains that loyal partisans are motivated by issues and transient voters are motivated by leadership, personality and image. Floating voters, on the other hand, "were more like consumers, open to the kind of pitches they were getting in the shopping world" (Delacourt, 2013, p. 72). The categorization of voters is a central theme in this study. It not only influences the methodology but it is also tested as a method of targeting social media activities.

Floating voters are also referred to as swing voters by some strategists. Nick Nanos (2018), a noted Canadian market researcher and political pollster, talks about how elections can be giant popularity contests. He states that public opinion polls can influence a campaign. If a party is enjoying a comfortable lead in the polls, the last voters to jump on the bandwagon tend to be swing voters who are more susceptible to changing their choices. However, there was no evidence of that during this federal election. As you can see in Figure 1, the leaders of the two major parties were polling evenly for nearly the entire campaign.

Figure 1

Support for LPC leader Justin Trudeau and Conservative Party of Canada leader Andrew Scheer



Supporting this idea of a popularity contest, the literature review also revealed that tight races and competitive elections also have great influence on voters. Marland and Giasson (2015) argue that “people tend to vote more often when elections are competitive... This gives voters the impression that their vote is more likely to matter, which can be particularly important for those who have not yet established a long-term pattern of voting" (p. 118).

2.3 Political marketing

Political marketing can be traced as far back as the 1800s, when parties used advertising agencies to design ads, posters and billboards (Delacourt, 2013; Michaelson & Stacks, 2011). The literature review revealed that over time political marketing has slowly transformed to include aspects of marketing and communications.

Comparing political strategies discussed in several studies, the author found the following definition by Michaelson and Stacks (2011) was reflective of what political communication professionals try to achieve. Michaelson and Stacks (2011) defined effective communications as

a four-stage process that the audience goes through in order to take a desired action. The four stages are: awareness, interest, desire and action, which lead to "establishing awareness of the brand… building sufficient knowledge and understanding about the brand… in order to make an informed decision, creating a level of interest in and preference for the brand… and finally a change in behavior or intent or commitment to take a specific action based on the received message" (Michealson & Stacks, 2011, p. 7). One can see how that last stage is reflective of the act of voting. These four stages mirror what Delacourt (2013) discusses in her book as marketing-oriented style of political marketing, a new style that is becoming increasingly popular among political communications strategists. She argues there are three types of marketing styles within political parties: product-oriented, sales-oriented and marketing-oriented. Product oriented present the party and its candidates to voters in hope of a reward at the ballot box. Sales-oriented rely on popular policies to persuade voters. Most parties in Canada fall in the latter category, according to Delacourt (2013), but are slowly migrating to marketing-oriented, which requires parties to see themselves as a product, to "try and figure out in advance what the voters want and actually shape their policies, not just their public face, around voter demand" (Delacourt, 2013, p. 89).

Nevertheless, political marketing or communications has one big difference that sets it apart from any traditional marketing or communications: timing. Marland (2016) describes that difference as follows: "Imagine having to execute your entire marketing strategy and spend your entire marketing budget in forty days, and the entire strategy and the entire expenditure comes down to a single one-day sale where the doors open at 8 a.m., they close at 8 p.m., the entire marketplace decides, and at the end of the day only one company is left standing, and everyone else is basically out of business" (p. 34).

If one takes a historical view of political marketing, the shift began in the 1950s and 60s with a spending spree, introducing consumer choice and availability of products (Delacourt, 2013). “Canadians said they were consumers 24-7, and that they saw their entire world as a series of consumer choice… from politics to government…” (Delacourt, 2013, p. 21). The LPC recognized this trend and started to moved way from mass-marketing political campaigns in the 1960s and started targeting individual ridings where they knew they could make gains (Delacourt, 2013). While this was a smart way to use resources, this made political campaigns run more like businesses. In a quote from Martin Goldfarb, a political public-opinion businessman from the 1970s, he compared the selling of votes to a can of tomatoes: “It’s a matter of choice. There may be twenty cans of tomatoes on the shelf and the consumer has to choose one. Well, it’s really the same in the voter marketplace” (Delacourt, 2013, p. 41).

Over the years, marketing tactics were used for other goals. Delacourt (2013) discusses how parties began to use marketing as a way to control their caucus, which is the group of MPs that make up a political party. In the 1970s, political strategists learned that they could control their caucus with advertising, even more so than any other tool of leadership at their disposal, “all you needed was a unified message, with everyone speaking from the same script, with the same pictures” (Delacourt, 2013, p. 44). The centralization of communications in political parties was exacerbated in the age of social media but created “a challenge to stay on top of all the communication” (Delacourt, 2013, p. 210). The centralization of a political campaign, especially when it comes to a leader-centric model, is examined in this study.

More recently, data science has become a staple in political strategies. During the previous government, the per-vote subsidy was removed, making soliciting donations from supporters more important than ever (Marland & Giasson, 2015). This opened the door to invest

more in data, to make organizing supporters and their contributions more efficient (Marland & Giasson, 2015). For example, Marland and Giasson (2015) made this discovery in an analysis of a battleground riding in the 2015 election:

> In one Alberta-based battleground constituency the local campaign team found that there was a 60% chance that a visit or telephone call to a tier-one voter would result in the campaign identifying a supporter who they would want to mobilize on election day. The corresponding results for tier two and three were in the 35-40% range, and numbers dropped off after that. Thus, the decision was made to focus the canvass campaign on households with tier one through three voters. (p. 14)

The data sets used to make decisions like the one above came from sources such as “the census, polling, focus groups, retail marketing surveys, geo- and psycho-demographic research purchased from commercial firms, constituency-level information provided by volunteers, and the trails left by people using social media like Facebook and Twitter" (Marland & Giasson, 2015, p. 16).

Another use for these data was for micro-targeting. Wylie (2019) describes micro-targeting as a practice “where machine-learning algorithms ingest large amounts of voter data to divide the electorate into narrow segments and predict which individual voters are the best targets to persuade or turn out in an election” (p. 21). The literature around micro-targeting is scattered because there is no standard use of micro-targeting by parties or by scholars. Scholars tend to agree that micro-targeting in today’s election has become an essential and important part of campaign strategies (Kruikemeier, Sezgin & Boerman, 2016; Delacourt, 2013). The common definition for micro-targeting is the act of collecting information about individuals, including their political preferences, habits, interests, social behaviours and much, much more, and

combining it into a voter management software or party database to determine messaging for various platforms, ridings and demographics (Kruikemeier et al., 2016; Yawney, 2017).

There are several types of micro-targeting that was found in the literature review. Some parties use the data they collect on voters to micro-target supporters – finding individuals who support the party and reaffirming their loyalty to the party (Yawney, 2017; Kreiss, 2017). Giasson and Small (2017) interviewed party leaders on how they use social media in their political strategies. The respondents discussed how they used Facebook to collect data on potential voters' interests, which helped them form messages appropriate for the channel. Marland and Matthews (2017) had similar findings when they reviewed email content from the main political parties during the same time period. The messaging was no different than the messaging on other platforms, but rather targeted for the channel: email. These two studies would indicate that some parties use micro-targeting to tailor messages by platform and not by individual (Yawney, 2017). Munroe and Munroe (2018) found that parties during the 2015 federal election had different messages within ridings across the country – showing the ability to micro-target by riding. Delacourt (2013) talks about micro-targeting in her book and discusses how the Trudeau Liberals divided all electoral ridings into six categories, which showed gradients of the possibility of winning, which meant communications in each riding could be tailored. Again, the idea of categorizing ridings is a central point to this study and is heavily explored during the analysis.

2.4 Politics and branding

Brand trust was a recurring theme in the literature review. Ensuring the brand of a politician, party leader, or the party brand was trusted was the centre of several marketing and communications goals and tactics (Marland, 2016; Marland & Giasson, 2015; Matthews, 2019;

Delacourt, 2013). Marland argues that “in politics, the brand unifies everything” (Marland, 2016, p. 12).

David Ogilvy, renowned as the father of advertising, defines brand as “the intangible sum of a product’s attributes” (Matthews, 2019). While he may have been thinking of big brands like Canadian Tire, Royal Bank or even McMaster University, the definition applies to politicians too. In the 1990s, political strategists started using the word brand when describing their party. Delacourt (2013) defines a brand as a “set of expectations, memories, stories and relationships that, taken together, account for a consumer’s decision to choose one product or service over another” (p. 122). Anthropologist later turned advertiser Martin Goldfarb argued that “a brand is a promise you make consistently over time” (Delacourt, 2013, p. 66). Based on these findings, and for the purpose of this study, a political brand is the image and expectations of a political party, politician or leader.

A political party’s leader’s brand is an important aspect in gaining support from voters. Marland and Giasson (2015) add to this theory by arguing the brand of a party leader also helps “focus and co-ordinate 338 campaign teams and the volunteers supplying critical resources on the ground” (p. 34). As far back as the 60s, we can see evidence of parties being formed around the leader of the political party. Delacourt (2013) talks about how admen of the era “used their skills to make the leader the ‘product’” (p. 30).

In the 2015 election, the LPC’s campaign centered around Justin Trudeau (Marland & Giasson, 2015). The same strategy was seen in the 2019 election, except this time Trudeau saw a drop in brand trust. One poll indicated that more than half of Canadians (51 percent) thought that the Prime Minister Justin Trudeau’s Liberal Government did a poor job and would like to see change, and only 35 percent held the opposite view (Gauthier, 2019). Regionally, Albertans were

the hungriest for change, with 76 percent saying the Trudeau government has done a poor job (Gauthier, 2019). The results of the 2019 election confirmed this sentiment. There was not one Liberal MP elected in Alberta (Elections Canada, n.d.). These findings indicate that brand loyalty can differ significantly across the country. This theory is explored in this study by testing regionality of social media campaigns.

The parliamentary system also has an impact on the distribution of brand loyalty. "In Canadian elections we count seats, not votes. This is a feature of our parliamentary system; it doesn't matter whether you have more votes than any other party on average across seats. For a party to win, they need more votes than any other party within more seats than any other party" (Lyle, 2019, para. 8). For the Liberals this is good news as they have greater distribution of votes (Lyle, 2019), spreading their support for the brand across the country. The only place this is not the case is in the prairies. According to a Nanos survey done in the summer leading into the 2019 federal election, 38 percent of people in the Prairies "said they were angry at the federal government, eight percentage points higher than the national average, while 29 percent said they were pessimistic. Only 9 percent of Prairie residents said they were satisfied, six points lower than the national average" (Hahn, 2019, para. 5).

All in all, political brand loyalty in politics isn't as strong as it once was. Bennett (2012) argues that "social fragmentation and the decline of group loyalties have given rise to an era of personalized politics in which individual expression displaces collective action frames in the embrace of political causes" (p. 37). This could be an indication that the importance of branding in politics would be less important in today's elections, but the literature doesn't support that. Parties continue to rely on branding to connect and persuade voters (Delacourt, 2013).

3 Research Goal and Questions

The goal of this research is to find correlations between social media variables and political outcome variables. These relationships could suggest a particular variable (or multiple variables) that is predictive of the success of a political campaign. In addition, the author is taking a first step in providing public relations professionals with a proxy to measure the effectiveness of a campaign while it is still running.

3.1 Research questions

The study will evaluate correlations between social media variables and three aspects of strategic communications.

The first is comparing social media variables of all 338 LPC candidates to election results itself. The second is to compare social media variables of all 338 LPC candidates to the LPC's bottom line. And the third and final analysis is to compare social media variables to the public's opinion of the LPC.

RQ1: How and to what extent does social media activity correlate with outcomes of the 2019 federal election in Canada.

It has been stated that campaigns can be won on the battle grounds of social media (Marland & Giasson, 2015), but the literature review is very foggy on what social media variables can predict a win. This research question will strive to fill in the blanks of this mystery in political communications.

RQ2: How and to what extent does social media activity correlate with political party donations.

In 2015, the government ended a per-voter subsidy given to political parties so they could finance their campaigns (Marland & Giasson, 2015). This meant parties didn't have taxpayer

dollars propping up their campaigns, making soliciting donations that much more important in today's elections. The literature review also revealed that political parties are investing more in social media analytics and tactics to solicit donations (Delacourt, 2013; Marland & Giasson, 2015).

RQ3: How and to what extent do specific aspects of social media activity correlate with public opinion.

As previously mentioned, Grunig (2013) regards building relationships as a key component to successful strategic communications. The literature review revealed the multitude of ways that political parties are building relationship with voters through social media. And one way to measure how these relationships are forming with voters is through public opinion. Nanos (2018) explains that public opinion polling during an election is a measurement on the day the survey was conducted of where voters are at in their relationship with various political parties – are they happy with one party over another, indifferent, angry, etc. While election results look at the final result of a cumulative political campaign, public opinion looks at how strategies and tactics during the campaign are affecting the likelihood of someone voting a certain way (Nanos, 2018).

4 Methodology

There are several scholars and journalists who have tried to answer the simple question of what influences someone to vote and win an election (Nanos, 2018; Marland, 2016; Marland & Giasson, 2015; Delacourt, 2013 – to name but a few). The question is not a simple one to answer. The literature review revealed that social media does play a role. However, to what degree social media influences voting is still up for debate. This study strives to dig beyond the surface using data science to see if there are correlations between certain social media variables and election

outcomes. The uniqueness of this study is that the author doesn't just look at one politician, or one region, or one riding, but 338 campaigns running at the same time all striving for the same election outcomes.

To accomplish this, the author is following a quantitative research methodology. In particular, the author conducted a statistical analysis of multiple social media variables related to winning an election. The author used statistical measurements to test the magnitude of the relationship between variables. This method is supported by Stacks and Michaelson (2011), who argue that "with a standardized system of comparative evaluation, public relations professionals would be able to gauge the absolute performance of specific programs and specific program elements" (p. 4). And that is what the author is trying to do with this study – using standardized data, outlined below, the goal is to gauge the performance of all 338 LPC candidates' social media presences in relation to raising money for their campaign, gaining positive public opinion and ultimately being elected as a Member of Parliament (MP). The author chose to only analyze one Canadian political party, the Liberal Party of Canada, to test out her methodology. Not to mention, doing a cross-party analysis adds more variables, making it harder to isolate the affects of the social media variables.

This study uses two principles to pressure test results to ensure strong conclusions can be drawn. First, the author uses a total of 35 variables to ensure trends that are spotted are not anomalies. The study collects social media variables from all 338 LPC candidates on three social media channels: Facebook, Twitter and Instagram. Collecting data on various social channels was important because each social channel can skew to a certain demographic or population. People who engage on Twitter, for example, tend to be people with higher education and income

(Elmer, Langlois & McKelvey, 2012). Instagram, on the other hand, skews towards a younger demographic (Tran, 2020).

The author also uses a chronological analysis, which means the author looks at data over a linear period of time. This study analyzes variables during the 2019 federal election period, which took place between September 11, 2019 and October 21, 2019. This method is important because no two days in an election are the same – not for voter intention nor for political communications tactics. A sizable section of the electorate has not made up their mind about who they will vote for until the day of the election, and yet politicians need to engage in a five-and-a-half-week campaign (Delacourt, 2013; Nanos, 2018). The only data that is not chronological is final election results. In this case, the author pins cumulative social media variables for each candidate against the outcome of the election.

4.1 Data Collection

The database that houses all the data for this study has a total of 272,958 records, amounting to more than 400 megabytes. The author relied only on publicly available data. This was necessary as gaining access to internal documents and data from political parties is next to impossible. Marland (2016) comments in his study of political communications that "the communications control and secrecy [in political parties] … inhibits researchers' ability to obtain data. Trade secrets are rarely divulged. Invisible processes by communications principals, strategists, and messengers cannot be easily uncovered" (p. 19).

4.1.1 Liberal Party of Canada's candidates

In the 2019 elections, the LPC ran 338 candidates in 338 ridings ("Team Trudeau 2019 Candidates," n.d.). To conduct this study, the author built a database with names, riding and links to social profiles. The author created a new script based on a previous script created in python for

her research on Amazon reviews and their effects on sales (D'Arbelles, Berry & Theyyil, 2020). The script scraped information from a page set up by the LPC to showcase their candidates. The page was called Team Trudeau 2019 Candidates and is located at www.liberal.ca/team-trudeau-2019-candidates. The page included names, riding ID and links to each candidate's social media profiles. The HTML code scraped from the page was then parsed and inserted into an SQLite database. The data points were: first and last name of LPC candidate, riding ID (which is a unique ID used by both LPC and Elections Canada), riding name, province of riding, Twitter handle, link to Twitter profile, link to Facebook page, and link to Instagram profile. The script also fetched Facebook Page IDs and Twitter profiles IDs using the links found on the Team Trudeau page. Facebook Page IDs and Twitter profile IDs are unique identifiers that were used to query the social media application program interfaces, or better known as APIs.

Naturally, not all candidates possessed publicly viewable profiles on all three social channels used in this study. After validating all accounts, the author was left with 338 candidates with 282 Twitter profiles, 247 public Facebook profiles and 270 public Instagram profiles. The author did not include any private profiles. Content on private profiles are only viewable by users who have requested permission to see the content posted by the account holder. Therefore, the author could not get access to publicly viewable data on those profiles.

Validations. The author validated all the content collected from the LPC's candidate page. Only publicly available data is included in this study. Therefore, if a link to a social account returned a personal profile, the link was deleted. The author also manually checked all null fields in the database. If a link to a social account returned null, it meant there was no information on the LPC's page. This, of course, doesn't automatically mean an account for that candidate didn't exist. Manual searches were done through Google and using search functions in

each social platform to verify lack of presence on channel. If nothing was found, the field remained null. If an account was found, the link was manually added to the database. This process was extremely important, because the code used to scrape social media content relied on the links collected during this process.

4.1.2 Social media variables

Data was collected in many ways, primarily through social media APIs. Data was collected from Facebook, Twitter and Instagram. The following three sections describes how data was collected and stored for analysis.

4.1.2.1 Facebook

Facebook is central to this study. There are more than 23 million Canadians on the platform, which makes it a key battleground for politicians in the 2019 election (Silverman, Lytvynenko, Boutilier & Oved, 2019). However, given the recent scrutiny Facebook has undergone for its use of its users' data, the social giant has limited its data availability significantly – even to researchers. It was next to impossible to efficiently gather publicly posted organic content without manually collecting the data. Not to mention, Facebook's newsfeed is designed to favour content posted by close connections. Facebook pages have seen a significant drop in reach of organic content (Bernazzani, 2020). Most businesses, including politicians, have moved to a pay-to-play model (Patel, 2018). While organic content is still published, a significant amount of effort is invested in Facebook ads (Paez, 2019). Therefore, the author chose to include only Facebook ads in this study. It is also important to note that Kruikemeier, Sezgin and Boerman (2016) found that the sponsored label seen on Facebook ads often go unnoticed by users, making the content just as powerful in communicating a message to voters as organic content.

In early 2019, Facebook launched an ad library, which governments, the public, journalists and researchers can use to analyze political ads on Facebook (Constine, 2019). The library can be accessed through Facebook's API. Using code built in python, the author pulled all Facebook ads run by each Liberal candidate with an official publicly available Facebook page during the length of the 2019 federal election. The data pulled came in JSON format. JSON, or JavaScript Object Notation, is "a text format that is completely [computer] language independent but uses conventions that are familiar to programmers" ("Introducing JSON", n.d., para. 1). For the 247 candidates with public Facebook pages, 12,708 ads were returned through the Facebook API. The python code than parsed the data and inserted it into an SQLite database where ads were tied to the appropriate politician. The variables collected included: a unique ID for each ad, the date of creation of each ad, start and end date for when ad ran, text body for each post, demographic distribution of ad (age and gender), region distribution of ad (by province), ad impressions, amount spent on ad and the currency of the ad spend. Some ads did not have any copy in the body, as the ad displayed a video or picture only. In addition, the Facebook API did not include a photo or video tag. Therefore, this study could not include a video or photo analysis on Facebook.

4.1.2.2 Instagram

Instagram, as the youngest social channel analyzed, did not have a formal API. In addition, even though Instagram is owned by Facebook, the Facebook ad library did not include Instagram ads. Therefore, the author was only able to collect organic content. The author collected publicly available posts posted by LPC candidates. Again, the data was pulled in JSON format. The result was 7,659 Instagram posts by 270 candidates during the period of September 11 and October 21, 2019. Each record was accompanied by a post ID (unique ID given to each

post on Instagram), date of post, caption text (this is the text included below an image or video on Instagram), number of comments, number of likes, presence of video (true or false), and video views.

Currently, there are only two types of content you can post on an Instagram feed: videos or images. Posts were divided into two categories: videos and images. When the presence of a video returned true, it was categorized as a video post, and when it returned false, it was categorized as an image. The author did not download videos or images from each post. In the literature review, it was revealed that the most versatile voters, or swing voters, tend to lean to the most popular candidate near the end of the campaign (Marland, 2016). This is why the author measured the popularity of posts – total number of likes, comments and video views – rather than the content itself.

4.1.2.3 Twitter

The author used Twitter's API to collect the data necessary for this study. Again, the data came in JSON format. The JSON files were parsed into the SQLite database. These data included: date of tweet, tweet ID, user who posted tweet, Retweet status (true or false), quote status (true or false), in-reply-to status (true or false), presences of a video (true or false), presence of an image (true or false), text in body of tweet, number of people who quoted the tweet, number of people who retweeted the tweet, number of comments, number of likes, user followers at date of tweet.

While access to the Twitter API is free, there are limits to the number of tweets you can download, as well as the number of queries you can make per month. A query is a request for data from Twitter's servers. Each query is limited in the size of data it can return; a limit put there by Twitter for business reasons. However, interested parties can pay a monthly fee to

increase the volume of data that can be accessed in a shorter period of time. The paid access increases the number of tweets you can download in a month, as well as the number of queries one can make. The author needed access to the tweets from 282 candidates with Twitter profiles. That amounted to more than 39,000 individual tweets. Naturally, the author's account reached its monthly limit very quickly. Therefore, the author paid for additional access to get the data in a timely manner.

4.1.3 The bottom line for political parties

If one side of the coin is social media variables, the other is the business goals of political parties – their bottom line, their brand image and whether they win or not. The following is a breakdown of how each of these data were collected.

4.1.3.1 Election Results

Using a comprehensive database managed by Elections Canada, the author was able to download verified elections results of the 2019 and 2015 general federal election. Elections Canada makes election results available to the public. The author was able to download the dataset and convert it to a tab delimited format, making it easier to parse into the database. The database from Elections Canada included the following data: riding ID, riding name, first and last name of all candidates who ran in the riding, political affiliation of all candidates who ran in the riding, the total votes each candidate obtained, the percentage of votes obtained by each candidate and the total number of ballots cast in the riding. These data were added to the SQLite database. The riding ID was used to connect the LPC candidates and their results, as both tables in the database used the same riding ID. The percentage of votes obtained were used to categorize each riding into riding categories. Political party headquarters are known to categorize their ridings to tailor communications to different audiences (Delacourt, 2013; Marland, 2016).

However, parties, including the LPC, do not share this type of data publicly. Using 2015 elections data, the author categorized each candidate's riding into three mutually exclusive categories commonly used by journalists who cover the political beat. The groups are based on margins, that is the percentage by which the Liberal candidate won or lost in the 2015 federal election, and are referred to as safe, swing and unlikely (Allen, 2019). Safe ridings are ridings that a Liberal won with more than a 20 percent margin, swing ridings represent ridings that a Liberal won or lost with a 20 margin or less, and unlikely ridings included ridings where a Liberal candidate lost with more than a 20 percent margin.

4.1.3.2 Political Donations

The bottom line of a political party can determine if they will have enough resources to play in the winning field, or if they only have enough to watch from the sidelines (Delacourt, 2013). Furthermore, that battle is increasingly happening online (Marland, 2016).

Political parties are required to record all donations above $200 per person per year. The recorded data is sent to the Chief Electoral Officer who is then required to publish this information as soon as possible after receiving it, according to the Canada Elections Act ("Canada Elections Act," 2020). However, that data published is only verified twice a year. For the 2019 general federal elections, Elections Canada will publish a report on all financial activity of all registered parties in the 2019 federal election. This report is not set to be released before summer 2020. Given the timelines imposed on this study, the author needed to rely on financial records as submitted by political parties. This is a limitation as the data has not yet been verified by Elections Canada.

Using the Elections Canada online database, the author pulled all political donations during the official election period – September 11 to October 21, 2019 – registered to the Liberal

Party of Canada, as submitted by the LPC. These search parameters returned 7,671 records of political donations. One record was a non-monetary donation, which is permitted under the Canadian Elections Act ("Canada Elections Act," 2020). However, the author chose not to include it for lack of detail on the donation. There were no specifics on the donation, and the author felt she didn't have enough information to accurately evaluate the monetary value of the non-monetary donation. In addition, 196 donations could not be tied to an individual candidate because the postal code used for the donor did not tie to a specific riding. These donations accounted for only 2.4 percent of all donations, or $41,434.10 out of $1,745,718.52.

4.1.3.3 Public Opinion polling

A quintessential part of the study is to try and answer what part of a social media campaign is working while in progress. While final election results can determine overall who had the best campaign, it does not determine which part of the campaign worked better than another. Nanos Research, an established and respected political polling organization in Canada, performs nightly surveys to measure the mood and opinions of Canadian voters during the official election period. The survey is called the Nightly Nanos Election Tracking and is produced in conjunction with Nanos Research, CTV News and the Globe and Mail (Nanos, n.d.). According to their website, the methodology of their survey is described below.

> The data is based on dual frame (land + cell-lines) random telephone interviews using live agents of 1,200 Canadians using a three night rolling average of 400 respondents each evening, 18 years of age and over. The random sample of 1,200 respondents may be weighted by age and gender using the latest census information for Canada. The interviews are compiled into a three night rolling average of 1,200 interviews, where each evening the oldest group of 400 interviews is dropped and a new group of 400 interviews

> is added. A random telephone survey of 1,200 Canadians is accurate ±2.8 percentage points, plus or minus, 19 times out of 20. (Nanos, n.d., para. 1)

The complete survey was made available to the author for a small fee. However, the author only used four questions in the nightly tracking survey. The first asked respondents what party they would consider voting for federally. The second asked to rank their preferred Prime Minister. The third asked to what degree the voter would consider voting for each federal party. And the fourth asked if the leader of each political party had the qualities of a good political leader.

Lastly, the author also used the Nanos Party Power Index, which combines the four questions above with a question about proposed legislation or policy that was being presented in a party's election platform. Nanos Research states on their website that "since voters are not actually able to make a choice before election day, it is interesting to think about party strength and support more broadly. "The Nanos Party Power Index fills this need by incorporating more information than just current vote preference" (Nanos, n.d., para 12).

4.2 Final data set

To analyze the data, the author ingested all these data described above into an SQLite database. The resulting database is a relational database, where each object – such as a Facebook ad, a Tweet, Instagram post, candidate, Nanos' Party Power Index, etc. – is stored as a row in a table. These objects can link to each other across tables using matching fields, such as a candidate ID. The benefits of doing research using a relational database is that the author could make queries, or searches within the database, simultaneously across tables while applying filters on one or more objects.

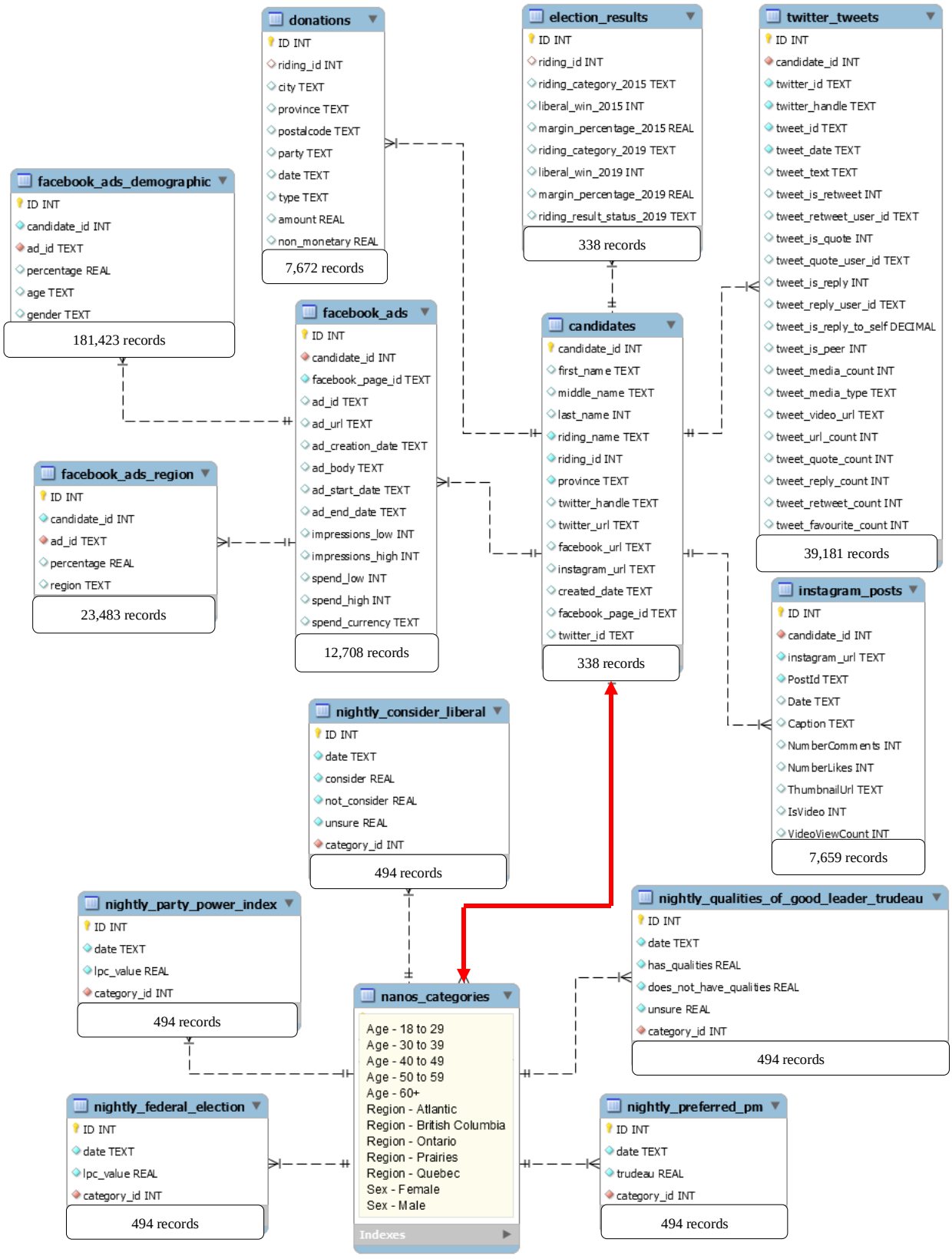
Figure 2 is the relational database model to show each object in the database, their corresponding tables and their fields, as well as which tables are connected to each other through matching fields.

The red line is important to note. The candidates object (the table that lists all Liberal candidates) and nanos_categories (the table that includes the public opinion data) do not have a relationship. That is because the public opinion data was collected by regions and not by each riding, which means the author will be extrapolating the correlation between candidates and public opinion through regions and not ridings[1].

[1] This is a limitation to the study. The resources needed to survey enough people in each riding to be statistically significant would be astronomical. Something most public opinion polling companies will not do for free. As this is a master's thesis being completed under a strict timeline with no funding, the author is grateful for the data Nanos Research provided her and understands the limitations that comes with the dataset. If this study were to be expanded in the future, the author would likely seek funding to get more granular public opinion polling data.

Figure 2

Relational database model



5 Data Analysis Techniques

In reviewing the literature, the author saw five themes emerge in how social media is used to gain support, donations and votes. Those themes are: (i) a candidate's general presence on social media, (ii) the way a candidate engages with its followers, (iii) the popularity of the candidate's social posts, and (iv) the financial investment a candidate puts into its social advertising. All these factors seem to influence election outcomes. These five themes are the basis of the statistical analysis the author has set up for this study. Each analysis is outlined below.

5.1 General presence on social media

Francoli et al. (2016) describes that politicians have been able to use social media to bypass traditional gatekeepers and go directly to its audience. The first analysis will compare the general presence of a candidate on social media. This includes how often a candidate posts on their social channels – Twitter, Facebook and Instagram. This is the independent variable. The dependent variable is election outcomes – whether the candidate won or lost, donations made to a candidate's riding, and public opinion polling on the LPC.

5.2 Ways to engage

Text, photos, and videos can all affect the way an audience engages with political content (Marland, 2016). The second analysis compares the type of social post – i.e. whether it is a retweet, has a photo or video attached, etc. – with the same dependent variables above. This analysis uses data from Twitter and Instagram only. As stated earlier, the Facebook API was limited in its data, and the author was unable to get post type.

5.3 Popularity of social posts

It is always difficult to get the attention of a voter online. As Geere's (2010) study revealed, most social posts go unnoticed. Fueled by the algorithms of social channels, popularity of social posts seems to be key to a candidate's success. The third analysis tests this hypothesis by looking at the popularity of a post – i.e. comment count, like/favourite count, impressions, etc. These independent variables are compared to the same dependent variables above – election results, donations and public opinion polling.

5.4 Investment in social media

Burke's (2019) analysis of the NDP and their ability to use social media ads to increase their public image was one example of how investment in social media advertising can help win an election. The fourth analysis compares the dollars spent on Facebook ads and the same dependent variables – election results, donations and public opinion polling. This analysis is of Facebook only, as the author was unable to get information on Twitter or Instagram ads.

5.5 Statistical analysis

Stacks (2017) argues that statistics allows a researcher to determine whether a relationship exists between variables and whether there is a correlation between those variables. In this study the author attempts to find relationships between social media variables and election outcomes.

In setting up a statistical experiment, one must categorize all variables into levels of measurement. This helps the author determine which statistical equation can be used when comparing variables. There are four levels of measurement present in this study. They are nominal variables, ordinal variables, interval variables and ratio variables. As described by Stacks (2017), nominal variables are non-numeric categories that are exclusive of each other,

such as gender, province, etc. Ordinal variables are categories that can be ranked or ordered and are also exclusive, such as age (Stacks, 2017). Interval and ratio variables assume "that the distance between observations are equal all along the continuum" (Stacks, 2017, p.42). However, ratio variables have an absolute zero. Appendix A outlines each variable found in the data set and assigns its level of measurement. Once the variables are categorized into levels of measurement, the author can move to the next step: using mathematical equations to assess the magnitude of the relationship between two variables.

The author relies on four statistical equations to calculate the relationships between each variable: chi-square, t-test, correlation and regression.

5.5.1 Chi-square

Stacks (2017) explains that chi-square is one of the statistical tests most often found in public relations. Chi-square compares observed and expected values. Chi-square requires nominal or ordinal variables. The equation is:

$$x^2 = \sum \frac{(o-e)^2}{e}$$

The equation yields a result that will determine the magnitude of the relationship between two or more variables. It does not, on the other hand, reveal the direction of the relationship – i.e. if one variable increases, the other increases at the same rate.

5.5.2 T-test

The t-test is a parametric statistic, which looks for "differences between two and only two groups" (Stacks, 2017, p. 122). T-test is used when a nominal or ordinal variable is compared with an interval or ratio variable. The mathematical equation is:

$$t = \frac{(\bar{x}_1 - \bar{x}_2)}{\hat{\sigma}_{(\bar{x}_1 - \bar{x}_2)}}$$

The equation finds the difference between the means of each group. The result is compared against the t-value, which concludes with 95 percent confidence if there is a relationship between the two variables (Stacks, 2017). Again, as with chi-square, t-test only reveals magnitude of a relationship and not direction.

5.5.3 Correlation

The author also uses correlation. Correlation measures the direction and magnitude of a relationship. However, to use correlation, one requires two interval or ratio variables. This equation is also known as the Pearson *r*, and is outlined below (Stacks, 2017):

$$r = \frac{\sum(x - \bar{x})(y - \overline{y})}{\sqrt{\sum(x - \bar{x})^2 \sum(y - \bar{y})^2}}$$

Correlation reveals how closely each datapoint is to a best-fit line. The closer the data are to the best-fit line, the stronger the correlation, the more spread out they are, the weaker the correlation. When a strong correlation is discovered, researchers can then use the best-fit line to predict future values of the dependent variable given a new value of the independent variable.

5.5.4 Regression

Regression analysis allows the author to compare a dependent variable with one or more independent variables. Stacks (2017) describes this advanced statistics method as a way to "establish significant relationships between variables and then examines the correlation between variables to seek predictions of outcomes" (p. 309). The type of regression the author uses in this study is also known as multiple regression. The equation used is:

$$Y = \alpha \pm b_1 x_1 \pm b_2 x_2 \pm \ldots \pm b_n x_n$$

For the purpose of this study, the author will be using this equation to analyze the presence of a relationship or correlation between variables. She will not be building predictive equations to predict outcomes.

In all the cases above, the author is performing two-tailed tests. This means the author is working with a 2.5 percent error, rather than a one-tailed 5 percent error. Stacks (2017) warns against one-tailed tests, because they leave the researcher's results up for debate. One-tail tests only test relationships between two variables in one direction. Two-tailed tests look at the entire spectrum. While this does mean it is harder to obtain a positive relationship with only a 2.5 percent error, when a relationship is found, the author has great confidence the relationship exists.

5.5.5 Controls

Additionally, the author has also put in controls. The author runs additional analyses on variables like province and riding category, to ensure that any strong relationships can rightfully be attributed to the independent variable and not some other variable that might be skewing the results. These analyses don't require additional equations, but it is the author simply comparing results from one province to another, to see provincial difference.

This study has a lot of moving parts, many levels of measurements and multiple equations. To summarize the analysis, the author has outlined each statistical experiment in Appendix B. In keeping with norms of statistical experiments, the author also included the null hypothesis so the reader can understand exactly what is being tested. The goal is to reject the null hypothesis, which would reveal that the independent variable has a strong relationship with the dependent variable.

6 Results and Findings

The results and findings section of this report is divided by research question. The goal is to answer what social media variables have a relationship with election results, donations and public opinion. Therefore, naturally the author divided her analysis in three parts: (i) election results, (ii) donations and (iii) public opinion.

As described in the methodology, when doing the statistical analysis for each topic, the author combined variables based on themes that surfaced in the literature review. The themes are (i) the presence of a candidate on social media, (ii) the ways a candidate engages on social media, (iii) the popularity of a candidate's posts and (iv) the investment put into social ads.

According to Boslaugh and Watters (2008), the common practice in statistical analyses is that a significance value is when *p* is set at .05. While this method is being challenged by some scholars, it remains the most popular method for analysing a statistically significant relationship (Boslaugh & Watters, 2008). In this study, the author follows this common practice. Results less than .05 indicate there is a significant relationship between variables.

For further details, the reader can refer to Appendix C to review all results tables.

6.1 Election results

When analysing election results, the author put variables in two groups – the variables that were tied to a candidate who won their seat in the House of Commons, and variables tied to a candidate who lost. In other words, all social media variables are added up to give a total per candidate. For example, there is one total for likes on Instagram per candidate, one total of retweets per candidate, etc. From there, the author was able to compare all the candidates who won and their social media variables, to all the candidates who lost and their social variables.

6.1.1 Presence on social media

To analyse the presence on social media, the author compared the frequency of posting on each social channel (a ratio level variable) with election results[2] (nominal level variable). The author used the t-test statistic in the following analyses of ratio and nominal variables.

There was no relationship between how many times a candidate posted on their social media profiles and whether or not they won the election. The number of tweets a candidate posted did not associate with election results, $t(263) = -1.76$, $p = .08$, neither did the number of Facebook ads, $t(201) = -1.01$, $p = .31$, nor the number of Instagram posts, $t(241) = -1.18$, $p = .24$.

Granted, there were a few outliers. Three candidates who posted more often than their peers – more than double other candidates – all won their seats in the House of Commons. Catherine McKenna, Carolyn Bennett, Adam Vaughan and Justin Trudeau all tweeted more than a thousand times and all won in their ridings. Trudeau posted more than 6,000 Facebook ads, 60 times any other candidate and won his riding. It is important to note that Catherine McKenna, Carolyn Bennett, Adam Vaughan and Justin Trudeau all had high ranking positions in the Liberal caucus, which also could affect their ability to win. Catherine McKenna and Carolyn Bennett were both ministers, Adam Vaughan was the parliamentary secretary to the Prime Minister and Justin Trudeau was the Prime Minister. However, the same was not true for Instagram. The top two most frequent posters on Instagram were Estelle Hjertaas and Nirmala Naidoo, who both lost their riding.

To triangulate her results the author also redid the calculations for each province and riding type. The number of candidates in smaller provinces did mean that sample sizes shrunk down quite a bit for some of the calculations, especially for New Brunswick and Manitoba,

[2] In her calculations, the author indicated wins as a 1 and losses as a 0.

N = 5 and *N = 8* respectfully. The author also could not do calculations for all provinces. Alberta and Saskatchewan had no candidate who won, which meant no comparison could be made. The same went for Newfoundland, Nova Scotia, North West Territories, Prince-Edward Island and Yukon, where all candidates running in these provinces won.

For riding type, the author separated candidates into three categories: safe, swing and unlikely. The author could not conduct a calculation for unlikely ridings, as all unlikely ridings ended in a loss. The results are divided by social channel below.

6.1.1.1 Twitter by region and riding type

There was no significant association between election results and the frequency of posting on twitter by candidates in British Columbia, $t(36) = -1.14$, $p = .27$, by candidates in Manitoba, $t(8) = -1.46$, $p = .28$, by candidates in New Brunswick, $t(6) = -.37$, $p = .74$, by candidates in Ontario, $t(115) = -.83$, $p = .41$, and by candidates in Québec, $t(54) = -1.88$, $p = .07$. Québec was the closest to $p < .05$. In Québec, 57.4 percent of candidates won their riding. On average, each candidate who won in the province also tweeted 1.9 times more than those who lost.

There was also no significant association between the frequency of tweeting by candidates in safe ridings, $t(69) = -1.00$, $p = .39$, and by candidates in swing ridings, $t(168) = -1.56$, $p = .12$, and election results.

6.1.1.2 Facebook by region and riding type

There was no significant association between election results and the frequency of publishing Facebook ads by candidates in British Columbia, $t(28) = -.35$, $p = .73$, by candidates in Manitoba, $t(6) = 1.31$, $p = .28$, by candidates in New Brunswick, $t(7) = .98$, $p = .37$, by candidates in Ontario, $t(85) = -.06$, $p = .95$, and by candidates in Québec, $t(46) = -1.02$, $p = .32$.

There was also no significant association between the number of Facebook ads run by candidates in safe ridings, $t(49) = -.86$, $p = .40$, and by candidates in swing ridings, $t(138) = -.37$, $p = .71$, and election results.

6.1.1.3 Instagram by region and riding type

There was no significant association between election results and the frequency of posting on Instagram by candidates in British Columbia, $t(34) = -1.10$, $p = .29$, by candidates in Manitoba, $t(8) = -.33$, $p = .75$, by candidates in New Brunswick, $t(5) = -1.50$, $p = .23$, by candidates in Ontario, $t(103) = -.22$, $p = .82$, and by candidates in Québec, $t(57) = -1.80$, $p = .08$. Québec was the closest to showing a relationship between the variables. In Québec, 56.1 percent of candidates won their riding. On average, each candidate who won in the province also posted on Instagram 1.5 times more than those who lost.

There was also no significant association between the frequency of posting on Instagram by candidates in safe ridings, $t(64) = 1.12$, $p = .46$, and by candidates in swing ridings, $t(161) = -1.54$, $p = .13$, and election results.

6.1.1.3.1 Summary of relationships

All in all, there was no significant relationship between the frequency of posting on social media and election results. However, there were a few strong relationships that were just a few decimal points away from a significant relationship. Both instances were in Québec where the more candidates posted on Twitter or Instagram, the more likely they were to win the election. On average, Québec Liberal candidates who won posted 1.5 times more on Instagram, and 1.9 times more on Twitter than those who lost.

Table 1

Summary table: significant relationships – presence on social media

Independent variable	Dependent variable	Direction of relationship[3]	*N*	*t*	*p*
Frequency of posting on Twitter in Québec	Election results	Positive	54	-1.88	.07
Frequency of posting on Instagram in Québec	Election results	Positive	57	-1.80	.08

Note: * $p < .05$, ** $p < .01$, two tailed.

6.1.2 Ways to engage

The author then looked at social media variables that indicated the way candidates engaged on social media. The analysis compares election results, two groups that are nominal variables, and different groups of tweets and Instagram posts, which are also nominal variables. The author used the chi-square statistic in the following analyses of these variables. The analysis is divided by social channel below.

6.1.2.1 Twitter: types of tweets

First the author looked at the type of tweets a candidate posts, be it a native tweet (something they wrote and published directly on their feed), a quote (grabbing someone else's tweet and adding a comment), a reply (commenting directly on someone else's tweet), or a retweet (sharing someone else's tweet without any comment). She compared the groups to election results to see if one type of tweet had a stronger relationship with winning or losing.

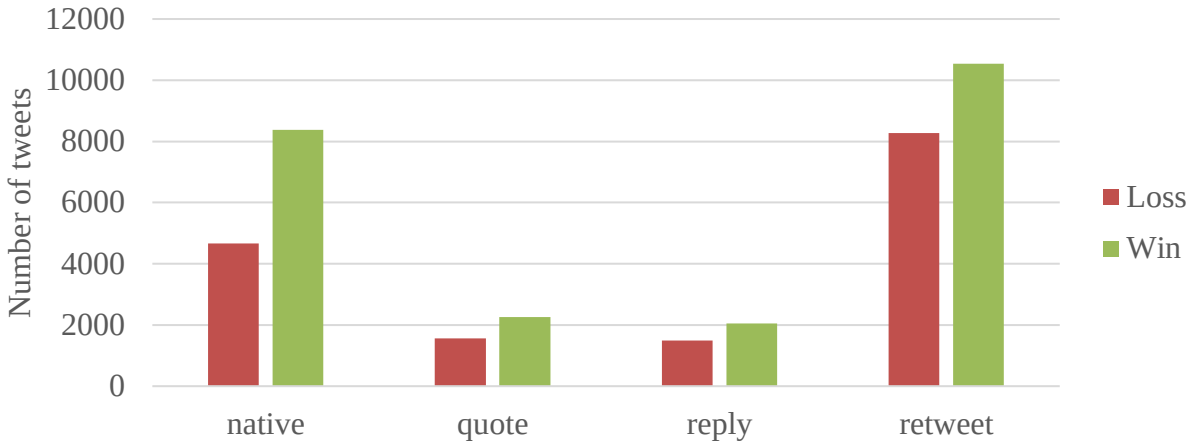
The relationship between the type of tweeting done by Liberal candidates and election results was significant, X^2 (3, N = 39,204) < .000. With chi-square, one must compare the α to the p value, which remains $p < .05$. In this case, $\alpha < .05$, therefore there is a relationship. But the

[3] As mentioned in the methodology, t-test cannot determine directionality of relationship. This was inferred by taking the group (win vs loss) that more closely associated with the variable.

author dug further to see if one type of tweet had a stronger relationship than others. Both native and retweets returned an $\alpha < .05$, quotes and replies did not. Visually, this can be seen in figure 3. Winning candidates posted significantly more native tweets and retweets than those that lost.

Figure 3

Type of tweets, by win and loss

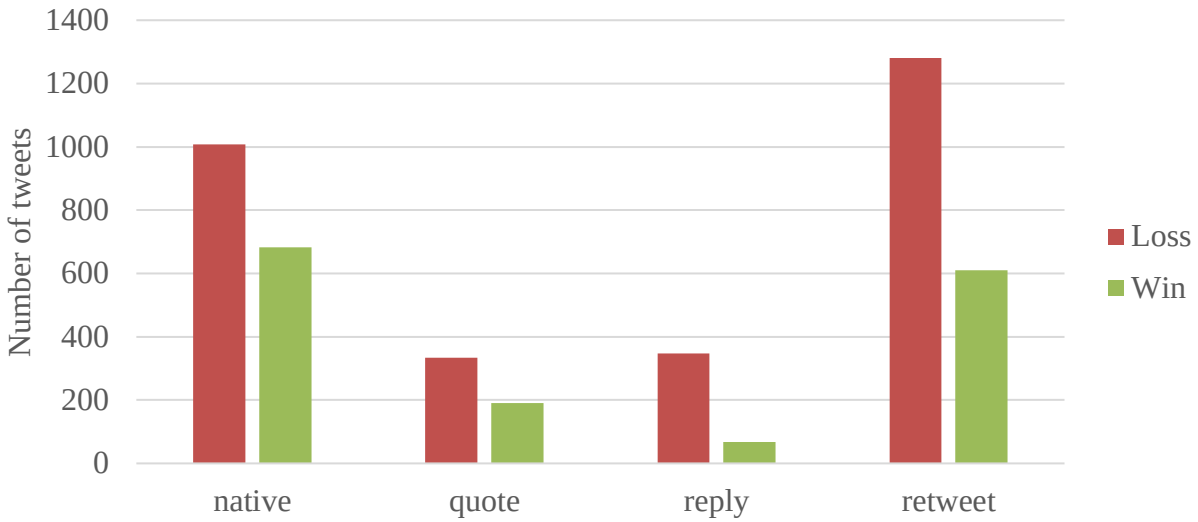


The author also triangulated her results by doing the same analysis for each province and riding type[4]. All provinces returned an $\alpha < .05$, reinforcing there is a significant relationship between the way a candidate tweets and whether they win or lose. In British Columbia, native and reply tweets returned an $\alpha < .05$. However, unlike the previous finding, those that posted more native tweets and replies to other tweets were more likely to lose their seat in the House of Commons, as can be seen in figure 4.

[4] Once again, the author was unable to do calculations for Alberta, Nova Scotia, North West Territories, Prince-Edward Island, Saskatchewan and Yukon, because their entire province either won or lost, leaving nothing to compare. The same issue occurred when doing calculations per riding type, as all candidates in unlikely ridings lost.

Figure 4

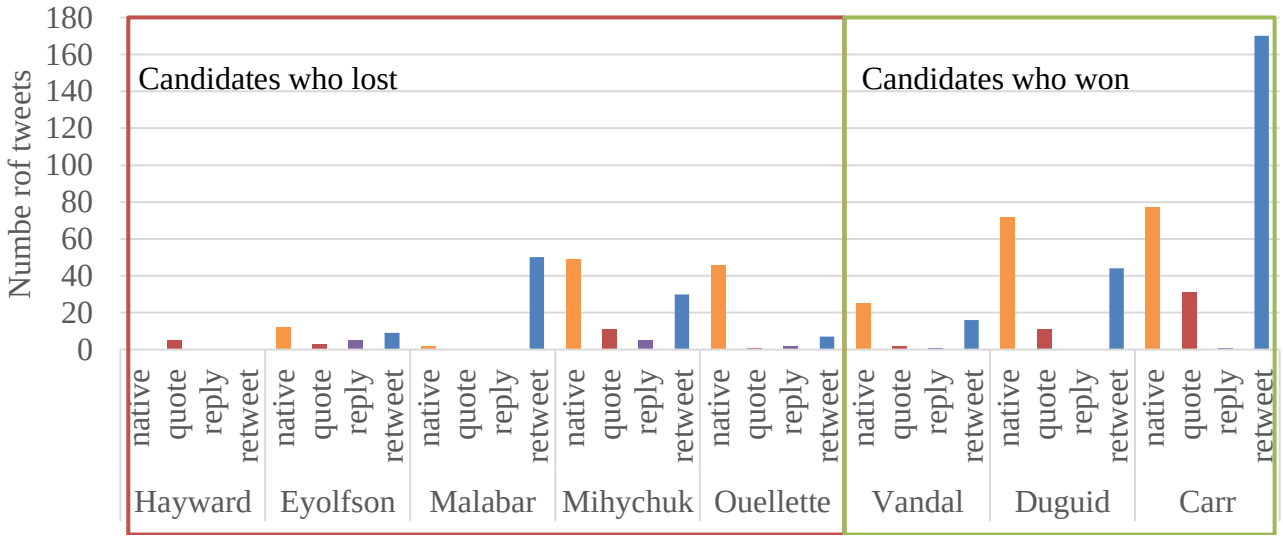
Type of tweets in British Columbia, by win and loss



In Manitoba, only reply tweets returned an $\alpha < .05$. There were so many more candidates who tweeted replies and lost than those that won. However, if we take a step back and look at the general activity of candidates in Manitoba, one can see that candidates who were more active, regardless of how they tweeted were more likely to win, see figure 5.

Figure 5

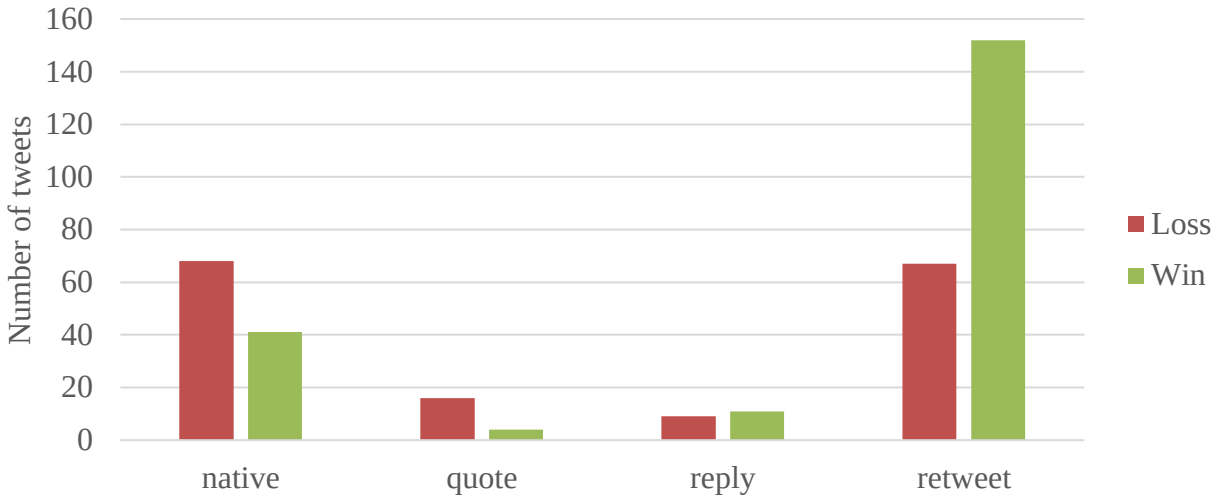
Type of tweets by candidates in Manitoba, and by election result



In contrast, in New Brunswick, all types except replies returned an $\alpha < .05$. As one can see in figure 6, candidates who lost were more likely to post native tweets or quote others, while candidates who won were significantly more likely to retweet.

Figure 6

Type of tweets in New Brunswick, by election result

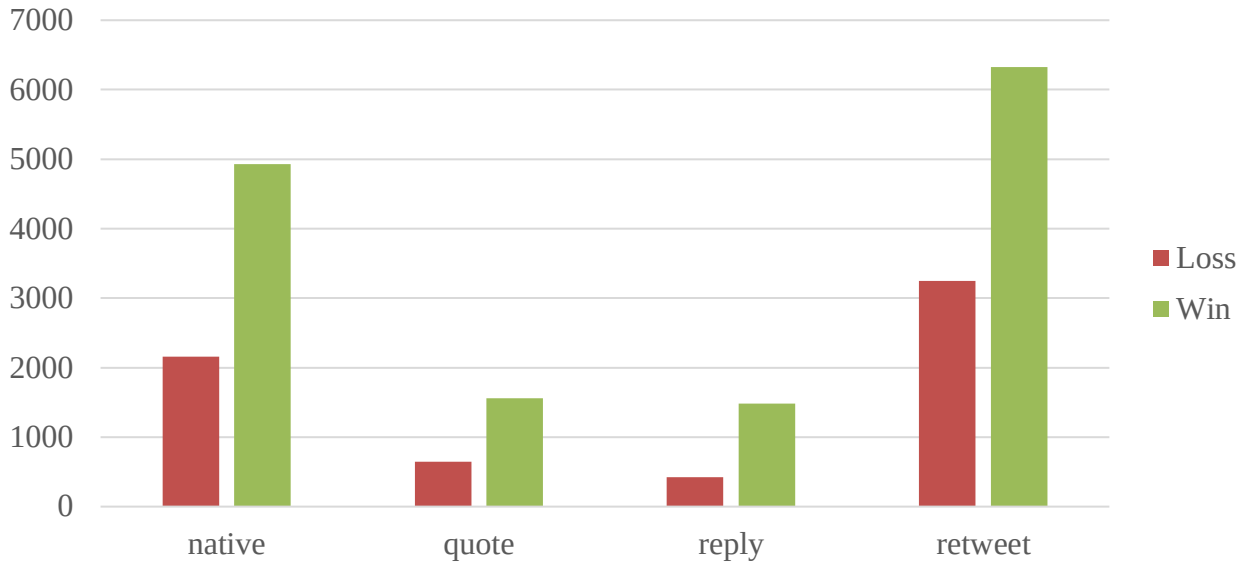


In Newfoundland, all except retweets returned an $\alpha < .05$. However, a problem arose with the calculations in Newfoundland, only one candidate lost in the province. That one candidate, Nick Whalen, also happened to be the most active on Twitter, retweeting, replying and posting native tweets more than any other candidate in the province. So, while the alpha indicates a relationship, the author is cautious about giving this result too much weight.

In Ontario, retweets and replies returned an $\alpha < .05$. Candidates who won were significantly more likely to post replies and retweets than those who lost, as seen in figure 7. While those who posted native and quote tweets were also more likely to win, the relationship wasn't significant. However, in general, one can deduce from the data that the more active you were in Ontario on Twitter, the more likely you were to win. In fact, candidates in Ontario who won their seat tweeted 1.2 times more than those that lost.

Figure 7

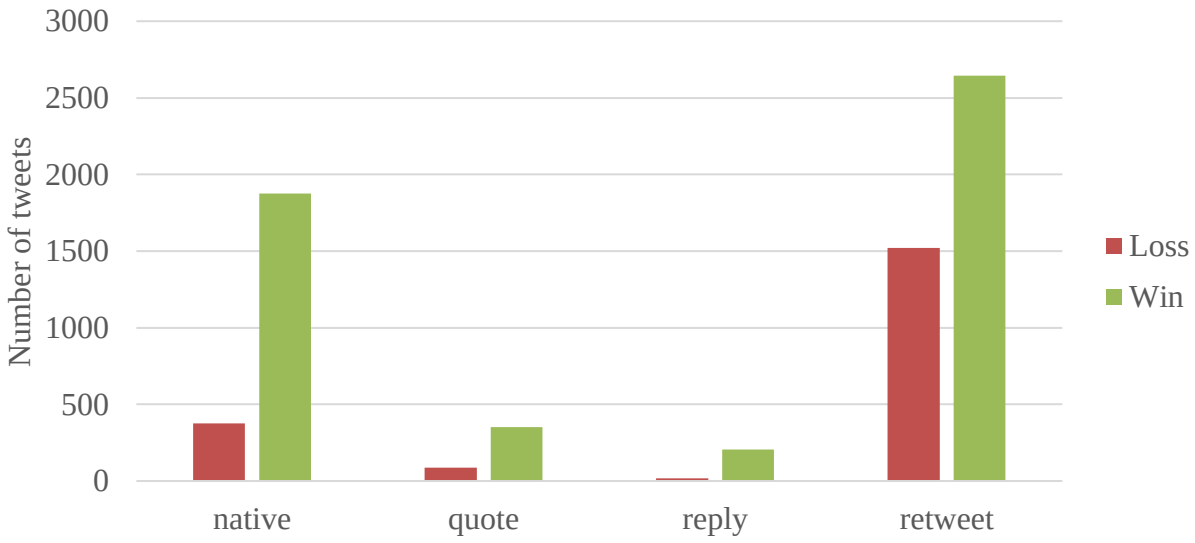
Type of tweets in Ontario, by election results



Finally, in Québec, all types of tweets returned an $\alpha < .05$. Like Ontario, those who were more active on Twitter, were more likely to win. In fact, in Québec, those who won tweeted more than two times those who lost, as can be seen in figure 8.

Figure 8

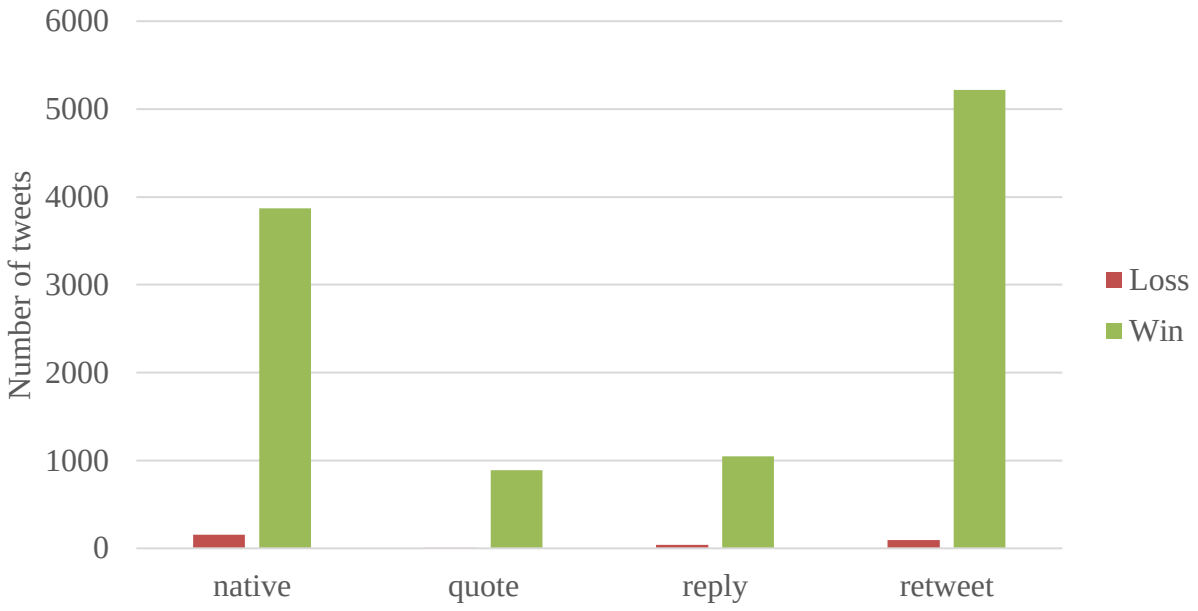
Type of tweets in Québec, by election results



The author also triangulated her result by doing the same calculations by riding type. All except replies in safe ridings returned an $\alpha < .05$, indicating a strong relationship between the way candidates in safe ridings tweet and whether a candidate wins or losses the election. Looking at figure 9, these data indicate that the more candidates tweet native tweets, quoted tweets, reply tweets and retweets, the more likely they are to win. However, this result should be taken with some scepticism. Only three out of 69 candidates in safe ridings lost their riding's election. Apart from Ralph Goodale, a long-time Liberal MP, who also happen to be a cabinet Minister, candidates in safe ridings that lost were not active on Twitter. Not to mention, based on these data, candidates in safe ridings tweeted 1.7 times more than those that lost. Figure 9 really shows the disparity between the two groups.

Figure 9

Types of tweets in safe ridings, by election results



6.1.2.1.1 Summary of significant relationships

In summary, each type of tweet returned a significant relationship at least once. Yet, native and retweets were the only ways of tweeting that had a significant relationship with election results for all candidates. Quoted tweets were the least likely to return a significant relationship.

The direction of the relationships differed greatly[5]. Overall, there were more positive relationships. Native, reply and quoted tweets were evenly split, for every time native tweets returned a significant positive relationship there was also a negative relationship. Retweets were the only tweets that continuously indicated a positive relationship. Meaning retweets are more closely associated with winning the election. Table 2 below recaps all the relationships that resulted in a statistically significant association.

Table 2

Summary table: significant relationships - types of tweets

Independent variable	Dependent variable	Direction of relationship	*N*	X^2
Native tweets				
Liberal candidates who posted native tweets	Election results	Positive	13,035	.000**
British Columbia Liberal candidates who posted native tweets	Election results	Negative	1689	.000**
New Brunswick Liberal candidates who posted native tweets	Election results	Negative	109	.000**
Québec Liberal candidates who posted native tweets	Election results	Positive	2254	.000**
Retweets				
Liberal candidates who posted retweets	Election results	Positive	18,804	.000**
New Brunswick Liberal candidates who posted retweets	Election results	Positive	219	.000**
Ontario Liberal candidates who posted retweets	Election results	Positive	9578	.000**
Québec Liberal candidates who posted retweets	Election results	Positive	4167	.000**

[5] Chi-square statistic does not measure directionality of relationship. This was inferred by looking at the group (win vs loss) that more closely associated with the social media variable.

Replies				
British Columbia Liberal candidates who posted replies on Twitter	Election results	Negative	415	.000**
Manitoba Liberal candidates who posted replies on Twitter	Election results	Negative	14	.001*
Ontario Liberal candidates who posted replies on Twitter	Election results	Positive	1908	.000**
Québec Liberal candidates who posted replies on Twitter	Election results	Positive	223	.001*
Quoted tweets				
New Brunswick Liberal candidates who quoted others on Twitter	Election results	Negative	20	.009*
Québec Liberal candidates who quoted others on Twitter	Election results	Positive	439	.000**

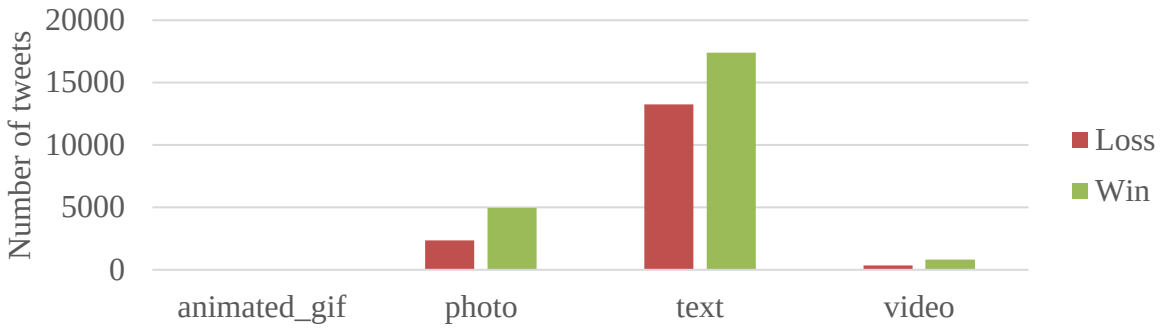
Note: * X^2 = < .05. ** X^2 < .000.

6.1.2.2 Twitter: media types

The author also looked at types of media attached to a tweet to see if media had a relationship with election results. The relationship between the type of media on tweets by Liberal candidates and election results were significant, X^2 (3, N = 39,181) < .000. The author then looked at each individual type of media to see if one had a greater relationship than others. Other than GIFs, all media types returned an $\alpha < .05$. As one can see in figure 10, tweets with photos and videos were associated more with candidates that won. However, so did text-based tweets, or tweets with no media. In fact, while all three media types – text-based, photo and video – returned an $\alpha < .05$, text-based tweets returned the strongest relationship.

Figure 10

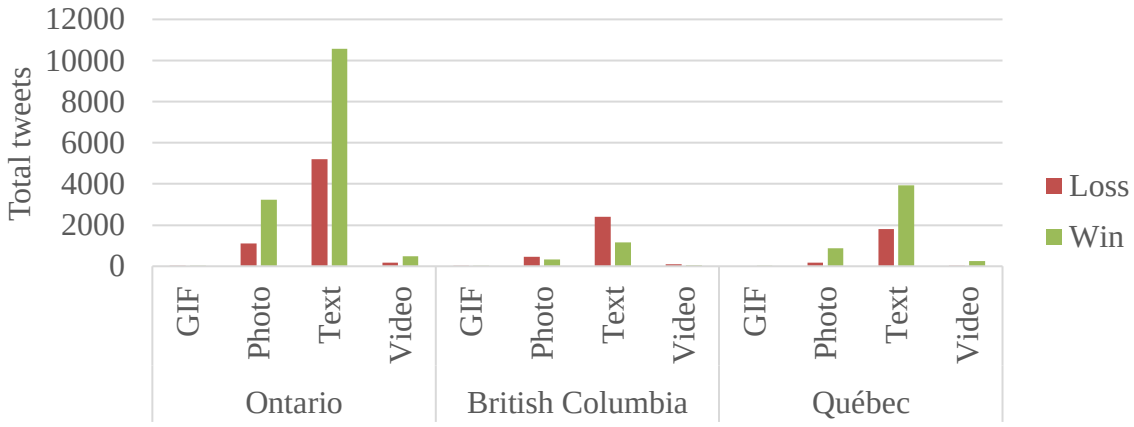
Media types on tweets, by election results



By province, Manitoba was the only province to not return an $\alpha < .05$. There was a significant relationship in British Columbia, X^2 (3, N = 4,516) < .000, Ontario, X^2 (3, N = 20,765) < .000, and Québec, X^2 (3, N = 7,083) < .000, between the type of media attached to a tweet and election results. Further, both tweets with photos and text-based tweets returned an $\alpha < .05$. In Ontario and Québec only, videos also returned an $\alpha < .05$. Figure 11 shows that those who posted text-based tweets and tweets with photos were more likely to lose the election in British Columbia but win in Ontario and Québec. And those posting videos in Ontario and Québec were also more likely to win.

Figure 11

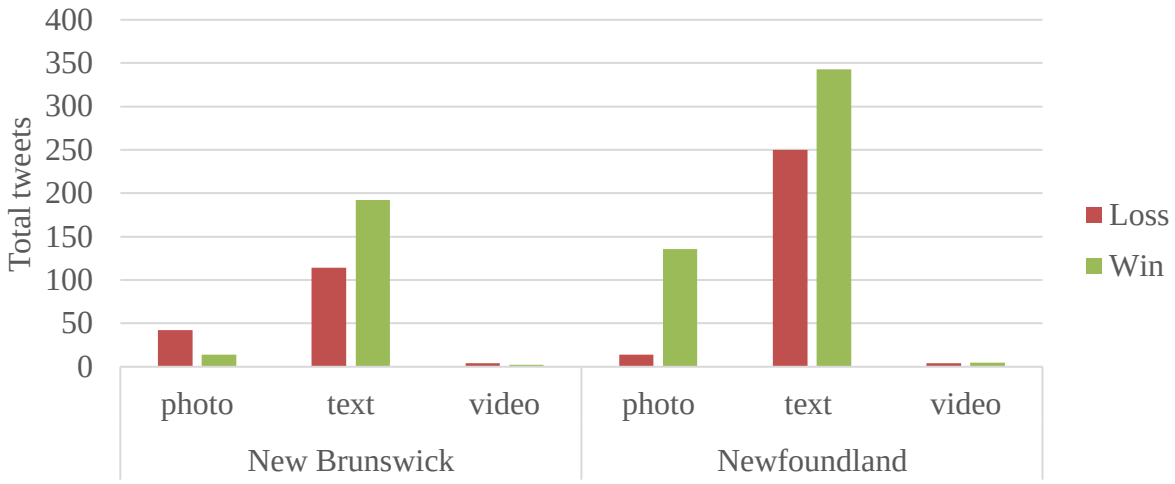
Media type on tweets in British Columbia, Ontario and Québec, by election type



New Brunswick and Newfoundland both returned an $\alpha < .05$. In addition, both photo and text-based tweets for both provinces returned an $\alpha < .05$. In these provinces, no candidate posted a GIF, which is why it wasn't included in this analysis. Based on these data in figure 12, candidates who posted text-based tweets, were more likely to win. In New Brunswick, posting photos was closely associated with losing, and in Newfoundland the opposite was true, posting photos was associated with winning.

Figure 12

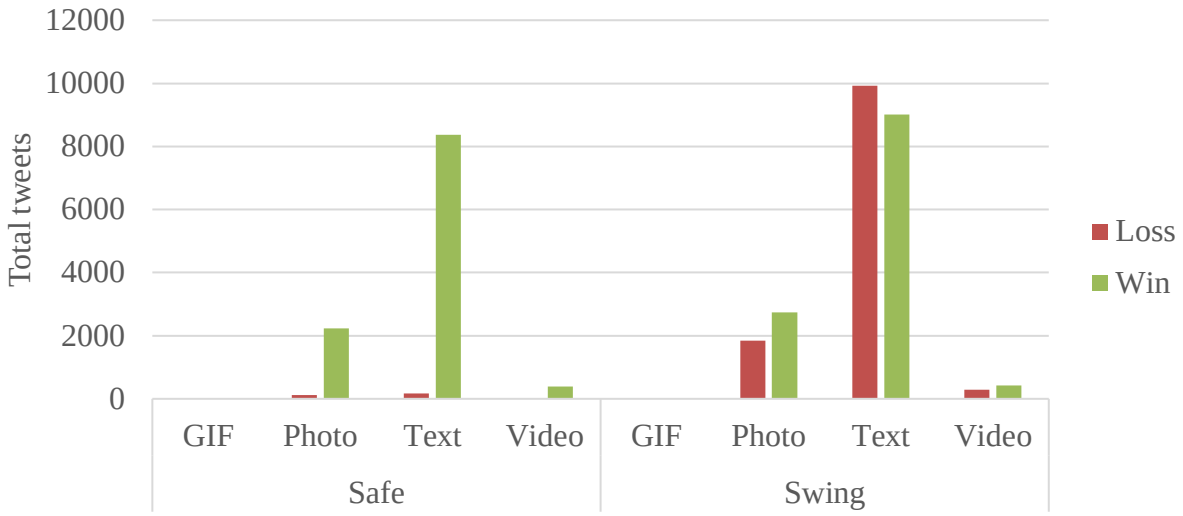
Media types on tweets in New Brunswick and Newfoundland, by election results



When the author looked at results by riding type, all returned an $\alpha < .05$. In safe ridings, only photos and text-based tweets returned an $\alpha < .05$. While in swing ridings, photos, text and video-based tweets returned an $\alpha < .05$. As can be see in figure 13, tweets with photos were more associated with candidates that won in safe and swing ridings. Text-based tweets, on the other hand were different. In safe ridings, text-based tweets were associated with winning candidates, while more associated with losing candidates in swing ridings.

Figure 13

Media types on tweets in safe and swing ridings, by election results



6.1.2.2.1 Summary of significant relationships

In summary, all except GIFs returned a significant relationship with elections results. Photos and text-based tweets were more likely to have a significant association with election result. Photos and text-based tweets associated more with winning, except for in British Columbia and New Brunswick where both types of tweets associated more with losing the election. In all cases, videos had a significant positive relationship with election results, meaning posting more videos was always associated with winning the election.

And while text-based tweets, or tweets without any media, had significant relationships with election results, tweets with media – be it photo or video – were more often associated with winning the election. This indicates the strength of attaching multimedia to a tweet.

Table 3

Summary table: significant relationships - types of media on tweets

Independent variable	Dependent variable	Direction of relationship[6]	N	X^2
Photos				
Liberal candidates who tweeted photos	Election results	Positive	7317	.000**
British Columbia Liberal candidates who tweeted photos	Election results	Negative	785	.000**
Ontario Liberal candidates who tweeted photos	Election results	Positive	4348	.000**
Québec Liberal candidates who tweeted photos	Election results	Positive	1047	.000**
New Brunswick Liberal candidates who tweeted photos	Election results	Negative	56	.000**
Newfoundland Liberal candidates who tweeted photos	Election results	Positive	150	.000**
Liberal candidates in safe ridings who posted photos	Election results	Positive	2348	.000**
Liberal candidates in swing ridings who posted photos	Election results	Positive	4592	.000**
Videos				
Liberal candidates who tweeted videos	Election results	Positive	1187	.000**
Ontario Liberal candidates who tweeted videos	Election results	Positive	639	.015*
Québec Liberal candidates who tweeted videos	Election results	Positive	266	.000**
Liberal candidates in swing ridings who posted videos	Election results	Positive	715	.000**
Text-based				
Liberal candidates who posted text-based tweets	Election results	Positive	30643	.000**
British Columbia Liberal candidates who posted text-based tweets	Election results	Negative	3585	.000**
Ontario Liberal candidates who posted text-based tweets	Election results	Positive	15758	.000**
Québec Liberal candidates who posted text-based tweets	Election results	Positive	5766	.000**
New Brunswick Liberal candidates who posted text-based tweets	Election results	Positive	306	.000**
Newfoundland Liberal candidates who posted text-based tweets	Election results	Positive	593	.000**
Liberal candidates in safe ridings who posted text-based tweets	Election results	Positive	8541	.000**
Liberal candidates in swing ridings who posted text-based tweets	Election results	Negative	18938	.000**

[6] Chi-square statistic does not measure directionality of relationship. This was inferred by looking at the group (win vs loss) that more closely associated with the social media variable.

Note: * X^2 = < .05. ** X^2 < .000.

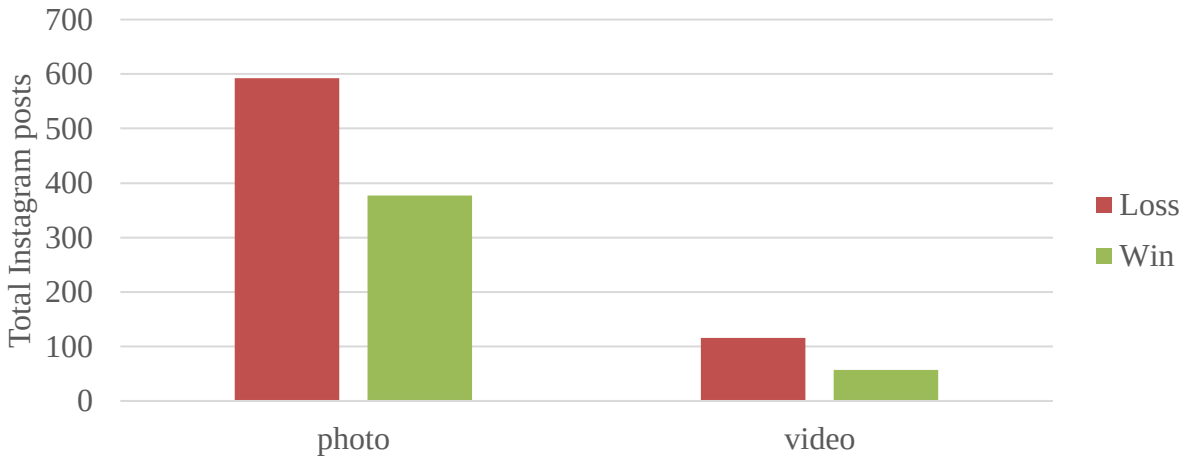
6.1.2.3 Instagram

The author then looked at the type of media posted on Instagram, be it a video or photo, which are the only two types of media that can be posted on the platform. The relationship between the type of media used for Instagram posts by Liberal candidates and election results were not significant, X^2 (1, N = 7,659) = .402.

By province, the relationship between the type of media used for Instagram posts and election results were also not significant in Manitoba, X^2 (1, N = 225) = .144, New Brunswick, X^2 (1, N = 146) = .465, Newfoundland, X^2 (1, N = 129) = .450, Ontario, X^2 (1, N = 3,955) = .175, and Québec, X^2 (1, N = 1,217) = .074. In British Columbia, on the other hand, a relationship was found, X^2 (1, N = 4,516) = .026. Figure 14 shows that candidates who concentrated on posting mainly photos were more likely to lose the election. In fact, candidates posting on Instagram in British Columbia were less likely to win the election overall. Out of the 34 candidates in British Columbia on Instagram, 67 percent of candidates lost.

Figure 14

Media type on Instagram posts in British Columbia, by election results



6.1.3 Popularity of social posts

When analysing the popularity of social media posts by candidates, the author looked at a total of eight variables. For both Twitter and Instagram, all independent variables were ratio level variables and were compared with the dependent variable – the election results, which is a nominal level variable. Therefore, t-test statistic was used to determine if there was a statistically significant relationship between variables.

Facebook was a little different. Data collected on impressions for Facebook ads were in impression groups, for example 0 to 5,000 impressions. Impressions is a nominal level variable, mainly because the categories did not always span the same distance between impression groups. Elections results are also nominal.

The same calculations were also done by province and riding type[7]. The results are presented by social media channel below.

6.1.3.1 Twitter

For twitter, there was no significant relationship between the number of favourites on a candidate's tweets, $t(263) = -1.35$, $p = .18$; the number of times a candidate's tweets were quoted, $t(263) = -1.50$, $p = .14$; the number of times a candidate's tweets were retweeted, $t(263) = -1.56$, $p = .12$; and the number of replies to a candidate's tweets, $t(263) = -1.50$, $p = .14$, and election results.

Again, to ensure province or riding type didn't have any bearing on results, the calculations were also done by province and riding type for each variable stated above. There was no significant relationship between the number of favourites on each tweet for candidates in British Columbia, $t(36) = -2.01$, $p = .07$; Manitoba, $t(8) = -.95$, $p = .44$, New Brunswick,

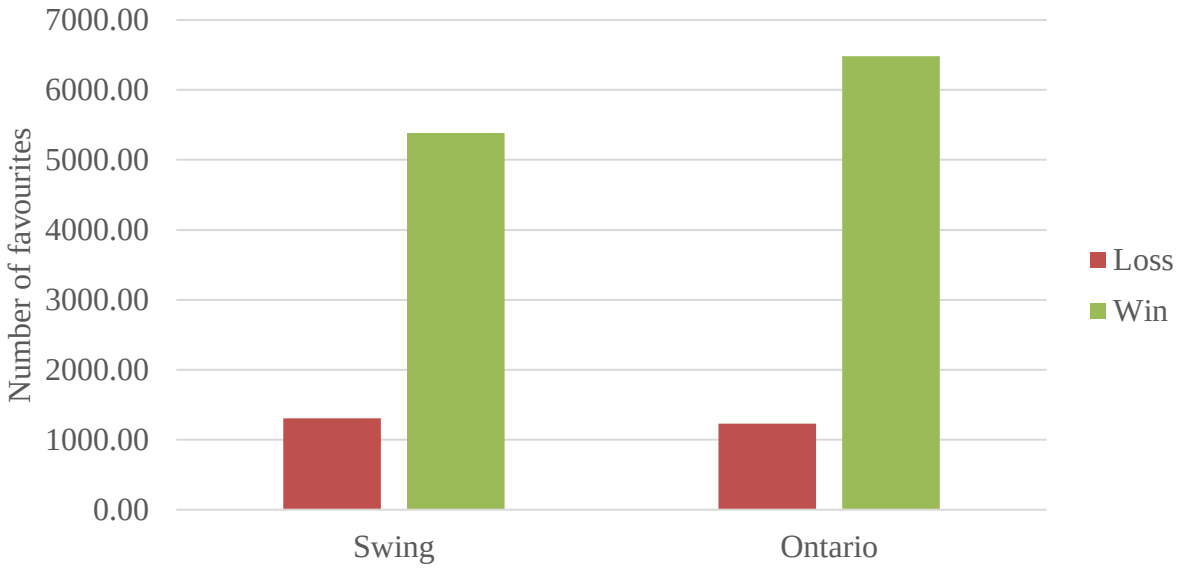
[7] For the same reasons stated in previous analyses, Alberta, Nova Scotia, North West Territories, Prince-Edward Island, Saskatchewan and Yukon, and the riding type unlikely, were not included in these analyses.

t(6) = -.06, *p* = .95, Québec, *t*(54) = -1.05, *p* = .30, and election results. There was also no significant association between the number of favourites on a candidate's tweets in a safe riding and election results, *t*(69) = -1.00, *p* = .32.

However, there was a significant relationship between the number of favourites on tweets and election results in Ontario, *t*(115) = -2.61, *p* = .01; and swing ridings, *t*(168) = -2.12, *p* = .04. In Ontario and swing ridings across the country, candidates who won received on average 5 times more favourites than those who lost. Figure 15 shows the significant different between candidates who won and the favourites they received on their tweets, and candidates who lost.

Figure 15

Number of favourites on tweets in Ontario and swing ridings

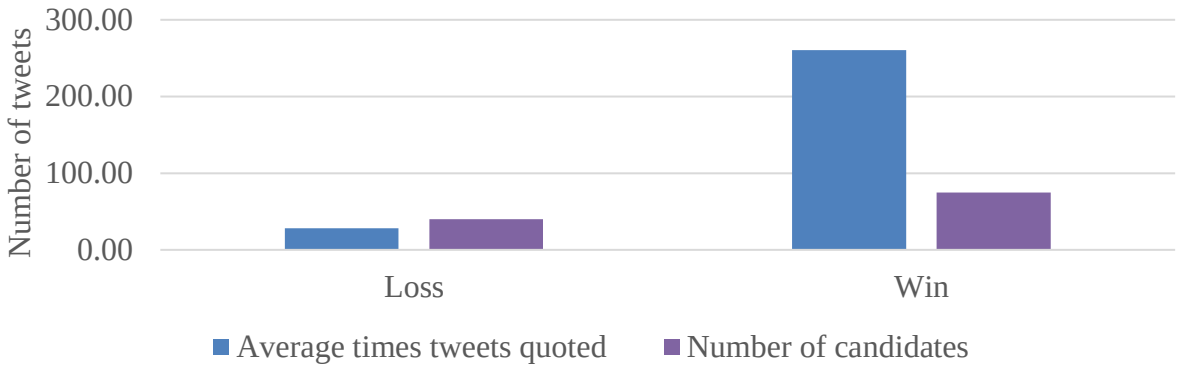


There was no significant relationship between the number of times a candidate's tweets were quoted in British Columbia, *t*(36) = -2.00, *p* = .07; Manitoba, *t*(8) = -.97, *p* = .44, New Brunswick, *t*(6) = .18, *p* = .86, Québec, *t*(54) = -1.11, *p* = .27, and election results. There was also no significant relationship between the number of tweets quoted and election results in safe ridings, *t*(69) = -1.06, *p* = .30, and swing ridings, *t*(168) = -1.76, *p* = .08.

Yet, there was a significant relationship between the number of times tweets were quoted for candidates in Ontario, $t(115) = -2.30$, $p = .02$, and election results. Tweets by those candidates in Ontario who won were quoted on average 9 times more than those who lost. Figure 16 shows the relationship visually. As one can see, even if there are more winning candidates in Ontario, the number of times a candidate's tweets are quoted are significantly more than those who lost.

Figure 16

Average times candidates' tweets are quoted, in Ontario

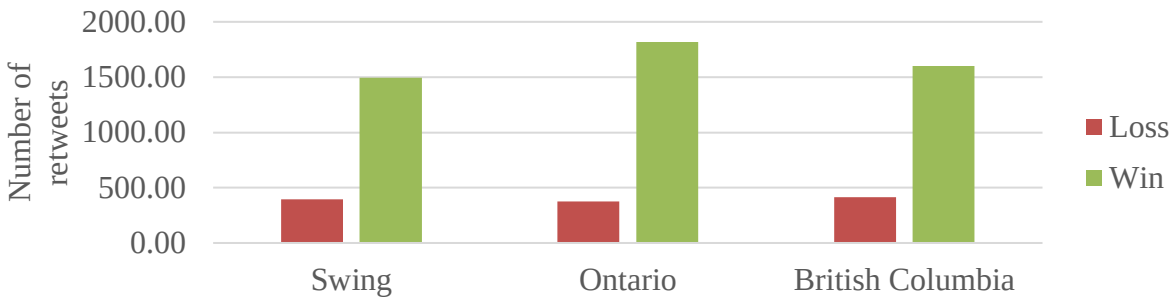


The was no significant relationship between the number of times a candidate's tweets were retweeted and election results in Manitoba, $t(8) = -.98$, $p = .43$; in New Brunswick, $t(6) = .04$, $p = .97$; and in Québec, $t(54) = -1.11$, $p = .28$, as well as safe ridings, $t(69) = -.96$, $p = .34$.

The number of times candidates in British Columbia, $t(36) = -2.23$, $p = .05$; in Ontario, $t(115) = -2.64$, $p = .01$, and in swing ridings, $t(168) = -2.10$, $p = .04$, were retweeted had an association with election results. In British Columbia, candidates who won were retweeted 3.8 more times than those who lost. In Ontario, candidates that won the election were retweeted 4.8 more times than those who lost. And in swing ridings, candidates that won were retweeted 3.7 more times than those who lost. Figure 17 shows this relationship visually.

Figure 17

Times candidates are retweeted in Ontario, British Columbia and swing ridings



There was no significant relationship between the number of replies to a candidate's tweets and election results in British Columbia, $t(36) = -1.72$, $p = .12$, in Manitoba, $t(8) = -.95$, $p = .44$; in New Brunswick, $t(6) = -.39$, $p = .73$; in Ontario, $t(115) = -1.94$, $p = .06$, and in Québec, $t(54) = -1.07$, $p = .29$, as well as safe ridings, $t(69) = -.99$, $p = .33$, and swing ridings, $t(168) = -1.51$, $p = .13$. While the relationship was not statistically significant, Ontario was close with a $p = .06$. In Ontario, candidates who won received 15 times more replies to their tweets than those who lost.

6.1.3.2 Instagram

For Instagram, there was no relationship between the number of likes on a candidate's posts, $t(241) = -1.10$, $p = .28$; the number of comments on a candidate's posts, $t(241) = -1.08$, $p = .28$; and the number of video views on a candidate's video posts, $t(173) = -1.05$, $p = .30$ and election results.

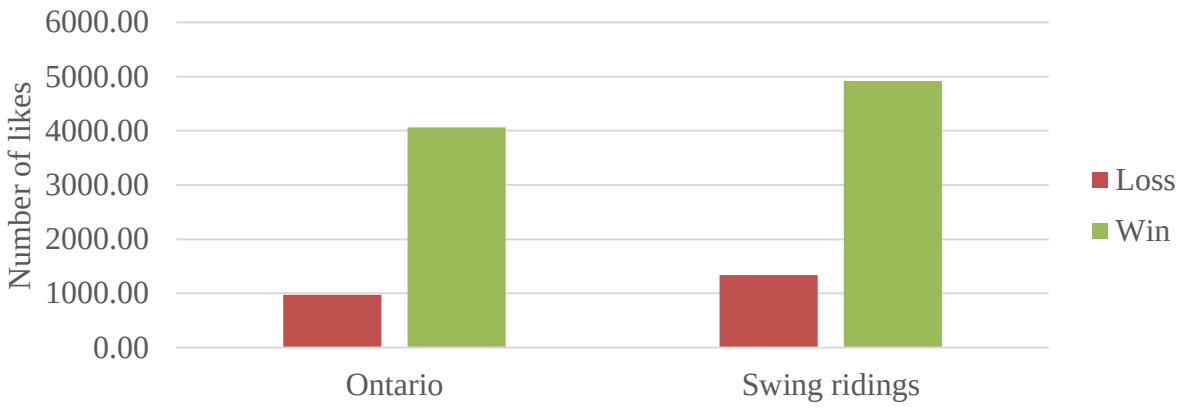
The calculations were also completed by province and by riding type to see if province or riding type had any bearing on results. There was no relationship between the number of likes on a candidate's posts and election results in British Columbia, $t(34) = -1.03$, $p = .33$, in Manitoba,

t(8) = -.07, *p* = .95; in New Brunswick, *t*(5) = -1.16, *p* = .33; in Québec, *t*(57) = -1.01, *p* = .32; and in safe ridings, *t*(64) = -1.00, *p* = .32.

However, there was a relationship between election results and the number of likes candidates received in swing ridings, *t*(161) = -2.32, *p* = .02; and a very strong relationship between the number of likes Ontario candidates' received, *t*(103) = -4.07, *p* < .000. As displayed in figure 18, candidates who won in Ontario received 4 times more likes as those who lost, and candidates in swing ridings who won received 3.6 times more likes.

Figure 18

Number of likes on candidates' Instagram posts in Ontario and swing ridings



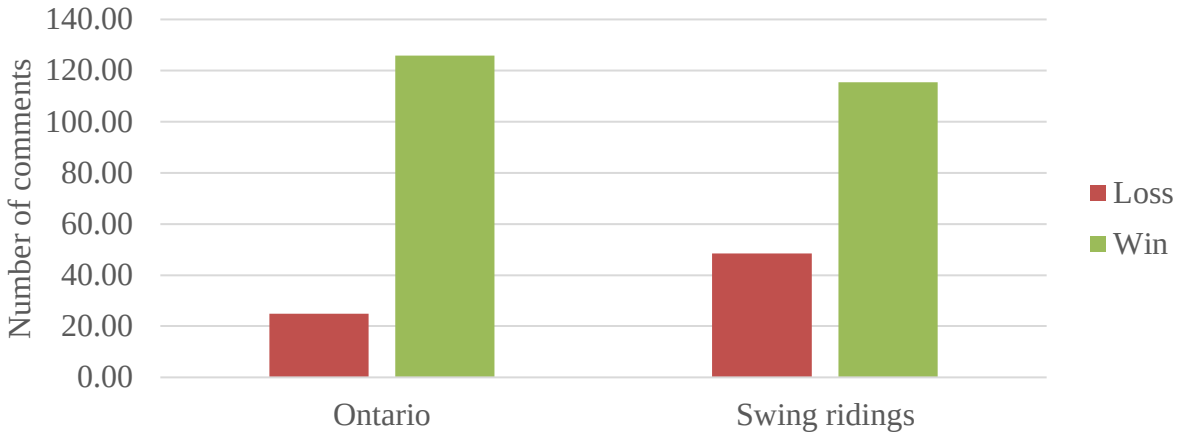
There was no relationship between the number of comments candidates received and election results in British Columbia, *t*(34) = -.35, *p* = .73, in Manitoba, *t*(8) = -.24, *p* = .82; in New Brunswick, *t*(5) = -.34, *p* = .77; in Québec, *t*(57) = -1.01, *p* = .32; and safe ridings, *t*(64) = -1.00, *p* = .32.

However, there was a relationship between election results and the number of comments candidates in swing ridings received, *t*(161) = -2.40, *p* = .02, and a very strong relationship between comments Ontario candidates received, *t*(103) = -4.30, *p* < .000. Figure 19 shows that in

Ontario, candidates who won received 5 times more comments than those who lost. And in swing ridings, candidates who won received 2.3 times more comments than those who lost.

Figure 19

Number of comments on candidates' Instagram posts in Ontario and swing ridings

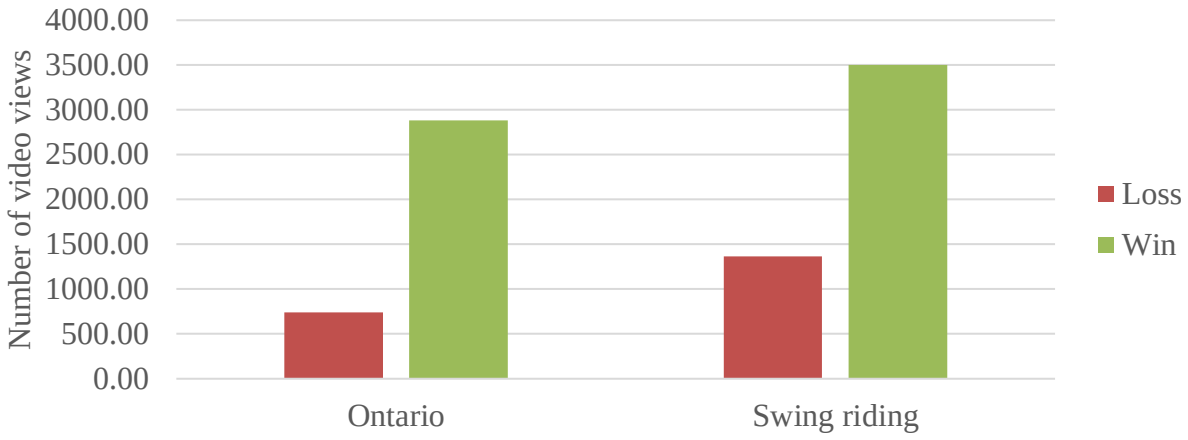


There was no relationship between election results and the number of video views on video posts by candidates in British Columbia, $t(26) = -1.14$, $p = .29$, in Manitoba, $t(6) = .69$, $p = .56$; in New Brunswick, $t(4) = .29$, $p = .82$; in Québec, $t(31) = -1.00$, $p = .33$; in safe ridings, $t(44) = -.97$, $p = .34$, and in swing ridings, $t(119) = -1.93$, $p = .06$.

However, in Ontario, there was a very strong relationship between the total video views a candidate received in Ontario and election results, $t(86) = -3.56$, $p < .000$. In Ontario, candidates who won received 3.8 times more video views than those who lost. While swing ridings were not statistically significant, it was close with a $p = .06$. In swing ridings, candidates who won received 2.6 times more video views than those candidates who lost. Figure 20 shows these relationships visually.

Figure 20

Nnumber of videos views on candidates' Instagram posts in Ontario and swing ridings



6.1.3.2.1 Summary of significant relationships

In summary, the popularity of a candidate's posts on Twitter or Instagram did return significant relationships.

On Twitter, as seen in table 4, the popularity of a candidate's posts did relate strongly with winning the election. In fact, in all cases where a significant relationship was found, it was a positive association. Posts that had a lot of favourites, and were quoted and retweeted often, significantly associated with winning the election.

Table 4

Summary table: significant relationships – popularity of posts (Twitter)

Independent variable	Dependent variable	Direction of relationship	*N*	*t*	*p*
Favourites					
Number of favourites on tweets by Ontario Liberal candidates	Election results	Positive	115	-2.61	.01*
Number of favourites on tweets by Liberal candidates in swing ridings	Election results	Positive	168	-2.12	.04*
Times quoted					
Number of times tweets by Ontario Liberal candidates were quoted on Twitter	Election results	Positive	115	-2.30	.02*

Times retweeted					
Number of times tweets by British Columbia Liberal candidates were retweeted	Election results	Positive	36	-2.23	.05*
Number of times tweets by Ontario Liberal candidates were retweeted	Election results	Positive	115	-2.64	.01*
Number of times tweets by Liberal candidates in swing ridings were retweeted	Election results	Positive	168	-2.10	.04*

Note: * $p < .05$, ** $p < .01$, two tailed.

On Instagram, all variables measuring popularity of a post returned at least one significant relationship. However, significant relationships only happened in Ontario and swing ridings. While popularity of a post on Instagram may associate positively with winning the election, it happens only in a specific environment. Nearly half of the swing ridings across the country are set in Ontario. Marland and Giasson (2015) argued that parties concentrate their efforts on swing ridings where they may have a chance to sway voters. These results could be the result of the LPC's efforts in swing ridings, which happen to be concentrated in Ontario.

Table 5

Summary table: significant relationships – popularity of posts (Instagram)

Independent variable	Dependent variable	Direction of relationship	*N*	*t*	*p*
Likes					
Number of likes Liberal candidates received on Instagram in swing ridings	Election results	Positive	161	-2.32	.02*
Number of likes Ontario Liberal candidates received on Instagram	Election results	Positive	103	-4.07	.00***
Comments					
Number of comments Liberal candidates received on Instagram in swing ridings	Election results	Positive	161	-2.40	.02*
Number of comments Ontario Liberal candidates received on Instagram	Election results	Positive	103	-4.30	.00***

Video views					
Number of video views Ontario Liberal candidates received on Instagram	Election results	Positive	86	-3.56	.00***

Note: * $p < .05$, ** $p < .01$, two tailed.

6.1.3.3 An outlier on Twitter and Instagram

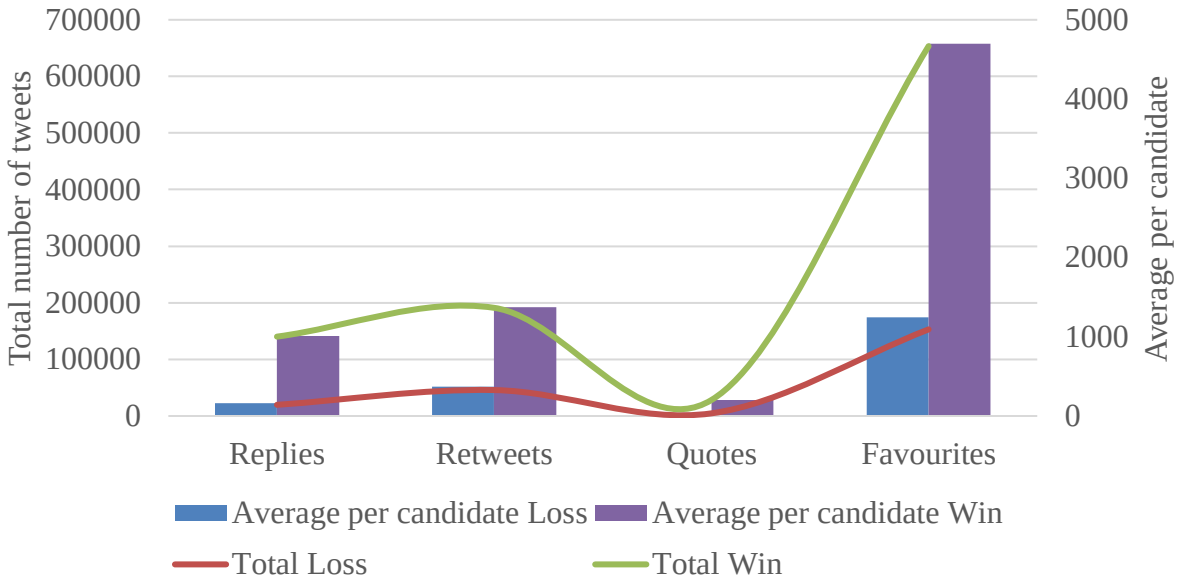
After completing the above analysis, the author noticed the standard deviations for Twitter and Instagram analyses were extremely high, in some cases surpassing 100 billion. This meant there was a significant outlier. When reviewing the data, the author found one outlier, Justin Trudeau. The posts of the leader of the LPC and the Prime Minister of Canada at the time, received exponentially more attention than any other candidate. For example, Trudeau received more than 1.3 million favourites on Twitter, which was 10 times more than Catherine McKenna, who had the next most favourites on Twitter. Trudeau was retweeted more than all other LPC candidates combined. Trudeau received 5 times the likes on his Instagram posts than *all the likes* on all other LPC candidates' posts *combined*. But the biggest outlier was the number of video views Trudeau received on Instagram. He received 3.3 million video views, which is 8 times more than *all video views* of all LPC candidates *combined*.

Boslaugh and Watters (2018) say dealing with outliers vary among industry and ever individual researchers, but that at the very least all scholars should identify outliers. Boslaugh and Watters (2018) also argue that an outlier could indicate the value is not part of the sample population. In the case of Trudeau, the author included him in the above analysis, as he was an LPC candidate during the 2019 federal election. However, the author redid her analysis without Trudeau as well. In this sample, the author is looking at the average LPC candidate during the 2019 federal election. Trudeau does not fit in this sample as his values are vastly different than other candidates.

For twitter without Trudeau, there was a significant relationship between the number of replies to each tweet, $t(262) = -2.19$, $p = .03$, and election results. And a very significant relationship between election results and the number of favourites on each tweet, $t(262) = -3.06$, $p < .000$; the number of times each tweet was quoted, $t(262) = -2.80$, $p = .001$; and the number of times a tweet was retweeted, $t(262) = -3.20$, $p < .000$. In figure 21, one can see that the more popular a candidate's posts are, the more associated they are with winning the election.

Figure 21

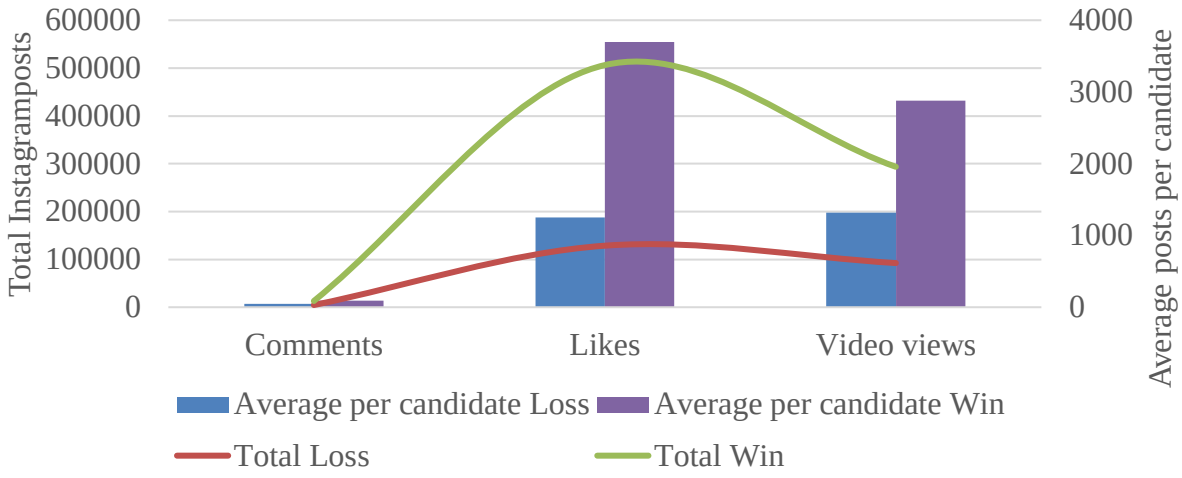
Popularity of tweets, without Trudeau



For Instagram, once Trudeau was removed, there was a significant relationship between election results and the number of video views, $t(172) = -2.14$, $p = .03$; the number of likes on each post, $t(240) = -2.70$, $p = .01$; and the number of comments on each post, $t(240) = -2.64$, $p = .01$. As one can see in figure 22, the more popular a candidate's posts are on Instagram, the more they are associated with winning an election.

Figure 22

Popularity of Instagram posts, without Trudeau



In summary, once Trudeau was removed, all variables measuring popularity on Twitter and Instagram returned a significant relationship. In addition, all relationships were positive, meaning the more popular a post was the more likely the candidate was going to win.

6.1.3.4 Facebook

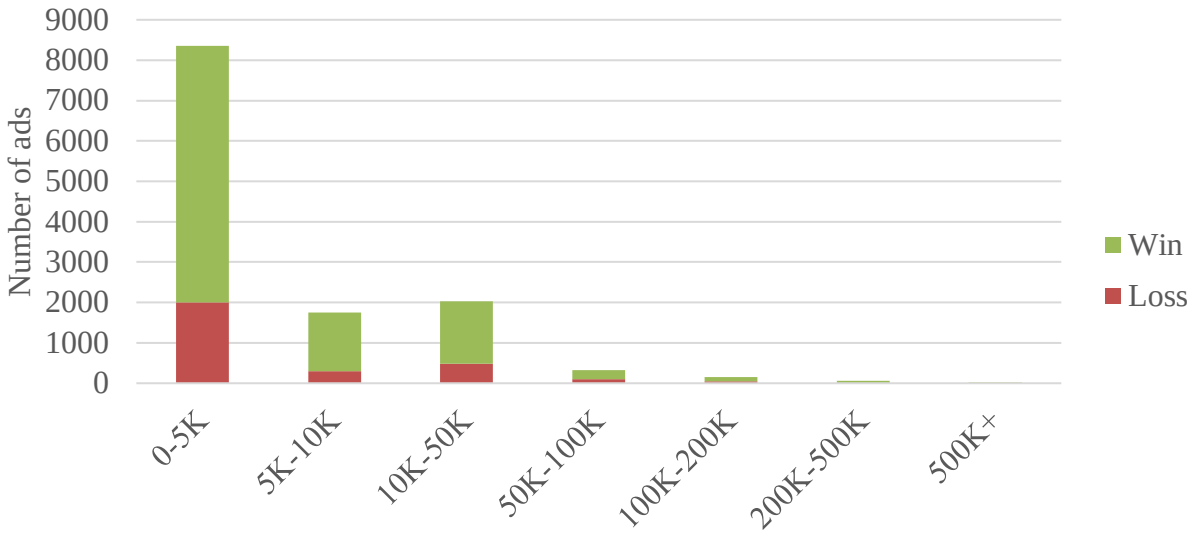
The author also looked at the popularity behind Facebook ads. Based on the way Facebook provides data, the author needed to extract impression data in category bands. In total, there were seven categories. Not all categories spanned the same distance, therefore the categories of impressions were nominal level variables. The author then compared the categories with winning or loosing the election, also a nominal level variable. This meant the author relied on the chi-square statistic to measure relationships between election results and impression categories.

There was a significant association between impressions on a Facebook ad and election results, X^2 (6, N = 12,708) < .000. The author then did calculations for each category to see which categories of impressions had the strongest association. The results were that there was a

strong association between election results and Facebook ads with 0 to 5,000 impressions, X^2 (6, N = 12,708) = .016; 5,000 to 10,000 impressions, X^2 (6, N = 12,708) < .000; and 50,000 to 100,000 impressions, X^2 (6, N = 12,708) = .020. As one can see in figure 23, most ads run had few impressions, between 0 and 5,000 impressions. Further, candidates who ran ads with 5,000 impressions or less were more closely associated with winning. The same was true for candidates who ran ads that had 5,000 to 10,000 impressions, and 50,000 to 100,000 impressions.

Figure 23

Facebook ads impressions, by election results

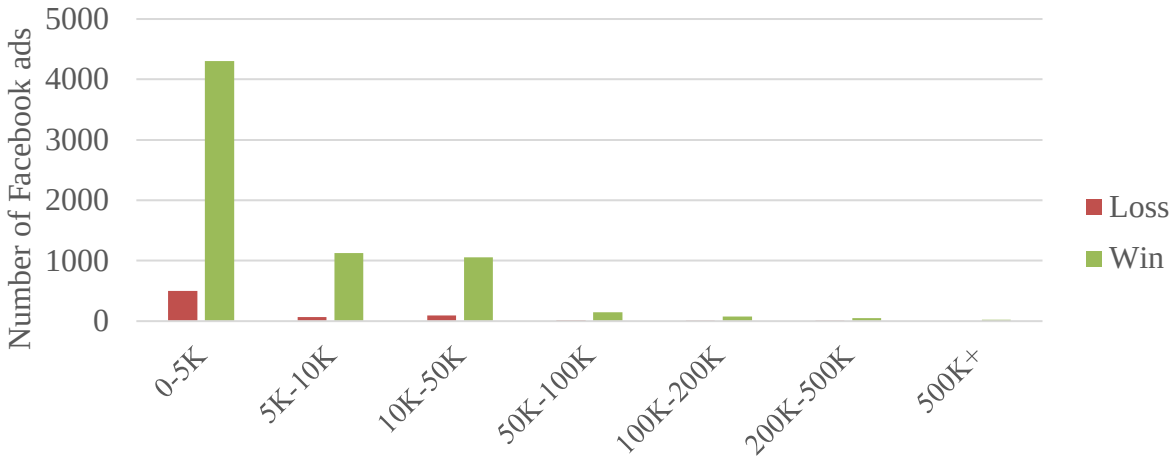


There was no significant relationship between election results and impressions on Facebook ads in British Columbia, X^2 (5, N = 4,516) = .990, Manitoba, X^2 (4, N = 258) = .080, Newfoundland, X^2 (4, N = 32) = .991, and Ontario, X^2 (5, N = 2,746) = .974. However, there was a significant association between election results and Facebook ad impressions in Québec, X^2 (6, N = 7,471) = .002, and New Brunswick, X^2 (4, N = 159) = .001. In New Brunswick, the strongest association was between election results and Facebook ads with impressions of less than 5,000 and between 10,000 and 50,000. While in Québec, the strongest association was

between election results and Facebook ads with impressions of less than 10,000 impressions. Figure 24 shows that in Québec, what this meant is that candidates were more likely to win if they ran smaller ads with less than 50,000 impressions.

Figure 24

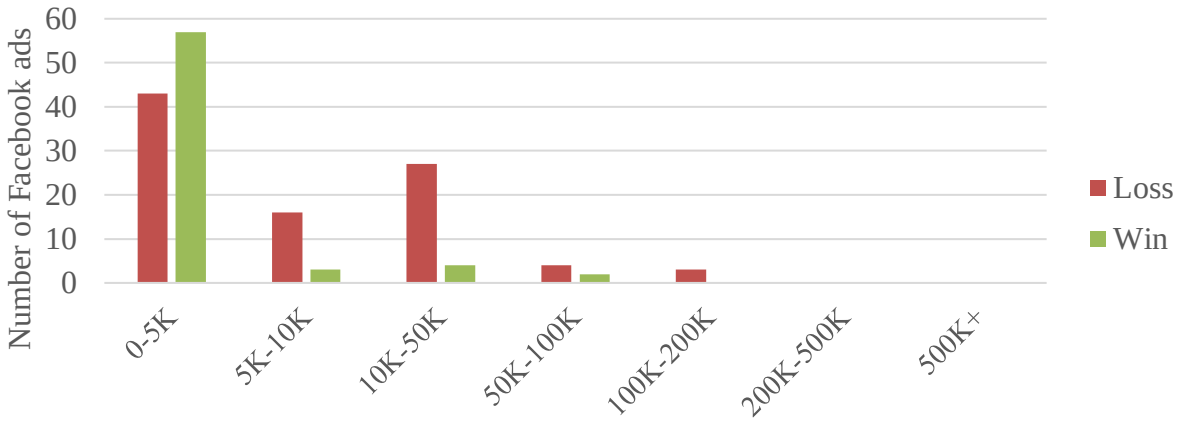
Impressions of Facebook ads in Québec



The opposite was true in New Brunswick, as can be seen in figure 25. While candidates were still more likely to win if they ran smaller ads with impressions less than 5,000, candidates were more likely to lose if they ran bigger ads with impressions between 10,000 to 50,000.

Figure 25

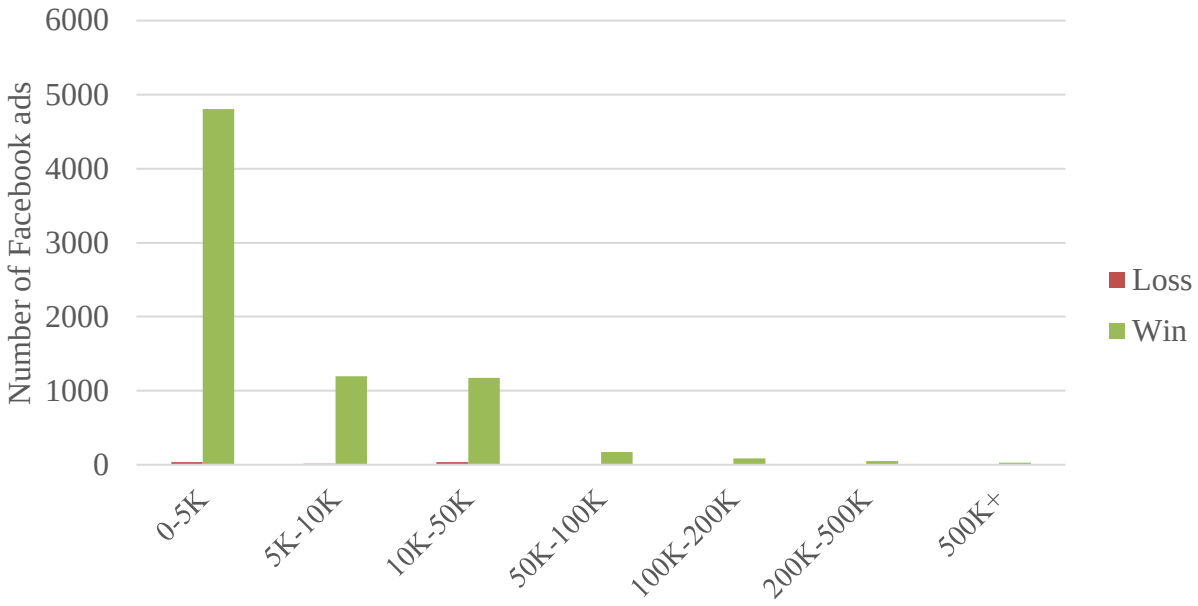
Impressions of Facebook ads in New Brunswick



The relationship between election results and Facebook ad impressions were not significant in swing ridings, X^2 (5, N = 4,733) = .911, but did show a strong relationship in safe ridings, X^2 (6, N = 7,594) < .000. In particular, candidates in safe ridings who ran ads, regardless of their impressions were more likely to win.

Figure 26

Impressions of Facebook ads in swing ridings



6.1.3.4.1 Summary of significant relationships

In summary, the group of Facebook ads that returned significant relationships were the smaller ads with less than 5,000 impressions. In fact, larger ads even returned negative significant relationships, indicating larger ads were more associated with loosing the election.

However, it is also true that 63 percent of candidates who ran Facebook ads won their seat in the House of Commons. So, what this means is that size doesn't matter on Facebook. The smaller ads with less impressions were more associated with winning the election.

Table 6

Summary table: significant relationships – popularity of Facebook posts

Independent variable	Dependent variable	Direction of relationship	*N*	X^2
Facebook ads in safe ridings	Election results	Positive	7594	.000**
Less than 5,000 impressions				
Facebook ads with less than 5,000 impressions	Election results	Positive	8361	.016*
Facebook ads in New Brunswick with less than 5,000 impressions	Election results	Positive	100	.000**
Facebook ads in Québec with less than 5,000 impressions	Election results	Positive	4804	.000**
5,000 to 10,000 impressions				
Facebook ads with 5,000 to 10,000 impressions	Election results	Positive	1757	.000**
Facebook ads in Québec with 5,000 to 10,000 impressions	Election results	Positive	1198	.000**
Above 10,000 impressions				
Facebook ads with 50,000 to 100,000 impressions	Election results	Positive	331	.020*
Facebook ads in New Brunswick with 10,000 to 50,000 impressions	Election results	Negative	31	.005*

Note: * X^2 = < .05. ** X^2 < .000.

6.1.4 Investment in social media

The author only analyzed investments in Facebook ads in this study. As mentioned in the methodology, she was unable to obtain information on Twitter or Instagram ads. When data were extracted the dollars spent on an ad were represented in categories, rather than an absolute number. Therefore, the author again used chi-square to analyse the relationship between the category of amount invested in Facebook ads and whether a candidate wins or loses an election.

There was a significant relationship found between the amount spent on a Facebook ads and election results, X^2 (4, N = 12,708) < .000. In fact, as can be seen in figure 27, those that ran smaller ads and spent less than $500 on the ad were more likely to win.

Figure 27

Spend on Facebook ads, by election results

However, these results could have been influenced by sample size. More than 90 percent of the ads had an investment of less than $500. All ads with investments of more than $5,000 were done by candidates who won their seat in the House of Commons, but that was less than one percent of ads. However, the author did notice in her analysis, that more than 55 percent of candidates who won their seat in the House of Commons invested in Facebook ads and ran nearly 2.5 more ads than those who lost.

Province and riding type did not have any bearing on results. In fact, when the author redid her calculations by province and by riding type no relationship was found between the amount invested in Facebook ads and winning or losing the election.

6.2 Political donations

The following section reports on the analysis of social media variables against political donations. Each political donation data point was tagged with a riding ID, which represented which candidate the donation would be attributed to. While it is true that the intent of an individual's donation could have been to the Liberal Party as a whole and not the individual candidate, the author chose to tag donations to the corresponding candidate in the same riding. That is because the local candidate runs a lot of the fundraising efforts in their riding. This is supported by what the LPC's senior director of communications said in an article about where he credits the success of their fundraising efforts to the work being done by their local MPs (Ryckewaert, 2019). Once the donation was tagged with a riding ID, it was paired with the corresponding candidate ID in the database (which is the same number). This process helped the author compare each social media variable by each candidate to political donations made to the candidate's riding.

In the following analysis, the author uses correlation and regression to determine if there is a correlation, represented by *r*. When determining the critical value of *r* to determine if the correlation is significant or not, the author used a calculator designed by David Dunaetz, an associate professor of leadership and organizational psychology at Azusa Pacific University (Dunaetz, 2017).

All correlational analyses were also done by province and riding type. Northwest Territories, Yukon and Nunavut were not included. There was not sufficient data for the Canadian territories, with only one donation in Yukon, one in Northwest Territories, and none in Nunavut. All the tables outlining the correlation coefficient, sample size, and *p* value can be found in Appendix C.

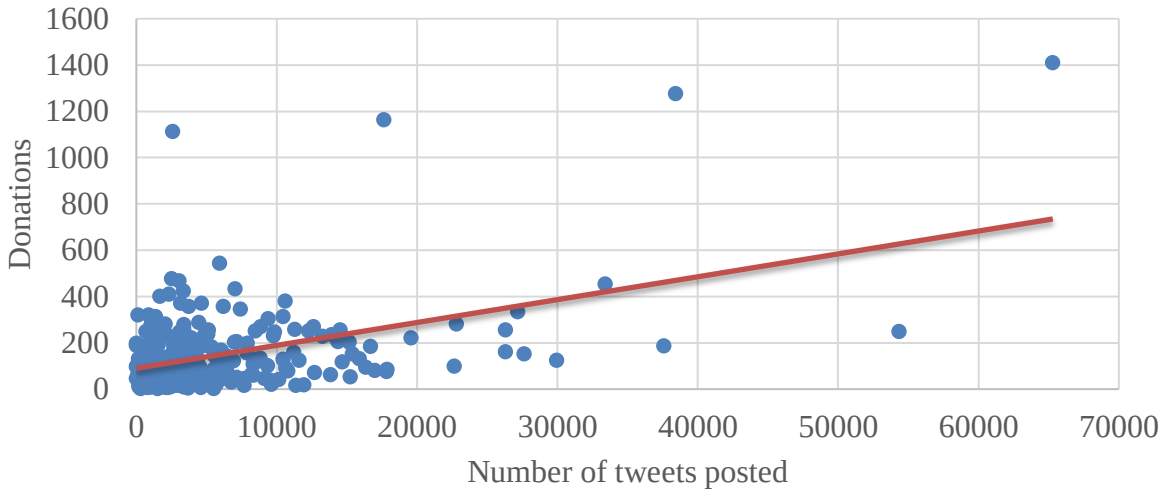
6.2.1 Presence on social media

The variables used to measure presence on a social channel were all ratio level variables – the number of tweets, the number of Facebook ads and the number of Instagram posts. Presence on social media was the independent variable. The dependent variable was donations, another ratio level variable. Therefore, with two ratio variables the author used the Pearson Product Moment Correlation, represented as *r*, to determine which social media variable strongly correlated with donations to a political candidate.

The correlation between donations and the number of tweets posted during the election was significantly associated, (r(263) = .456, p = .12). With a positive *r* value, this means that as the number of tweets by candidates increased, so did the donations. Figure 28 shows the correlation visually.

Figure 28

Correlation between frequency of tweeting and donations



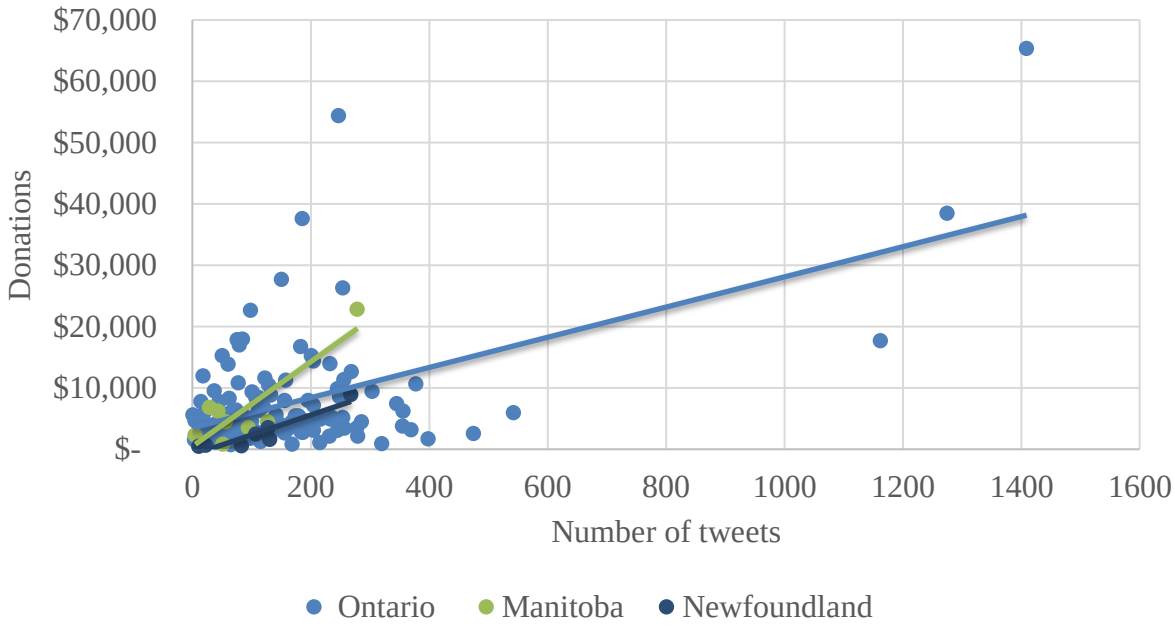
The same was not true for Facebook and Instagram. The correlation between the total number of Facebook ads candidates ran and the donations received in their riding was not significantly associated, (r(201) = -.024, p = .14). And the correlation between the number of

Instagram posts by each candidate and the donations received in their riding was not significantly associated, (r(241) = .122, p = .13).

However, when the calculations were run by province, significant correlations were found. There was a significant correlation between the donations to a riding and the frequency of tweeting in Manitoba, (r(8) = .865, p = .71), Newfoundland, (r(7) = .927, p = .75) and Ontario, (r(115) = .536, p = .18). As seen in figure 29, as the number of tweets increase, the amount of donations candidates received in these provinces also increase.

Figure 29

Correlation between donations and frequency of tweeting in Manitoba, Newfoundland, and Ontario



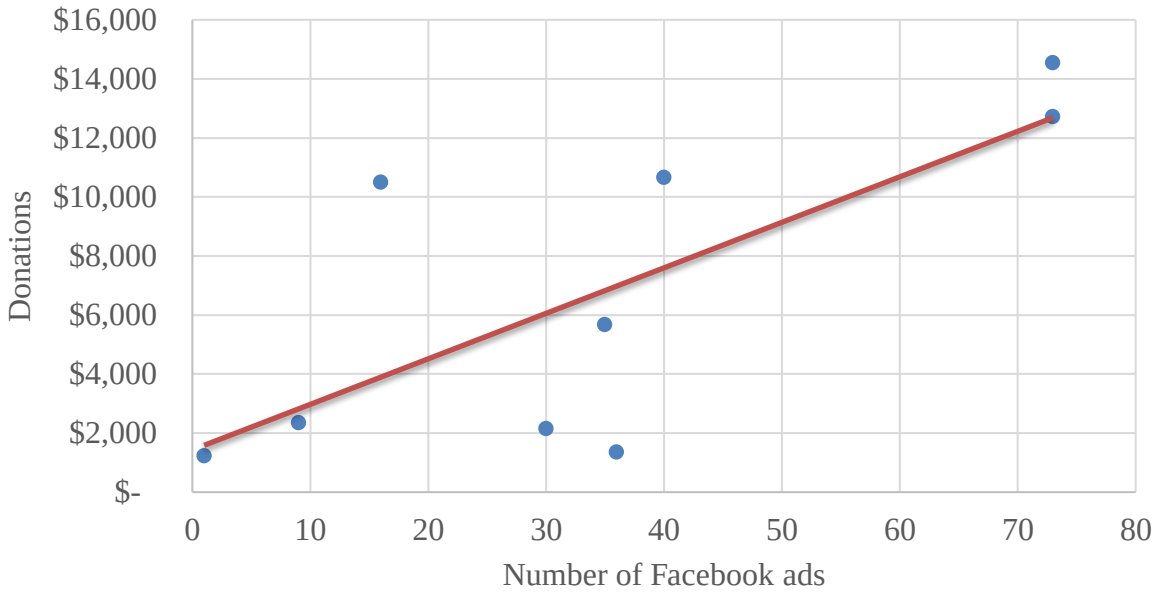
Granted, there are a few outliers, in Ontario specifically. Candidate Adam Vaughan tweeted a lot, but received less than $20,000 in donations, and Chrystia Freeland tweeted much less (only 247 times) and yet received more than $50,000 in donations. Then there was Catherine McKenna who tweeted just a little bit more than Adam Vaughan and received more than $60,000

in donations. It is important to note that Catherine McKenna and Chrystia Freeland were both cabinet ministers with higher profiles, potentially resulting in the higher donation amounts.

For Facebook ads, only Alberta resulted in a significant correlation between the number of Facebook ads and donations to a candidate's riding, ($r(9) = .733$, $p = .67$). As with tweets, there was a positive correlation, signifying that the more a candidate in Alberta ran Facebook ads, the more donations they received, as displayed in figure 30.

Figure 30

Correlation between donations and Facebook ads in Alberta

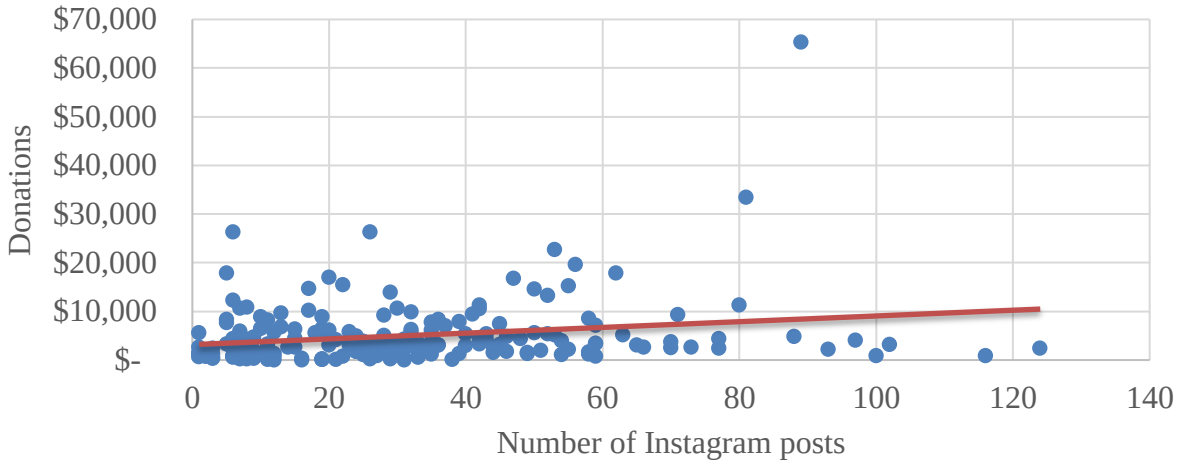


And finally, for Instagram, only Québec showed a significant correlation, ($r(57) = .289$, $p = .26$). With a positive slope, as the number of Instagram posts increased, so did donations. There were, however, a few outliers and exceptions. Candidates Marc Garneau got more than $25,000 in donations, and only posted 6 times during the entire campaign, while Steve MacKinnon posted nearly a hundred times but got only $2,000. Another thing to notice, as

displayed in figure 31, the slope is quite low, meaning that with an increase in posting on Instagram, donations only went up by a little.

Figure 31

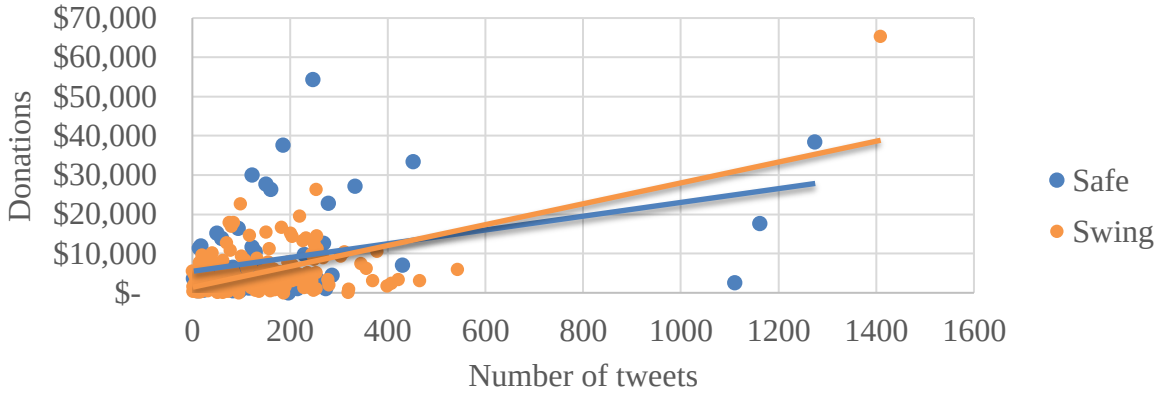
Correlation between Instagram posts and donations in Québec



When it came to riding types, there was a significant correlation between donations and the frequency of tweeting by candidates in safe ridings, ($r(69) = .385$, $p = .24$) and swing ridings, ($r(168) = .573$, $p = .15$). In both cases, as can be seen in figure 32, as frequency of tweeting increased, so did donations.

Figure 32

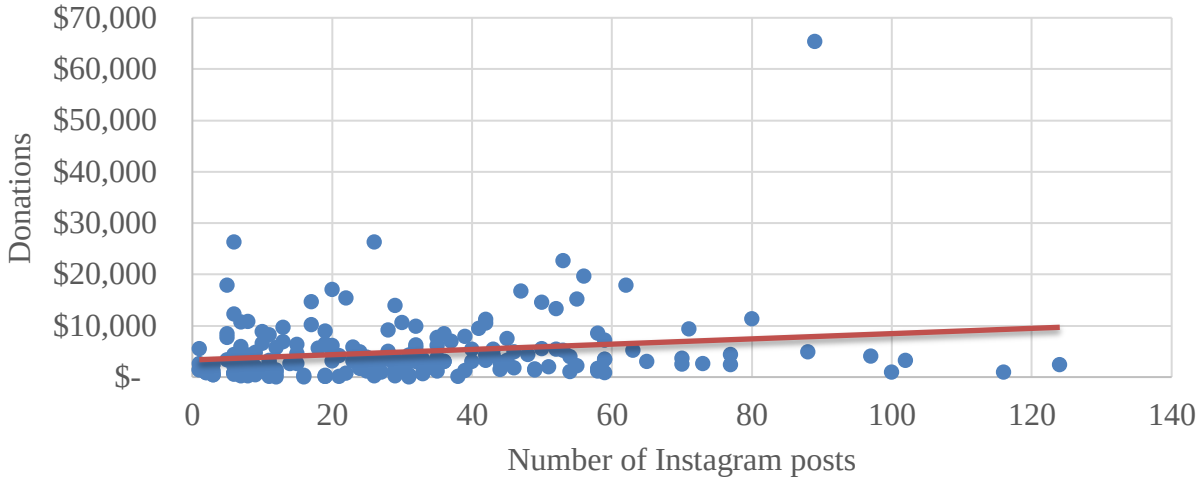
Correlation between frequency of tweeting and donations in swing and safe ridings



For Instagram, only swing ridings showed significant correlations between donations and the number of posts, ($r(161) = .205$, $p = .15$). A positive slope indicates that as posting on Instagram increased, so did donations. Again, the slope is quite low, meaning even with an increase in posting on Instagram there is only a slight increase in donations. This is true apart from one outlier, as seen in figure 33, who is yet again Catherine McKenna who attracted more than $60,000 in donations, more than double the amount of most other candidates.

Figure 33

Correlation between Instagram posts and donations in swing ridings



For Facebook ads, there was no correlation between the number of Facebook ads and donations regardless of riding type.

6.2.1.1 Summary of significant relationships

In summary, presence on Twitter is more likely to significantly correlate with donations. In all cases where there was a correlation the relationship was positive, meaning the more a candidate tweeted the more donations they received.

Facebook and Instagram also returned significant correlations, but not nearly as much. Furthermore, the correlation with Instagram posts resulted in a slight slope. In other words, even

when candidates significantly increased their activity on Instagram it only results in a few additional donations.

Table 7

Summary table: significant relationships – presence on social

Independent variable	Dependent variable	Direction of relationship	*N*	*r*	Critical *r*
Twitter					
Frequency of posting on Twitter	Donations	Positive	263	.456*	.12
Frequency of posting on Twitter in Manitoba	Donations	Positive	8	.865*	.71
Frequency of posting on Twitter in Newfoundland	Donations	Positive	7	.927*	.75
Frequency of posting on Twitter in Ontario	Donations	Positive	115	.536*	.18
Frequency of posting on Twitter in swing ridings	Donations	Positive	168	.573*	.15
Frequency of posting on Twitter in safe ridings	Donations	Positive	69	.385*	.24
Facebook					
Frequency of publishing Facebook ads in Alberta	Donations	Positive	9	.733*	.67
Instagram					
Frequency of posting on Instagram in Québec	Donations	Positive	57	.289*	.26
Frequency of posting on Instagram in swing ridings	Donations	Positive	161	.205*	.15

Note: *$p < .05$, two tailed.

6.2.2 Ways to engage

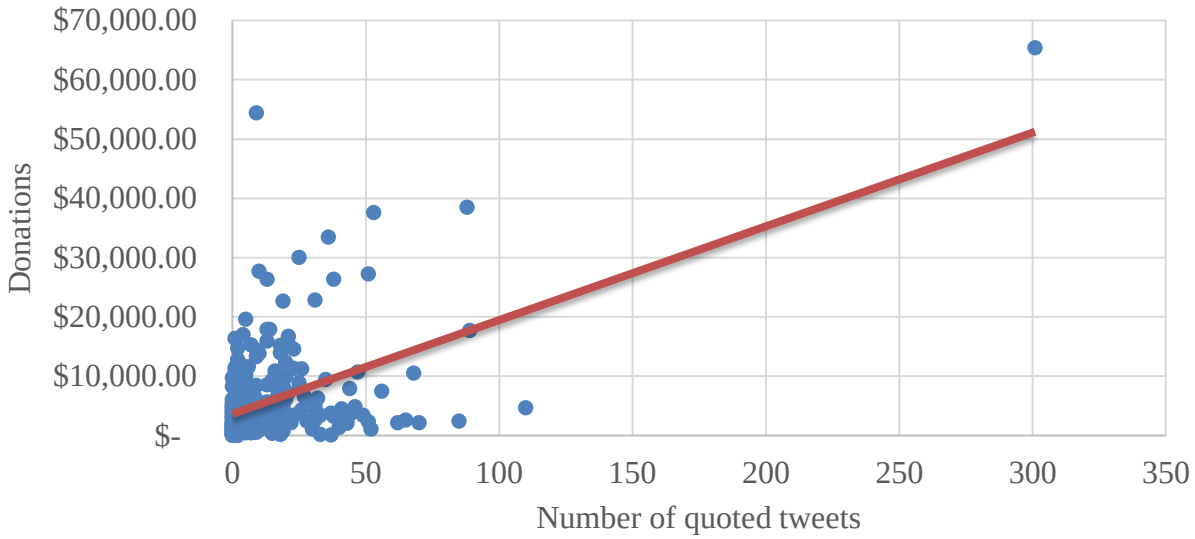
To analyze the ways candidates engaged on social media and how it related to donations, the author looked at the type of tweet – be it a native, retweet, quote or reply; the media type attached to a tweet – be it photo, video, GIF, or just text; and the type of media used on an Instagram post – be it photo or video. Each analysis pinned the aforementioned categorical data, a nominal level variable, against the donations candidates received in their ridings, a ratio level variable. When comparing nominal and ratio variables, the author relied on regression using Microsoft Excel's data analysis packet.

6.2.2.1 Twitter: types of tweets

There was a strong relationship between the way a candidate tweeted and the donations they received in their riding, ($F(4, 258) = 22.935$, $p < .000$), with an R^2 of .262. The relationship was influenced by quoted tweets, which had a $p < .000$. If one performs a Pearson Product Moment Correlation on quoted tweets and donations, the result is a strong correlation, ($r(263) = .496$, $p = .12$). Figure 34 on can see the positive correlation, the more a candidate quoted tweets, the more donations they receive to their riding.

Figure 34

Correlation between quoted tweets and donations to a candidate's riding.



When looking at each province[8], the same positive significant relationship was found in Québec, ($F(4, 49) = 5.093$, $p < .002$), with an R^2 of .294; Ontario, ($F(4, 110) = 15.840$, $p < .000$), with an R^2 of .365; and Newfoundland, ($F(4, 2) = 60.508$, $p < .016$), with an R^2 of .992. Again, quotes seem to influence the relationship, especially in Québec and Ontario, but after performing

[8] The author was not able to do calculations for Northwest Territories, Yukon, Nunavut and Prince-Edward-Island as there was not sufficient data.

a Pearson Product Moment Correlation on both native and quoted tweets and donations in these provinces, no significant relationship was found.

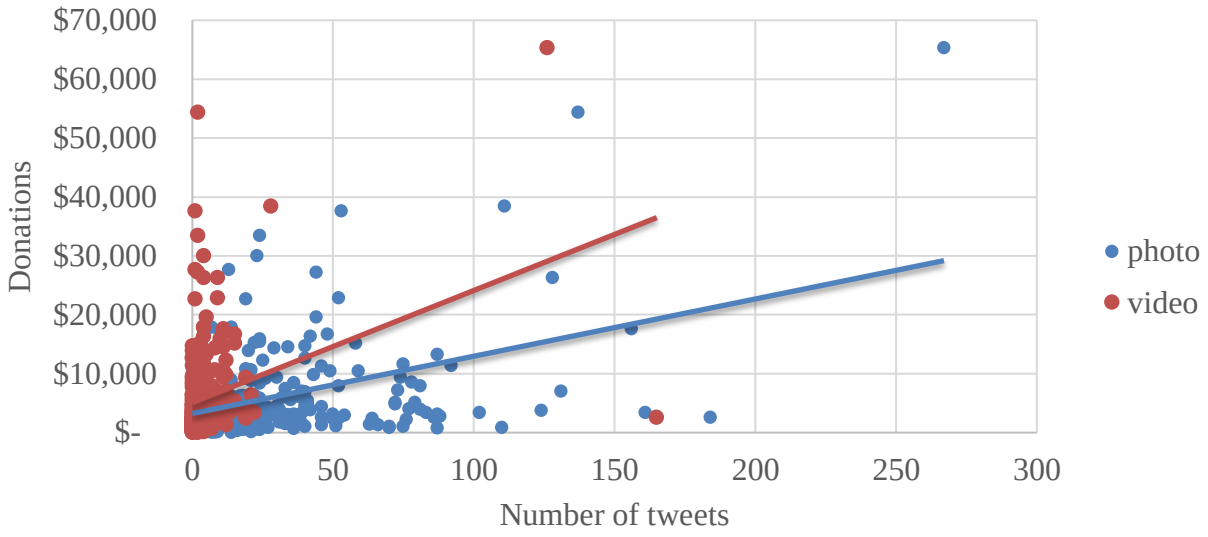
By riding type, the types of tweets candidates published and donations to their riding had a significant relationship in safe ridings, ($F(4, 64) = 7.029$, $p < .000$), with an R^2 of .305; and swing ridings, ($F(4, 163) = 31.485$, $p < .000$), with an R^2 of .436. There was no significant relationship for candidates in unlikely ridings. Again, quoted tweets influenced the strength of the relationship. However, in neither riding types did quotes have a significant correlation with donations.

6.2.2.2 Twitter: media types

A relationship was also found between the media type used on a tweet and the donations to a candidate's riding, ($F(4, 258) = 19.091$, $p < .000$), with an R^2 of .228. The relationship was influenced by photos and videos tweets, which both had a $p < .000$. The author performed a Pearson Product Moment Correlation on tweets with photos and tweets with videos and donations to see the strength of the correlation between the variables. Tweets with photos resulted in a strong correlation, ($r(263) = .427$, $p = .12$), videos also had a strong correlation, ($r(263) = .319$, $p = .12$). Figure 35 below demonstrates this correlation visually. With a positive correlation, one can see that the more a candidate tweeted photos and videos, the more donations they receive to their riding.

Figure 35

Correlation between photos and video tweets and donations



The author also looked at any provincial difference[9]. Québec, ($F(4, 49) = 3.281$, $p = .018$), with an R^2 of .211, and Manitoba, ($F(3, 4) = 7.869$, $p = .037$), with an R^2 of .855, showed strong relationships between the types of media on tweets and donations. In both provinces it was text-based tweets influencing the strength of the relationship. However, when performing a Pearson Product Moment Correlation on text-based tweets and donations in these provinces, neither returned a significant correlation.

6.2.2.3 Instagram

There was no relationship between the type of Instagram posts and donations made to a candidate's riding, ($F(2, 238) = 3.643$, $p = .028$), with an R^2 of .030.

[9] The author was unable to calculate regression for Prince-Edward-Island, Northwest Territories, Yukon and Nunavut as there was not sufficient data. For Saskatchewan, Newfoundland, New Brunswick and Manitoba no candidates tweeted a GIF, so GIFs were removed from the regression formula.

The author also looked at provincial differences[10]. No province returned a significant relationship between the types of Instagram posts and donations.

Finally, the author also looked at the types of ridings candidates were in and if it affected the relationship between the types of Instagram posts and donations. Only candidates in swing ridings showed a significant relationship between the types of Instagram posts and donations, ($F(2, 158) = 5.715$, $p = .004$), with an R^2 of .067. But neither photos nor videos had a significant correlation with donations.

6.2.2.3.1 Summary of significant relationships

In summary, the way a candidate posted on Twitter and Instagram didn't return a lot of significant correlations. In fact, Instagram didn't return any significant correlations. While there were strong relationships, no significant correlations were calculated.

There are, however, certain circumstances where the way a candidate engages on Twitter increases donations to that candidate's riding. In particular, candidates who quoted others and attached media to their tweet – be it a photo or video – did see increases in donations.

Table 8

Summary table: significant relationships – ways to engage

Independent variable	Dependent variable	Direction of relationship	*N*	*r*	Critical *r*
Number of times candidates quoted others on Twitter	Donations	Positive	263	.496*	.12
Liberal candidates who posted photos on Twitter	Donations	Positive	263	.427*	.12
Liberal candidates who posted videos on Twitter	Donations	Positive	263	.319*	.12

Note: *$p < .05$, two tailed.

[10] Calculations for Saskatchewan, Prince-Edward-Island, Northwest Territories, Yukon and Nunavut were not possible as there were not enough data.

6.2.3 Popularity of social posts

Measuring popularity on social media was done using the number of favourites on a candidate's tweets, the number of times a candidate's tweets were quoted, and retweeted, the number of replies to a candidate's tweets, the number of comments and likes on a candidate's Instagram posts, and the number of video views a candidate received on Instagram. These variables are all ratio level variables. They were compared with donations to a candidate's riding, also a ratio variable. Therefore, the Pearson Product Moment Correlation, represented as *r*, was used for the following analysis. The author also looked at popularity of candidates' ads on Facebook. Using regression, the author compared the total number of ads in each impressions' category to the donations in the candidate's riding. The results are discussed below by social media channel.

6.2.3.1 Twitter

There was no correlation between donations to a candidates riding and the number of favourites on their tweets, ($r(263) = .047$, $p = .12$), the number of times a candidate's tweets were quoted, ($r(263) = .090$, $p = .12$), the number of times a candidate's tweets were retweeted, ($r(263) = .088$, $p = .12$), and the number of replies on a candidate's tweets, ($r(263) = .113$, $p = .12$).

6.2.3.1.1 By province

No significant[11] correlation was found between donations and the number of favourites on candidates' tweets in Newfoundland, ($r(7) = .079$, $p = .75$), Prince-Edward-Island ($r(3) = -.810$, $p = .997$), Nova Scotia ($r(7) = .536$, $p = .75$), New Brunswick

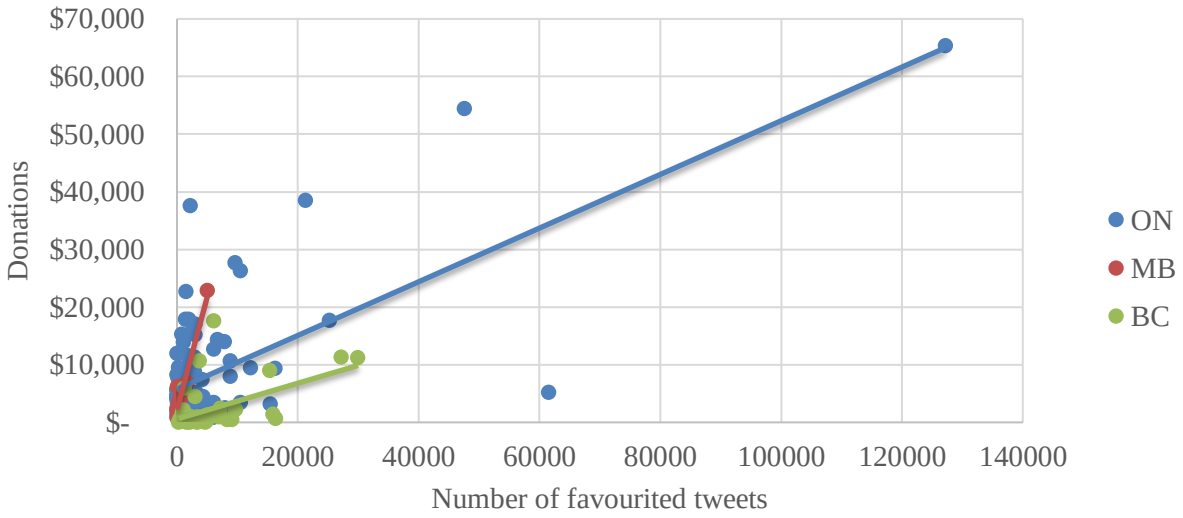
[11] When calculating the correlation coefficient by province, the author was unable to include Northwest Territories, Yukon, Nunavut and in some cases Saskatchewan as there was not enough data.

(r(6) = -.347, p = .81), Québec (r(54) = .004, p = .27), Saskatchewan (r(6) = -.043, p = .81) and Alberta (r(19) = .366, p = .46).

Ontario (r(115) = .678, p = .18), Manitoba (r(8) = .965, p = .71) and British Columbia (r(36) = .512, p = .33), on the other hand, had significant correlations between the number of favourites on candidates' tweets and donations to the candidate's riding. For all three provinces, as the number of favourites on a candidate's tweets increased so did donations to the candidate's riding, as can be seen in figure 36.

Figure 36

Correlation between favourited tweets and donations

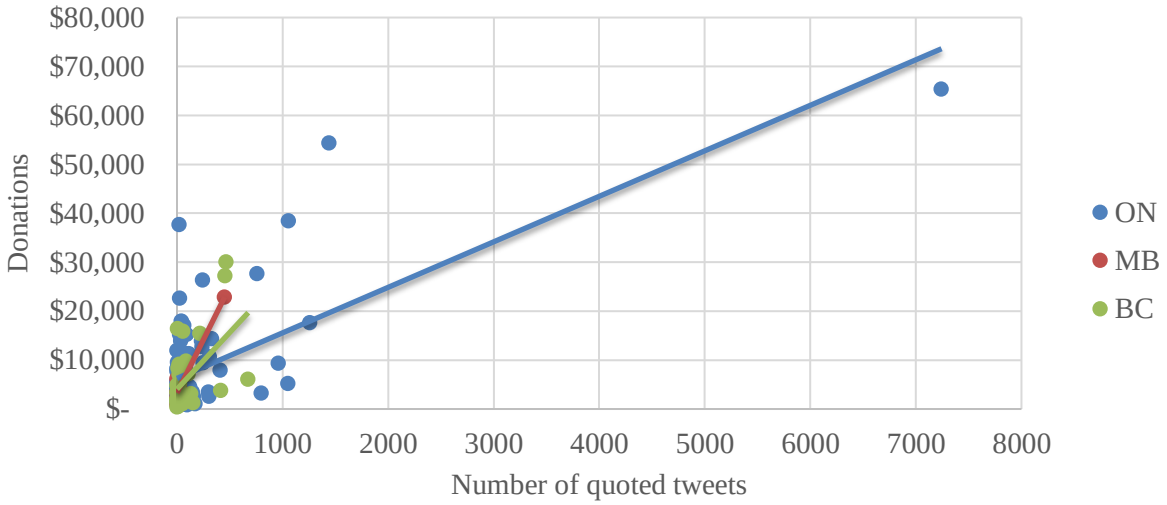


There was no significant correlation between donations and the number of times candidates were quoted on Twitter in Newfoundland (r(7) = .051, p = .75), Prince-Edward-Island (r(3) = -.862, p = .997), Nova Scotia (r(7) = .542, p = .75), New Brunswick (r(6) = -.150, p = .81), Québec (r(54) = .029, p = .27), Saskatchewan (r(6) = -.074, p = .81) and Alberta (r(19) = .262, p = .46). However, again Ontario (r(115) = .686, p = .18), Manitoba (r(8) = .976, p = .71) and British Columbia (r(36) = .537, p = .33) showed a significant correlation between

the number of times candidates were quoted and donations to the candidate's riding. All correlations were positive, meaning the more times a candidate was quoted, the more donations the candidate received, as can be seen in figure 37.

Figure 37

Correlation between candidates who were quoted on Twitter and donations

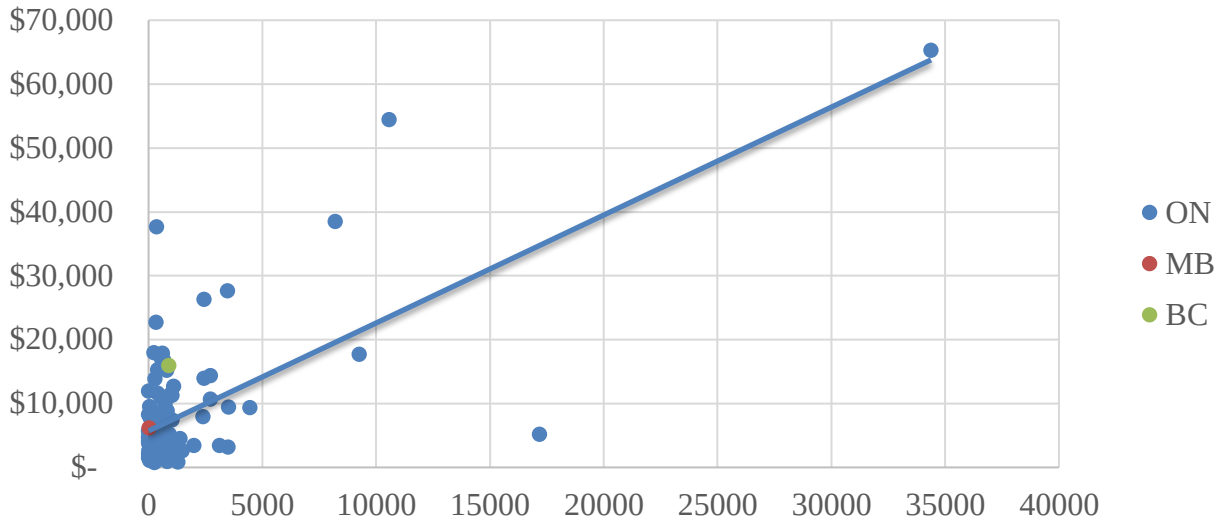


There was no significant correlation between donations and the number of times a candidate was retweeted in Newfoundland ($r(7) = .120$, $p = .75$), Prince-Edward-Island ($r(3) = -.842$, $p = .997$), Nova Scotia ($r(7) = .537$, $p = .75$), New Brunswick ($r(6) = -.257$, $p = .81$), Québec ($r(54) = .020$, $p = .27$), Saskatchewan ($r(6) = -.053$, $p = .81$) and Alberta ($r(19) = .298$, $p = .46$).

Yet again, the same three provinces as before showed correlations. There was a strong correlation between the number of times a candidate was retweeted and donations to the candidate's riding in Ontario ($r(115) = .671$, $p = .18$), Manitoba ($r(8) = .973$, $p = .71$) and British Columbia ($r(36) = .593$, $p = .33$). All correlations were positive, meaning the more times the candidate was retweeted, the more donations the candidate received, which can be seen in figure 38.

Figure 38

Correlations between number of times a candidate was retweeted and donations

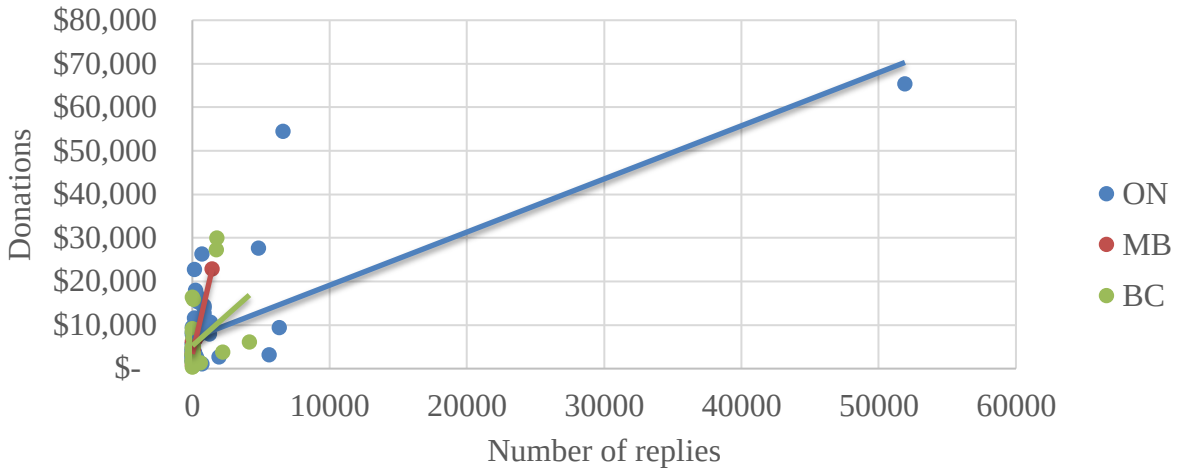


There was no significant correlation between donations and the number of replies to a candidate's tweets in Newfoundland ($r(7) = .037$, $p = .75$), Prince-Edward-Island ($r(3) = -.853$, $p = .997$), Nova Scotia ($r(7) = .546$, $p = .75$), New Brunswick ($r(6) = -.304$, $p = .81$), Québec ($r(54) = .011$, $p = .27$), Saskatchewan ($r(6) = -.022$, $p = .81$) and Alberta ($r(19) = .206$, $p = .46$).

On the other hand, Ontario ($r(115) = .645$, $p = .18$), Manitoba ($r(8) = .976$, $p = .71$) and British Columbia ($r(36) = .364$, $p = .33$) again had a significant correlation between the number of replies to a candidate's tweets and donations to the candidate's riding. All correlations were positive, meaning the more replies a candidate received on their tweets, the more donations the candidate received, as can be seen in figure 39.

Figure 39

Correlation between number of replies to a candidate's tweets and donations

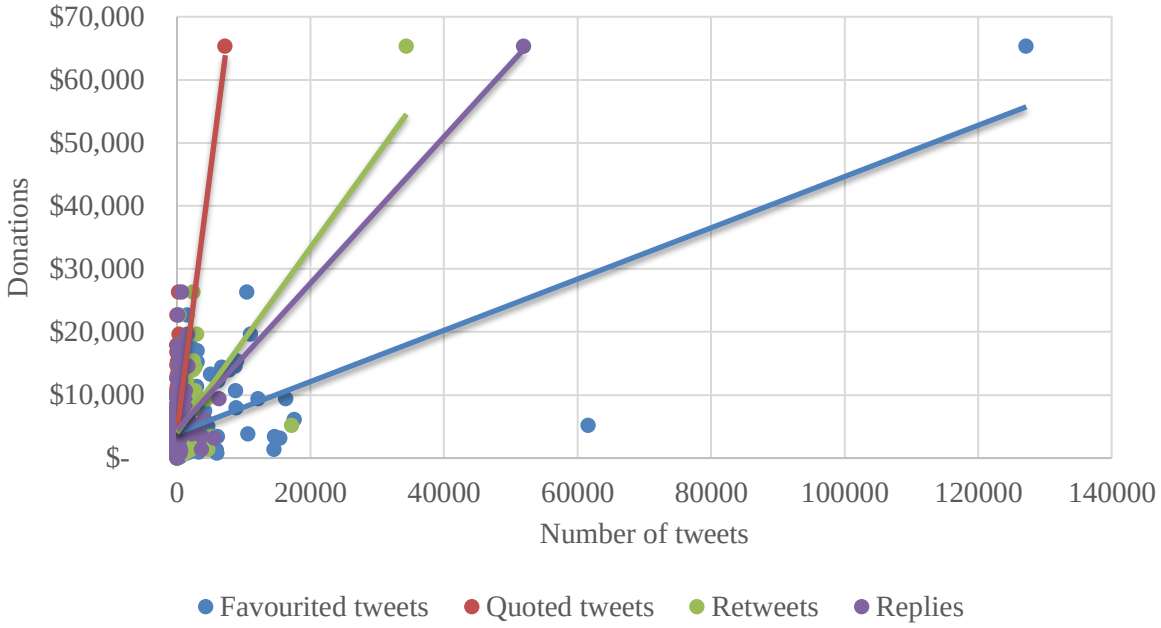


6.2.3.1.2 By riding type

For all Twitter variables, there was no significant correlation with donations to a candidate's riding in safe and unlikely ridings. Swing ridings, on the other hand, returned a significant correlation for all variables, for the number of times a candidate is favourited on Twitter, ($r(168) = .682$, $p = .15$), the number of times a candidate is quoted on Twitter, ($r(168) = .712$, $p = .15$), the number of times a candidate is retweeted, ($r(168) = .672$, $p = .15$), and the number of replies to a candidate's tweets, ($r(168) = .708$, $p = .15$). All variables showed a positive correlation, meaning as the Twitter variable increased, so did donations in swing ridings, as can be seen in figure 40. In fact, quoted tweets have the steepest slope, indicating that with just a few extra quotes candidates received a lot more donations. This is compared to favourited tweets, which had a flatter slope, meaning candidates needed to get a lot more favourites to get more donations.

Figure 40

Correlation between Twitter variables and donations in swing ridings



6.2.3.1.3 Summary of significant relationships

In summary, the popularity of a candidate on Twitter returned significant correlations. However, those correlations needed certain conditions, which happen to continuously be Ontario, Manitoba, British Columbia and swing ridings. These locations clearly created an environment where the more popular a candidate was on Twitter, the more donations their riding received.

This is true for all variables that measure popularity – be it the number of favourites on a candidate's tweets, the number of times a candidate is quoted or retweeted, or the number of replies to a candidate's tweets. The number of times a candidate is quoted returned the strongest positive correlation with the steepest slope. This means, even if candidates are quoted a few times more, donations increased significantly. This validates the strength of Grunig's (2013) theory of two-way communications and its positive impact on a company or brand.

Table 9

Summary table: significant relationships – popularity on Twitter

Independent variable	Dependent variable	Direction of relationship	*N*	*r*	Critical *r*
Favourites					
Number of favourites on tweets by candidates in Ontario	Donations	Positive	115	.678*	.18
Number of favourites on tweets by candidates in Manitoba	Donations	Positive	8	.965*	.71
Number of favourites on tweets by candidates in British Columbia	Donations	Positive	36	.512*	.33
Number of favourites on tweets by candidates in swing ridings	Donations	Positive	168	.682*	.15
Times quoted					
Number of times candidates in Ontario were quoted on Twitter	Donations	Positive	115	.686*	.18
Number of times candidates in Manitoba were quoted on Twitter	Donations	Positive	8	.976*	.71
Number of times candidates in British Columbia were quoted on Twitter	Donations	Positive	36	.537*	.33
Number of times candidates in swing ridings were quoted on Twitter	Donations	Positive	168	.712*	.15
Times retweeted					
Number of times candidates in Ontario were retweeted	Donations	Positive	115	.671*	.18
Number of times candidates in Manitoba were retweeted	Donations	Positive	8	.973*	.71
Number of times candidates in British Columbia were retweeted	Donations	Positive	36	.593*	.33
Number of times candidates in swing ridings were retweeted	Donations	Positive	168	.672*	.15
Replies					
Number of replies on tweets by candidates in Ontario	Donations	Positive	115	.645*	.18
Number of replies on tweets by candidates in Manitoba	Donations	Positive	8	.976*	.71
Number of replies on tweets by candidates in British Columbia	Donations	Positive	36	.593*	.33
Number of replies on tweets by candidates in swing ridings	Donations	Positive	168	.708*	.15

Note: *$p < .05$, two tailed.

6.2.3.2 Instagram

When it came to Instagram, the author looked at comments and likes on candidates' Instagram posts, as well as video views on videos posted to Instagram. For all three variables, there was no correlation between comments, ($r(241) = -.018$, $p = .13$), likes,

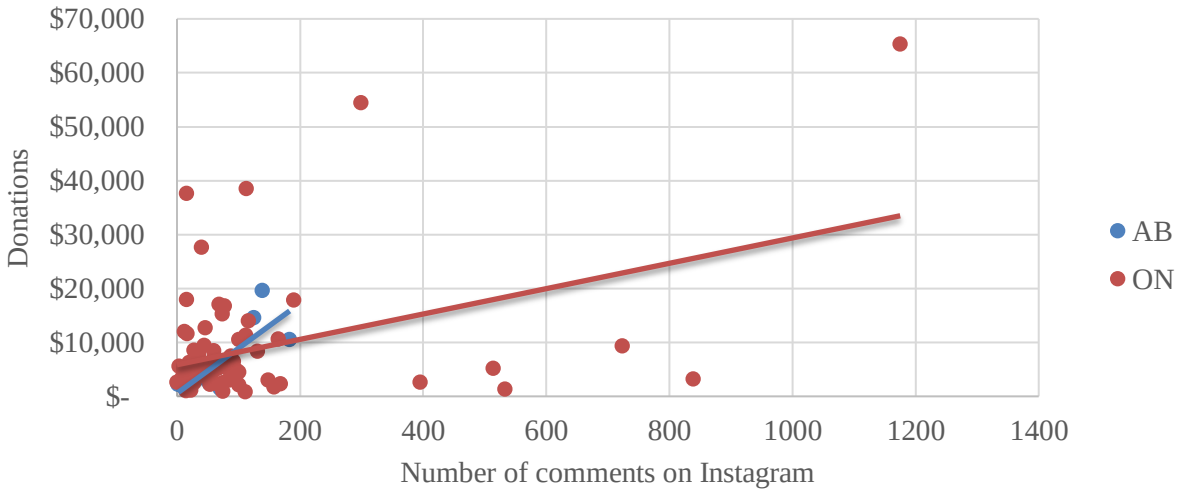
(r(241) = -.022, p = .13), or video views, (r(173) = -.032, p = .15), and the donations made to a candidate's riding.

6.2.3.2.1 By province

No significant correlation was found between donations and the number of comments on a candidate's Instagram posts in British Columbia (r(34) = -.067, p = .34), Manitoba (r(8) = .606, p = .71), New Brunswick (r(5) = -.079, p = .88), Newfoundland, (r(4) = -.311, p = .95), Nova Scotia (r(9) = .268, p = .67), Québec (r(57) = -.005, p = .26), Saskatchewan (r(3) = -.681, p = .997), or Prince-Edward-Island[12] $t(4) = 1.86$, $p = .20$. There was, however, a significant correlation between Instagram comments and donations for candidates in Alberta (r(14) = .694, p = .53) and Ontario (r(103) = .401, p = .19). Both correlations were positive, which meant that the more comments a candidate received the more donations their riding would receive. This can be seen visually in figure 41.

Figure 41

Correlation between number of comments on Instagram and donations

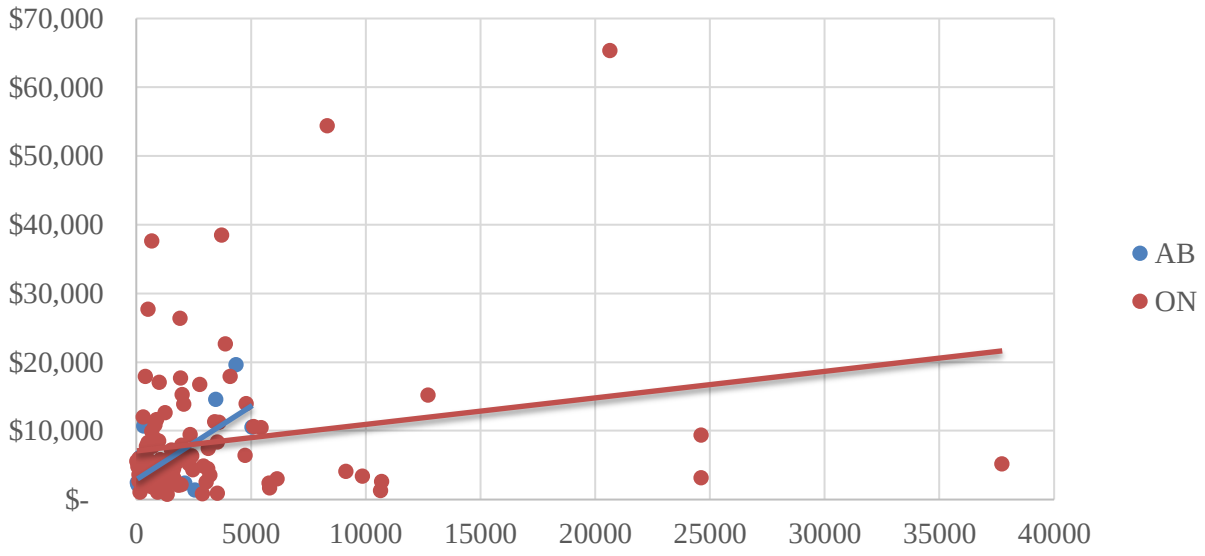


[12] Calculating the correlation coefficient was not possible for Prince-Edward-Island, because the data resulted in a two by two table. Instead, the author used t-test statistic to analyze the relationship between donations and Instagram variables.

There was no significant correlation between donations and the number of likes on a candidate's Instagram posts in British Columbia (r(34) = -.009, p = .34), Manitoba (r(8) = .339, p = .71), New Brunswick (r(5) = .063, p = .88), Newfoundland (r(4) = -.294, p = .95), Nova Scotia (r(9) = .125, p = .67), Québec (r(57) = -.005, p = .26), Saskatchewan (r(3) = -.703, p = .997) and, Prince-Edward-Island $t(4) = .057$, $p = .96$. However, there was again a significant correlation in Alberta (r(14) = .657, p = .53) and Ontario (r(103) = .213, p = .19). All correlations were positive, meaning the more likes a candidate received, the more donations the candidate received, as can be seen in figure 42.

Figure 42

Correlation between number of likes on Instagram and donations

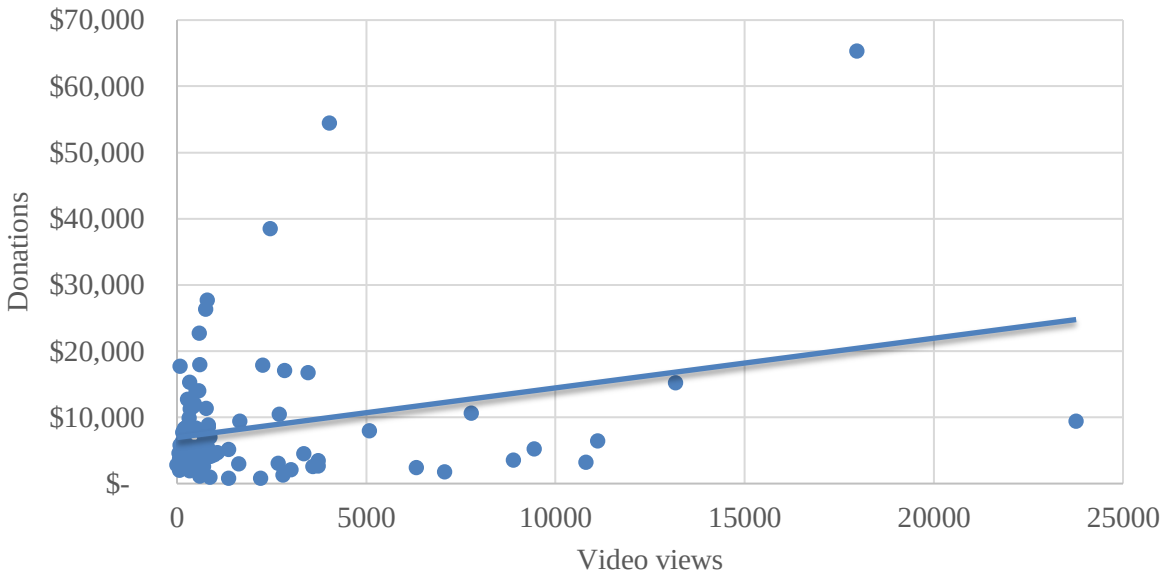


There was no significant correlation between donations and the number of views a candidate's videos got on Instagram in Alberta (r(10) = .314, p = .63), British Columbia (r(26) = -.003, p = .39), Manitoba (r(6) = -.132, p = .81), New Brunswick (r(4) = .752, p = .95), Newfoundland (r(3) = -.192, p = .997), Nova Scotia (r(4) = .646, p = .95), and Québec (r(31) = -.022, p = .36). This time Ontario and Prince-Edward-Island returned a significant

correlation. There was a strong correlation between the number of video views a candidate received on Instagram and donations to the candidate's riding in Ontario (r(86) = .290, p = .21) and Prince-Edward-Island $t(4) = 1.60$, $p = .25$. And while the calculation revealed a relationship for Prince-Edward-Island, not enough information is available to determine the direction and strength of the relationship. For Ontario, however, there was sufficient data, so a scatter plot can be seen in figure 43. In Ontario there was a positive correlation, meaning the more video views a candidate received, the more donations candidates in Ontario received. In addition, the slope was quite flat, meaning candidates needed a lot of video views to see only incremental donations to their riding.

Figure 43

Correlation between video views on Instagram and donations in Ontario



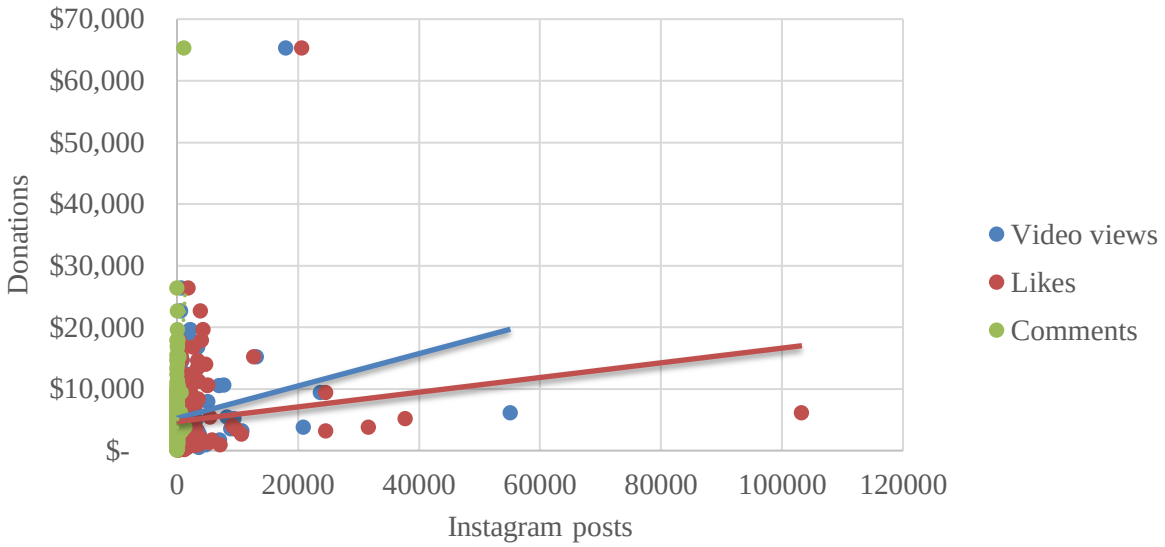
6.2.3.2.2 By riding type

There was no significant correlation found in safe and unlikely ridings for all Instagram variables. This meant there was no correlation between the number of comments, likes and video views on Instagram, and donations.

Swing ridings, on the other hand, returned a significant positive correlation for comments (r(161) = .425, p = .15), likes (r(161) = .166, p = .15), and video views (r(119) = .215, p = .18). In other words, in swing ridings, the more comments, likes and video views a candidate received, the more donations they received, as can be seen in figure 44.

Figure 44

Correlation between Instagram variables and donations



6.2.3.2.3 Summary of significant relationships

In summary, the popularity of a candidate on Instagram returned significant correlations, but only in Alberta, Ontario and swing ridings. This means candidates in these regions created an environment where the more popular they become on Instagram, the more donations they received.

All variables measuring popularity on Instagram returned significant correlations. However, comments had the steepest slope. The slope wasn't as steep as was seen with quoted tweets. Nevertheless, this is yet again another indication of the importance in encouraging and engaging two-way communications on social media. However, this is purely based on the

number of comments and not their content. A content analysis is needed to validate the relationship between the content of the Instagram posts and the comments, and to confirm the content was encouraging two-way communications and not instigating meaningless comments.

Table 10

Summary table: significant relationships – popularity on Instagram

Independent variable	Dependent variable	Direction of relationship	*N*	*r*	Critical *r*
Comments					
Number of comments on Instagram posts by candidates in Alberta	Donations	Positive	14	.694*	.53
Number of comments on Instagram posts by candidates in Ontario	Donations	Positive	103	.401*	.19
Number of comments on Instagram posts by candidates in swing ridings	Donations	Positive	161	.425*	.15
Likes					
Number of likes on Instagram posts by candidates in Alberta	Donations	Positive	14	.657*	.53
Number of likes on Instagram posts by candidates in Ontario	Donations	Positive	103	.213*	.19
Number of likes on Instagram posts by candidates in swing ridings	Donations	Positive	161	.166*	.15
Video views					
Number of video views on Instagram posts by candidates in Ontario	Donations	Positive	86	.290	.21
Number of video views on Instagram posts by candidates in Prince-Edward-Island	Donations	n/a	4	*t = 1.60**	.25
Number of video views on Instagram posts by candidates in swing ridings	Donations	Positive	119	.215*	.18

Note: *$p < .05$, two tailed.

6.2.3.3 Facebook

For Facebook, there was no significant relationship between the impressions behind an ad and donations to a candidate's riding, ($F(7, 193) = 1.035$, $p = 0.408$), with an R^2 of .036. This is true for all impression categories.

An interesting discovery was that the majority, 80 percent, of all Facebook ads by all candidates on average had 0 and 10,000 impressions, which is on the lower end for paid Facebook ads. Further, 16 percent of ads had an average of 10,000 to 50,000 impressions, and only 4 percent of ads saw more than 50,000 impressions. Even more interesting is that among the 12,708 Facebook ads, nearly half (47 percent) were run by Trudeau.

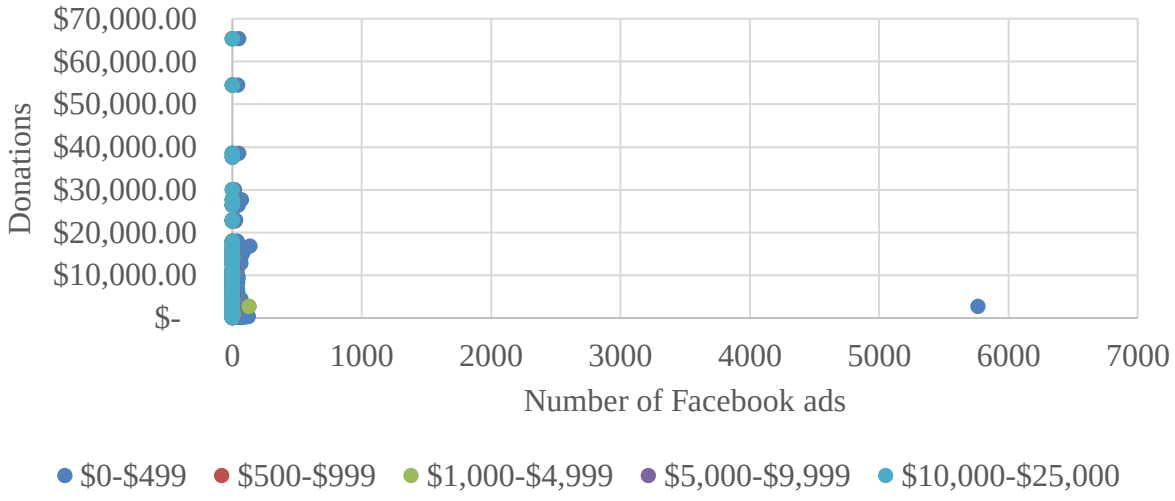
When regression is done by province[13] and riding type, the same remains true, there is no correlation between the impressions of an ad and the donations to a candidate's riding.

6.2.4 Investment in Facebook ads

The author grouped all ads into categorical spend ranges, making the data a nominal level variable. Each category was then compared to the total donations associated with the candidate who ran the ads. The result can be viewed in the scatterplot in Figure 45.

Figure 45

Correlation between spend behind a Facebook ad and donations to a candidate's riding



[13] No calculations could be done for Newfoundland, Northwest Territories, Prince-Edward-Island, Saskatchewan and Yukon as there was not enough data. In addition, not all impression categories were included in all provincial calculations, as not all provinces ran ads in all impression categories.

Already, one can see there is very little correlation here, and the data is heavily skewed towards candidates who ran very few ads and spent either under $500 or between $10,000 and $25,000 on each ad. The author ran a regression statistic through Excel and an error occurred. Because there was only one candidate who ran an ad and spent $10,000-$25,000, the *p* value field was empty. The calculation was redone without the largest spend category. The results confirmed the author's suspicions, there is no correlation between how much money spent on Facebook ads and the number of donations a candidate receives in their riding, ($F(4, 196) = .673$, $p = .61$), with an R^2 of .014.

All provinces[14], expect Manitoba, did not have a correlation between the spend behind an ad and donations to a candidate's riding. Manitoba returned a significant positive relationship, ($F(2, 3) = .453$, $p = .67$), with an R^2 of .23, but no type of spend category correlated strongly with donations. Finally, riding type also did not have any bearing on the results. Regardless of the riding type, there was no significant correlation between the investment in ads and donations.

In summary, despite the anomaly in Manitoba, the investment in Facebook ads do not have any bearing on donations to a candidate's riding.

6.3 Public opinion

Public opinion data was collected from Nanos Research and the results were provided by region. This limited the amount of analysis the author could do. For example, the author could not look at riding type as a variable that could affect outcomes, because to use riding type you need results per candidate or per riding. The author analysed the regional scores of various opinion markers (described in the methodology section), and the variables of all candidates in that region combined. In essence, this section of the study looked at the collective power of all

[14] When analyzing the results by province, calculations for Newfoundland, Northwest Territories, Saskatchewan, and Yukon as not enough data was available.

LPC candidates and how their actions on social media in combination can affect the public's opinion of the party as a whole.

Given the way the data was extracted from Facebook, some analyses could not be done in this study as it required advanced statistical analysis. The author was able to analyse the presence on Facebook, by counting the number of ads each candidate had running on each date during the span of the campaign. For ad impressions and spend on ads, these data were in categories, adding another layer of variables. For this type of analysis advanced linear regression is required, something the author would hope to do in phase two of this study. All correlation tables with results of the statistical analyses are in Appendix C.

6.3.1 Presence on social media

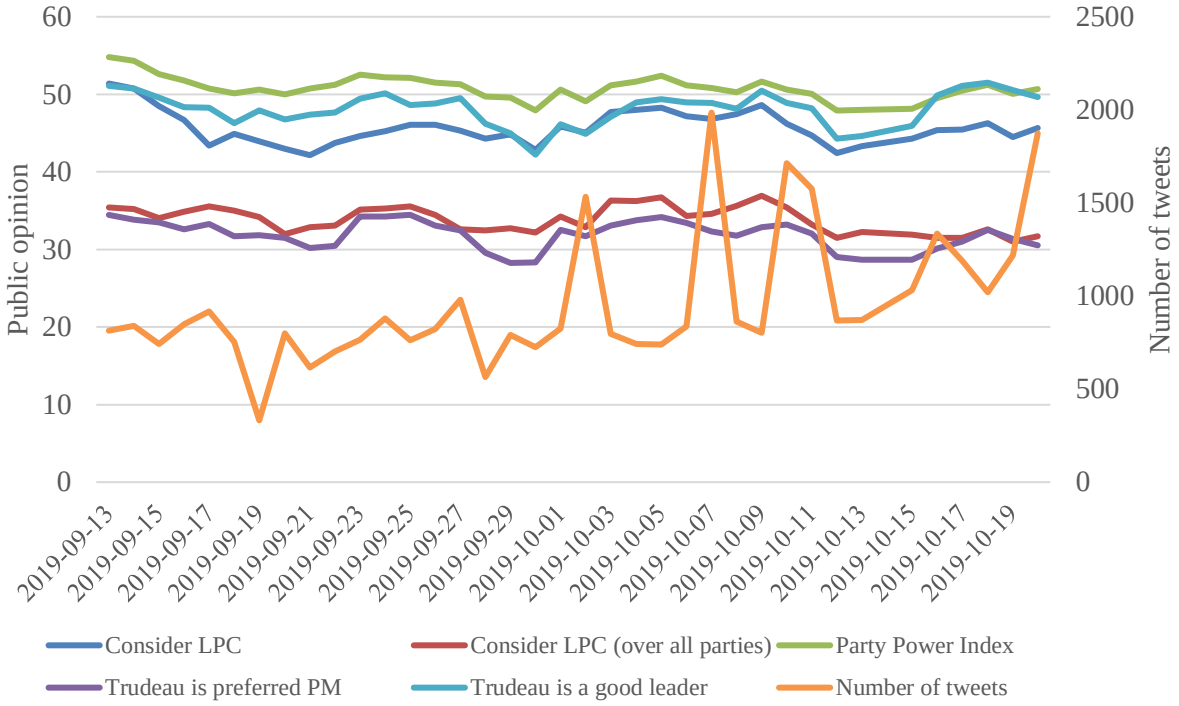
When the author mentions frequency of posting in the following analysis, she is referring to the number of times all candidates in each region collectively posted on Twitter, Instagram and Facebook.

6.3.1.1 Twitter

The author began by looking at how the number of tweets influenced public opinion in Canada. Figure 46 displays the relationship. There is no significant correlation between the number of times Liberal candidates tweeted and the public's opinion of Liberals on that day.

Figure 46

Correlation between public opinion and frequency of tweeting.

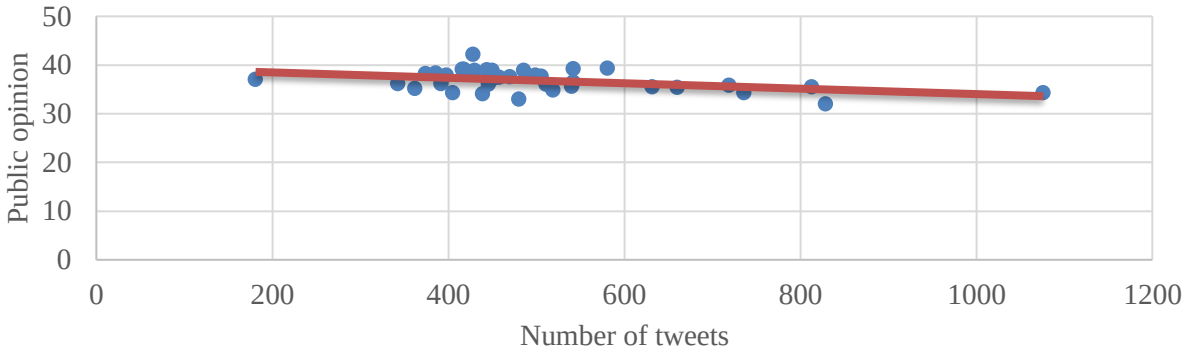


6.3.1.1.1 By region

The same results where found when calculations were done by region. There is no correlation between the frequency of tweeting and the public's opinion of candidates in most regions. Only in Ontario was a correlation found. The relationship was between the frequency of tweeting and the number of people who felt the leader of the LPC, Trudeau, had qualities of a good leader, ($r(37) = -.431$, $p = .32$). Figure 47 below shows the relationship between these two variables. The correlation was negative, which means the more candidates in Ontario tweeted, the less people in Ontario felt that Trudeau had good qualities of a leader.

Figure 47

Correlations between the frequency of tweeting and those who think Trudeau has qualities of a good leader.

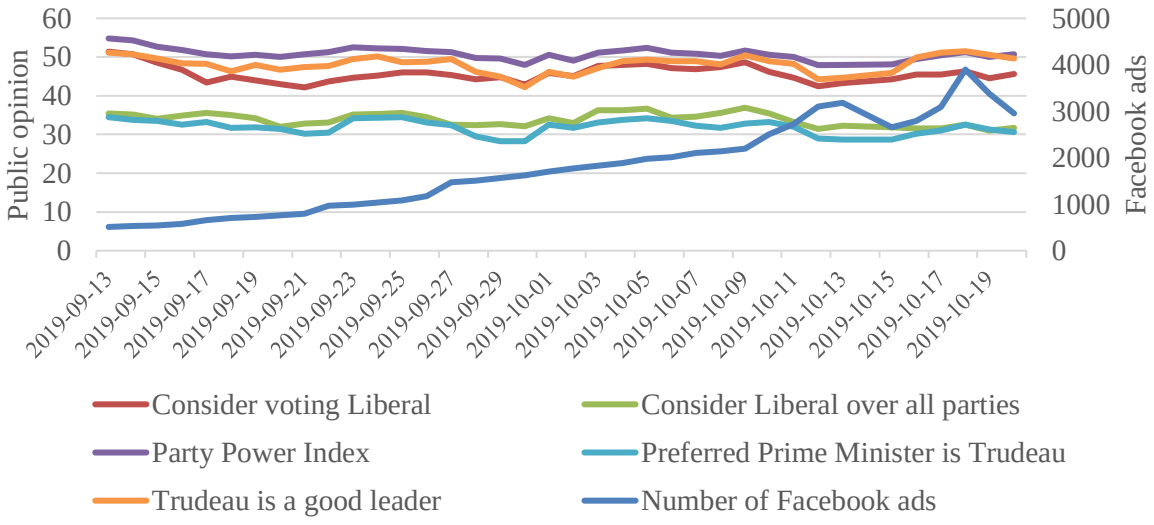


6.3.1.2 Facebook

The author then looked at the relationship between the number of Facebook ads by LPC candidates and its impact on public opinion. Figure 48 represents the relationship on a graph. As one can see, there was a steady increase in the number of ads running by the end of the campaign.

Figure 48

Relationship between public opinion and number of Facebook ads



After performing a Pearson Product Moment Correlation, one can see that there is a significant correlation between the number of Facebook ads and three of the Nanos markers, those who would consider voting for the LPC over all other parties, ($r(37) = -.452$, $p = .32$), the Party Power Index, ($r(37) = -.506$, $p = .32$) and those who think Trudeau has the qualities of a good leader, ($r(37) = -.373$, $p = .32$). The relationships are all negative, meaning the more Facebook ads candidates ran, the further public opinion would drop. The result is not surprising, because Facebook ads were on a steady incline during the entire campaign, while public opinion fluctuated, including several drops, especially right at the end of the campaign – when Facebook ads were at its peak. Most of these ads, as we learned earlier, came from Trudeau. The peak near the end on October 18 was also heavily influenced by Trudeau who ran more than 400 ads, double the amount of other active candidates in Facebook.

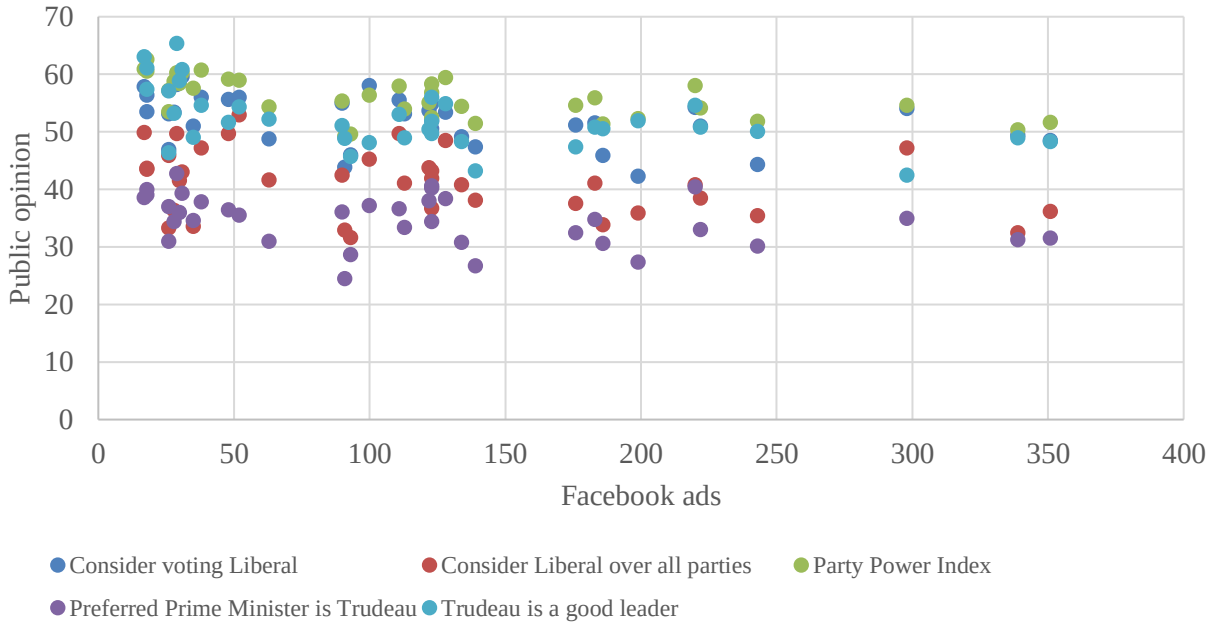
6.3.1.2.1 By region

The same correlation calculations were done for each province. And in all regions except British Columbia, there was a significant correlation between the number of Facebook ads and public opinion. Further, all correlations were negative, meaning that the more Facebook ads were present, the more public opinion dropped.

In Atlantic Canada, there was a significant correlation between the number of Facebook ads and all public opinion markers. There was a correlation between the number of Facebook ads and those who would consider voting Liberal, ($r(37) = -.442$, $p = .32$), those who would consider voting Liberal over other parties, ($r(37) = -.357$, $p = .32$), the Party Power Index, ($r(37) = -.600$, $p = .32$), those that said Trudeau was their preferred Prime Minister, ($r(37) = -.354$, $p = .32$), and those that believed Trudeau had qualities of a good leader, ($r(37) = -.528$, $p = .32$). Figure 49 shows a scatterplot of the relationship. As one can see the more Facebook ads in the market in

Atlantic Canada, the more public opinion markers dropped. On October 18 and 19, only two and three days away from the election, Atlantic Canada saw an increase of 2.47 percent in Facebook ads, the largest increase during the campaign. On these days public opinion was taking its final drop before recovering the day before the election. And while public opinion recovered, the number of Facebook ads dropped by nearly 1 percent. This reinforces the trend that as Facebook ads go up, opinion goes down.

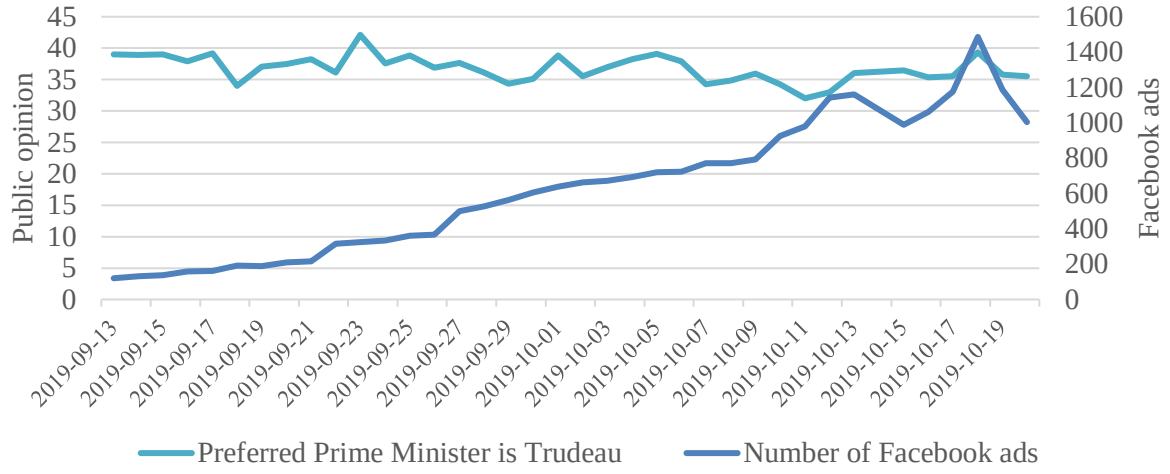
Figure 49



In Ontario, only one public opinion marker correlated with the presence of Facebook ads, and that was those who preferred Trudeau as Prime Minister, ($r(37) = -.435$, $p = .32$). The negative correlation was steady throughout the campaign, but figure 50 also shows a positive correlation in the final days of the campaign. Ontario also saw a 14 percent increase in Facebook ads during the last week of the campaign. And in this province, public opinion was rising a few points before its final descent on the last day of the campaign.

Figure 50

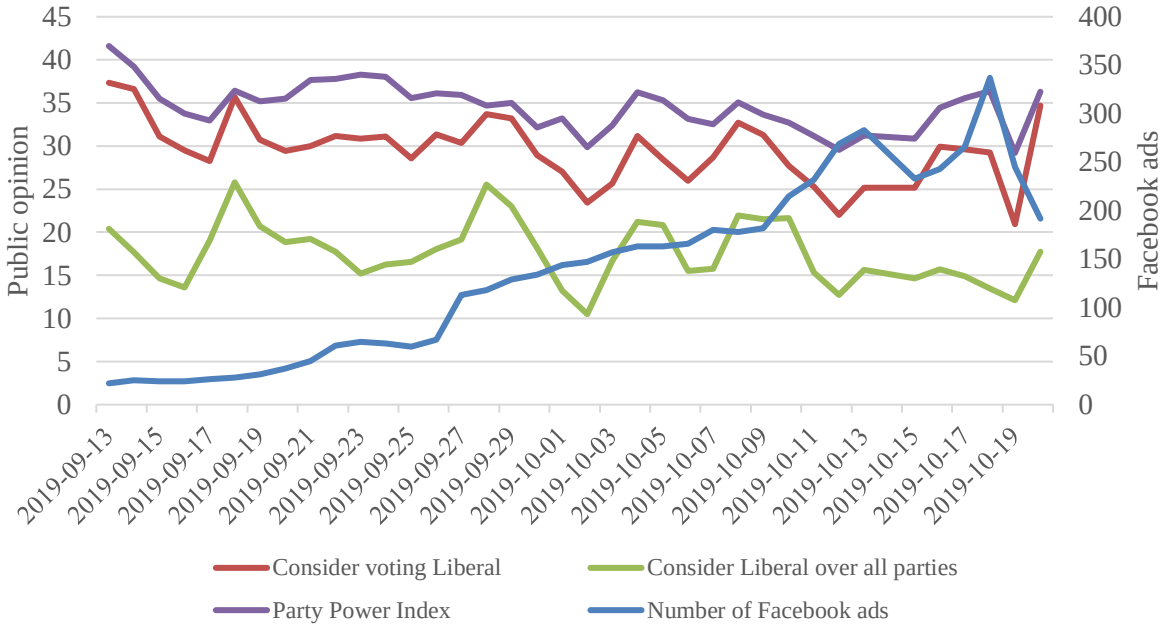
Chronological view of Facebook ads and public opinion in Ontario



In the Prairies, those who would consider voting Liberal in general, ($r(37) = -.531$, $p = .32$), voting Liberal over other parties, ($r(37) = -.338$, $p = .32$), and the Party Power Index, ($r(37) = -.555$, $p = .32$), correlated strongly with the frequency of Facebook ads. For the majority of the campaign the correlation is negative, in the last few days of the campaign when there is a surge of Facebook ads, public opinion rises as well. However, this happens only on two days, as displayed in figure 51, on October 13 and October 18 when the presence of Facebook ads and public opinion rise together.

Figure 51

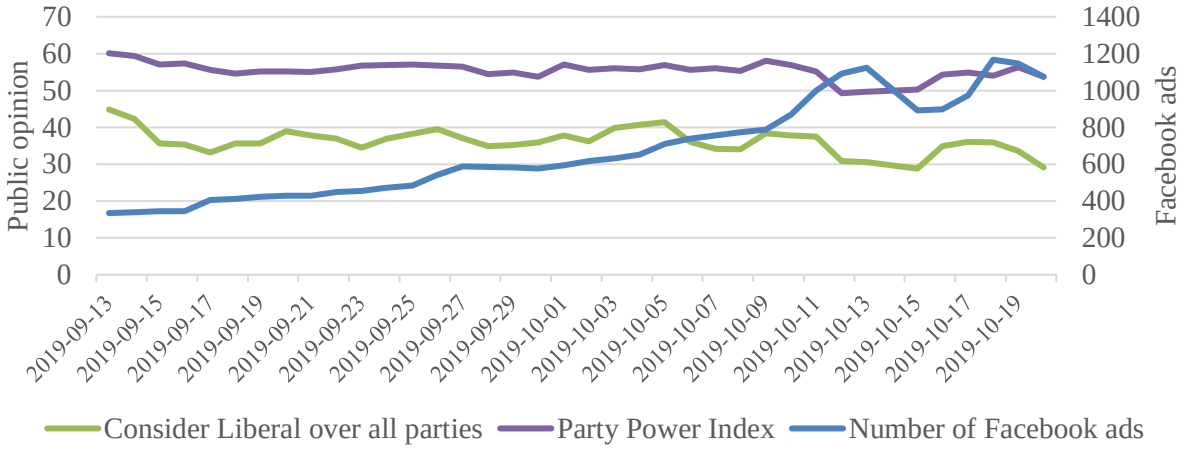
Chronological look at Facebook ads and public opinion in the Prairies



And finally, in Québec, both those who would consider voting Liberal over any other party, ($r(37) = -.498$, $p = .32$), and the Party Power Index, ($r(37) = -.572$, $p = .32$), correlated strongly with the number of Facebook ads per day. Québec is the best display of the negative correlation. The presence of Facebook ads peaks as public opinion drops, even at the end of the campaign, as can be seen in figure 52. It is important to note that Trudeau's riding is in Québec. In fact, other than 9 days in the campaign, Trudeau is leading the presence on Facebook by running nearly double the number of ads as other candidates.

Figure 52

Chronological look at Facebook ads and public opinion in Québec

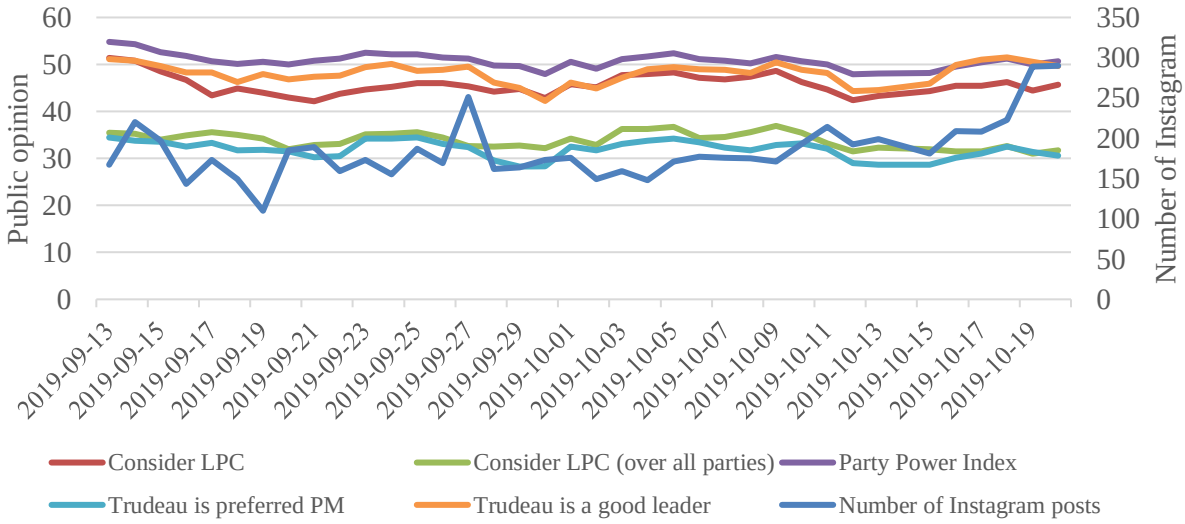


6.3.1.3 Instagram

Finally, the author also looked at the frequency of posting on Instagram. Figure 53 below is a graph of the various points of the public's opinion of LPC and the number of Instagram posts by LPC candidates per day.

Figure 53

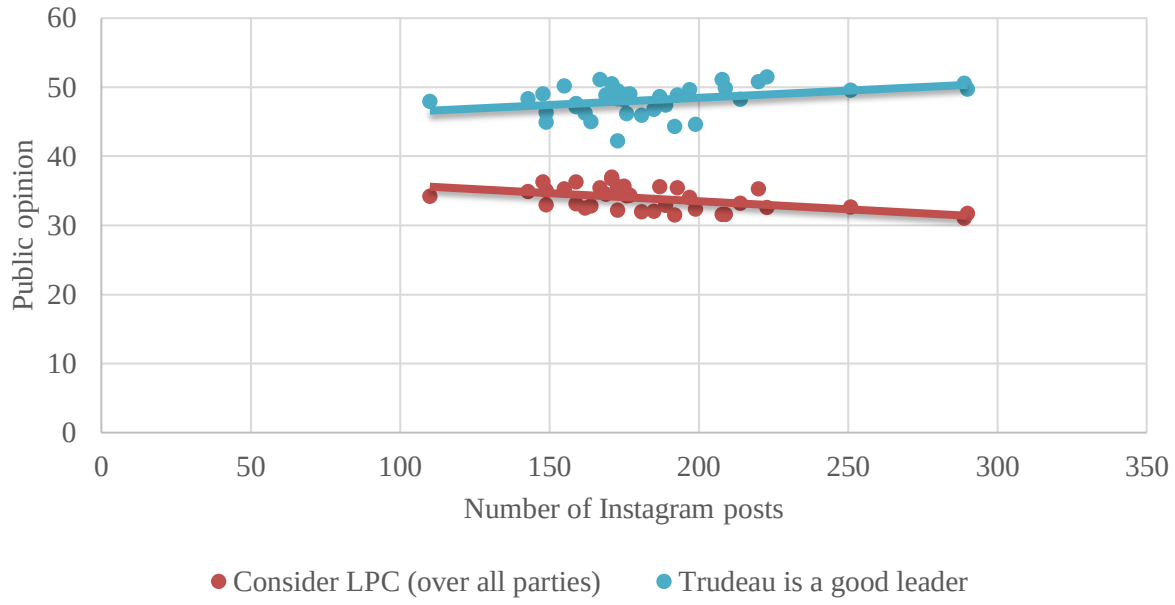
Correlations between public opinion and frequency of posting on Instagram



There is a strong correlation between the frequency of posting on Instagram and those who would consider voting LPC over any other party, (r(37) = -.502, p = .33) and those who believe Trudeau has qualities of a good leader, (r(37) = .347, p = .33). The former is a negative correlation, and the latter is a positive correlation. Figure 54 displays these results.

Figure 54

Correlations between public opinion and frequency of posting on Instagram



The points are very close to their respective trendline, indication there are no outliers skewing the data. Given both series of data have an *r* that is greater than the critical value, the results show that the more a candidate posts on Instagram the lower the public's opinion is of the LPC, but the higher the public's opinion is of Trudeau as a good leader.

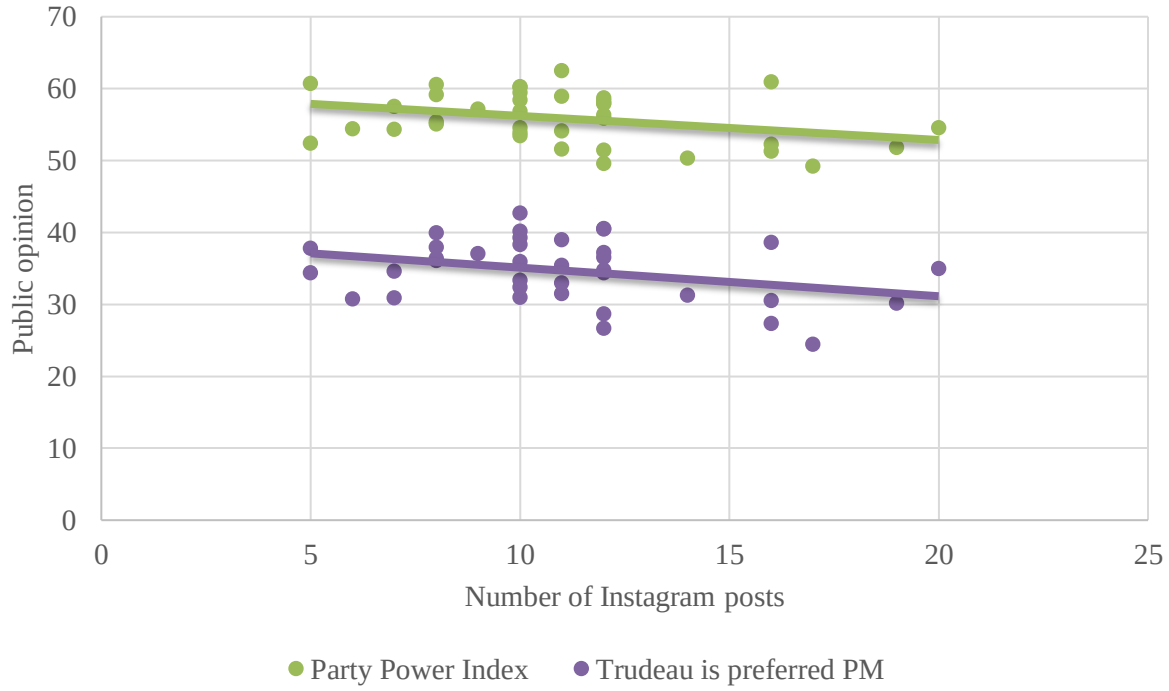
6.3.1.3.1 By region

There is a correlation between the frequency of posting on Instagram and some aspects of the public's opinion of LPC in Atlantic Canada and Ontario. In Atlantic Canada, there is a negative correlation between the frequency of posting on Instagram and Nanos' Party Power

Index, (r(37) = -.332, p = .32), and those who would prefer Trudeau as Prime Minister of Canada, (r(37) = -.325, p = .32)[15]. These results indicate that the more candidates in Atlantic Canada post on Instagram, the more the Power Party Index decreases, and the fewer people would say they would prefer Trudeau as a Prime Minister. In Figure 55 below, one can see these variables correlated visually.

Figure 55

Correlations between public opinion and frequency of posting on Instagram, in Atlantic Canada

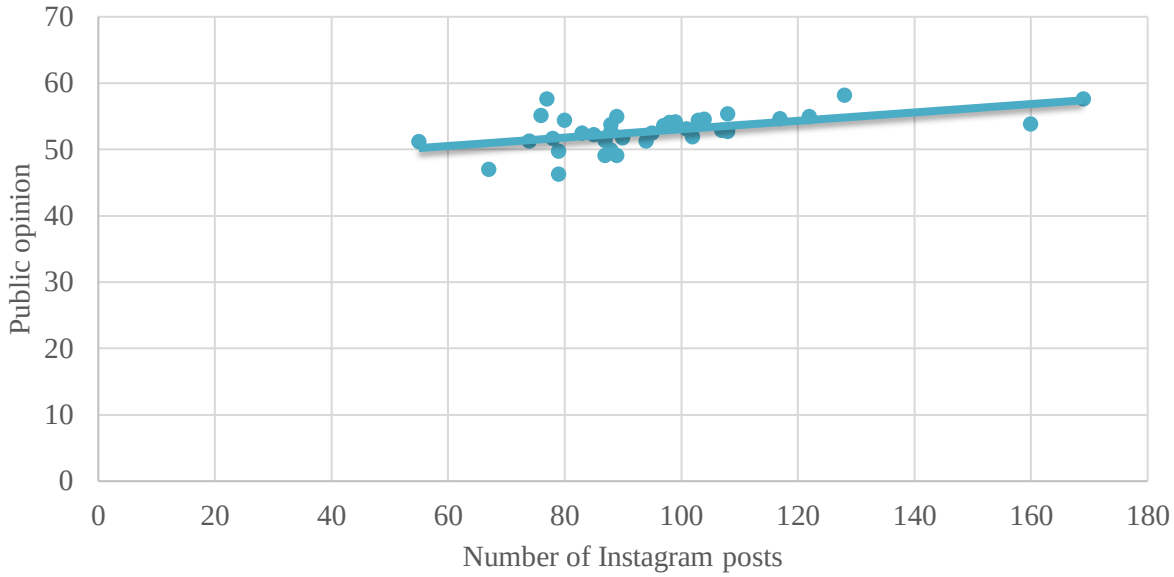


In Ontario, there was only a correlation between the frequency of posting on Instagram and those who believed Trudeau had the qualities of a good leader, (r(37) = .536, p = .32). The correlation was positive, which indicates that the more candidates in Ontario posted on Instagram, the more people would prefer Trudeau as their Prime Minister.

[15] Note: while it looks like *r* = *p* here, that is only the case when rounded to three decimal points. In fact, *r* is -0.324932403031887. Therefore, there is a correlation, albeit a weak correlation.

Figure 56

Correlations between public opinion and frequency of posting on Instagram, in Ontario



However, as can be seen in figure 56, most points are distributed around the centre of the graph, showing that most days candidates posted between 70 and 110 times, which correlated to roughly 50 to 60 percent of people who would prefer Trudeau as their Prime Minister. The days with more than 120 Instagram posts were in the final days of the election, when Trudeau's approval was at its highest. That is true except for the day right before the election when Trudeau's support dropped to 53 percent.

6.3.1.4 Summary of significant relationships

In summary, the presence of Liberal candidates on Facebook and Instagram did influence public opinion, while the presence on Twitter wasn't as successful. Twitter did return one significant correlation, but it happened for one public opinion marker only in one province. The author sees this as an anomaly.

Facebook returned the most significant correlations, all of which were negative. It didn't matter what region a candidate was in, but the more Facebook ads published, the further public

opinion dropped. Québec was the most evident correlation, which also happens to be the region where Trudeau's riding was situated, which accounted for the majority of Facebook ads being published each day. In fact, Trudeau posted 60 times more than any other Liberal candidate in Canada. These results point to what Delacourt (2013) and Marland and Giasson (2015) call a leader-centric model, which tends to be the way modern political parties in Canada run their campaigns. Given that, these results would also indicate that there may be a flaw in leader-centric model, because the more Facebook ads were posted, the further public opinion dropped.

The presence on Instagram also returned significant correlations. With Instagram, however, only a few positive correlations were found. These correlations always occurred with those that believed Trudeau had qualities of a good leader. In other words, the more candidates posted on Instagram, the more positive Trudeau was viewed as a leader.

Table 11

Summary table: significant relationships – presence on social media

Independent variable	Dependent variable	Direction of relationship	*N*	*r*	Critical *r*
Twitter					
Frequency of tweeting in Ontario	Trudeau has qualities of a good leader	Negative	37	-.431*	.32
Facebook					
Frequency of publishing Facebook ads	Consider voting LPC over all other parties	Negative	37	-.452*	.32
Frequency of publishing Facebook ads	Party Power Index	Negative	37	-.506*	.32
Frequency of publishing Facebook ads	Trudeau has qualities of a good leader	Negative	37	-.373*	.32
Frequency of publishing Facebook ads in Atlantic Canada	Consider voting Liberal	Negative	37	-.442*	.32
Frequency of publishing Facebook ads in Atlantic Canada	Consider voting LPC over all other parties	Negative	37	-.357*	.32
Frequency of publishing Facebook ads in Atlantic Canada	Party Power Index	Negative	37	-.600*	.32
Frequency of publishing Facebook ads in Atlantic Canada	Preferred Prime Minister is Trudeau	Negative	37	-.354*	.32
Frequency of publishing Facebook ads in Atlantic Canada	Trudeau has qualities of a good leader	Negative	37	-.528*	.32
Frequency of publishing Facebook ads in Ontario	Preferred Prime Minister is Trudeau	Negative	37	-.435*	.32
Frequency of publishing Facebook ads in the Prairies	Consider voting Liberal	Negative	37	-.531*	.32
Frequency of publishing Facebook ads in the Prairies	Consider voting LPC over all other parties	Negative	37	-.338*	.32
Frequency of publishing Facebook ads in the Prairies	Party Power Index	Negative	37	-.555*	.32
Frequency of publishing Facebook ads in Québec	Consider voting LPC over all other parties	Negative	37	-.498*	.32
Frequency of publishing Facebook ads in Québec	Party Power Index	Negative	37	-.572*	.32
Instagram					
Frequency of posting on Instagram	Consider voting LPC over all other parties	Negative	37	-.502*	.32
Frequency of posting on Instagram	Trudeau has qualities of a good leader	Positive	37	.347*	.32
Frequency of posting on Instagram in Atlantic Canada	Party Power Index	Negative	37	-.332*	.32
Frequency of posting on Instagram in Atlantic Canada	Preferred Prime Minister is Trudeau	Negative	37	-.325*	.32
Frequency of posting on Instagram in Ontario	Trudeau has qualities of a good leader	Positive	37	.536	.32

Note: *$p < .05$, two tailed.

6.3.2 Ways to engage

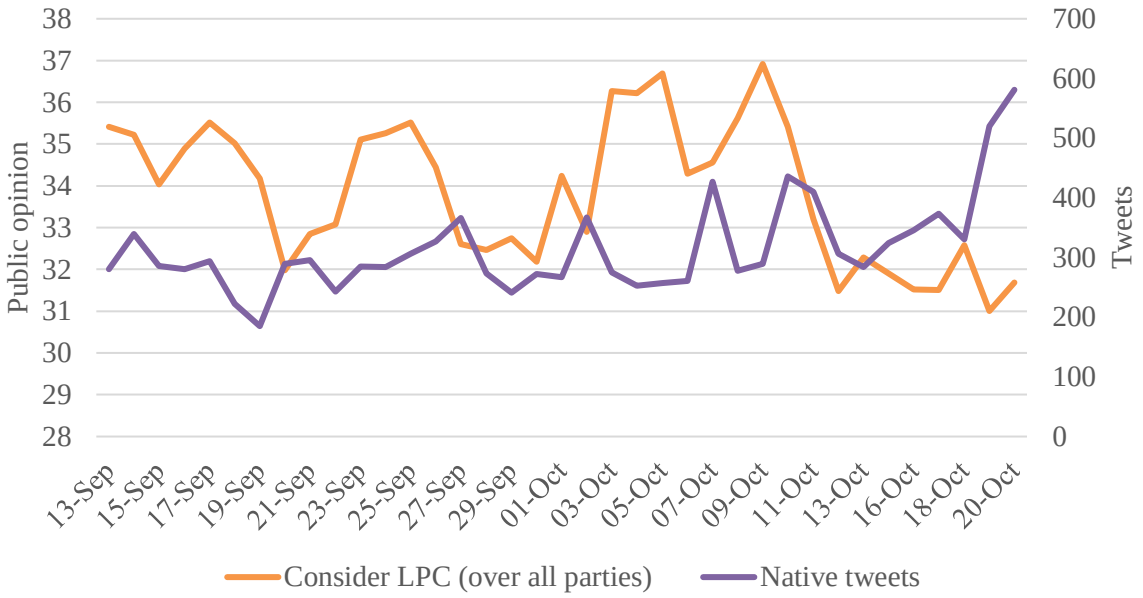
To analyze the ways candidates engage on social media and its impact on public opinion of the LPC, the author added up the number of social media posts by all candidates per day and divided them into the many types of posts that have appeared in this study. For Twitter, that meant there was a number per day for all LPC candidates for native tweets, replies to tweets, quoted tweets, retweets, tweets with photos, videos, just text and GIFs, and Instagram posts with photos or videos. The following analysis is divided by social channel below.

6.3.2.1 Twitter

Among the ways candidates tweet, there was only a significant correlation between those that would consider voting LPC over any other party and the daily number of native tweets published by LPC candidates, ($r(37) = -.384$, $p = .32$). The rest of the variables did not return a significant correlation. Figure 57 shows native tweets and public opinion over time. When there are peaks of native tweets, there is a dip in public opinion. However, a trend emerges that a few days after a spike in native tweets, there is an increase in public opinion. This might be a result of how the public opinion data is collected. Public opinion data is a three-day rolling average, so there could be a delayed affect on the engagement of LPC candidates on social media.

Figure 57

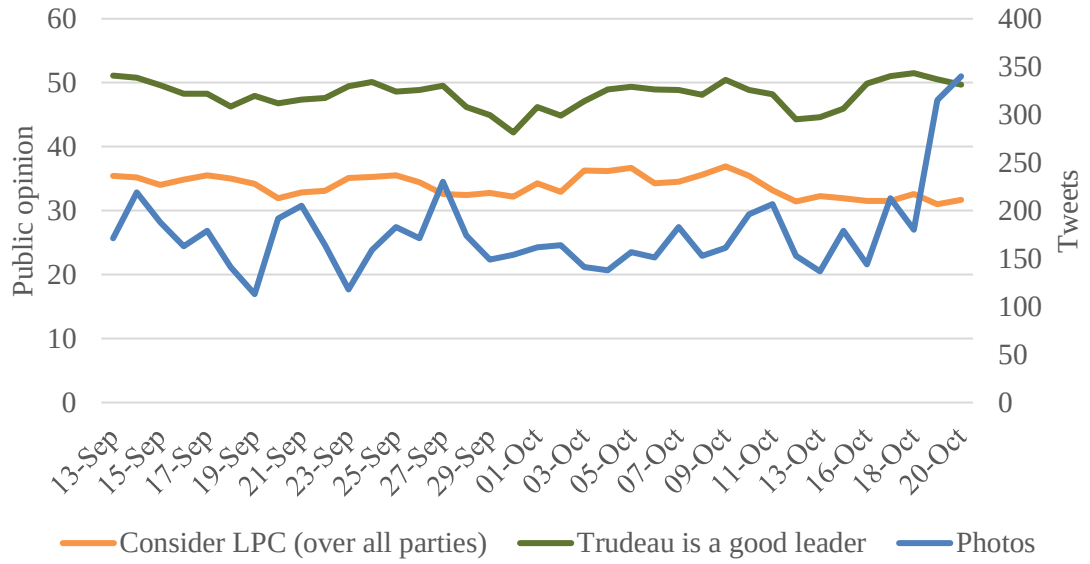
Chronological view of native tweets by LPC candidates and public opinion



When it came to the type of media attached to a tweet, photos had a significant impact on two of the public opinion markers, those who would consider voting Liberal over all, ($r(37) = -.406$, $p = .32$) and those that thought Trudeau had qualities of a good leader, ($r(37) = .348$, $p = .32$). The former correlation is negative, which means the more photos LPC candidates posted, the more public opinion dropped. The latter is positive, which means as more photos are posted, the higher the public's opinion of Trudeau climbs. This is evident in figure 58, which also demonstrates the delayed reaction in public opinion discovered in the previous analysis.

Figure 58

Chronological view of native tweets by LPC candidates and public opinion

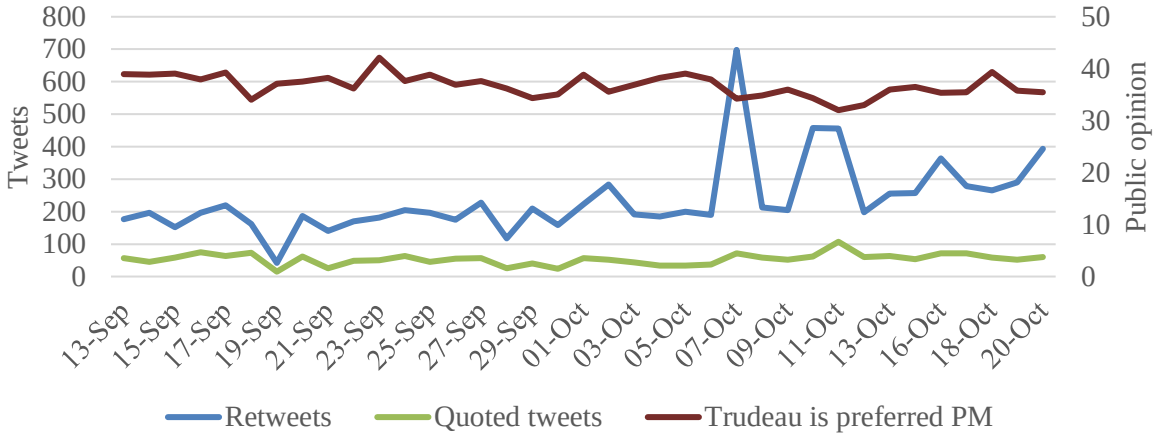


6.3.2.1.1 By region

Only Québec and Ontario showed significant correlations between Twitter variables and public opinion markers. In particular, in Ontario, those who preferred Trudeau as Prime Minister had a significant correlation with the number of retweets from LPC candidates, ($r(37) = -.449$, $p = .32$), and quoted tweets by LPC candidates, ($r(37) = -.354$, $p = .32$). Both correlations were negative, meaning that as quoted tweets and retweets increased, public opinion decreased. In figure 59, the same pattern seen in previous analyses emerged again, a few days after the peaks there is an increase in public opinion.

Figure 59

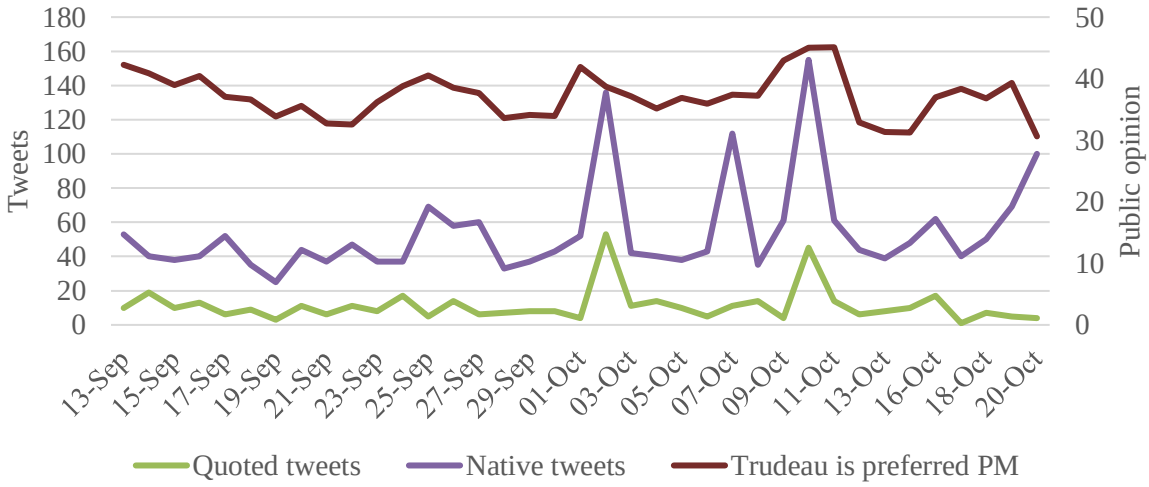
Chronological view of tweets and public opinion in Ontario



In Québec, those that preferred Trudeau as their Prime Minister correlated strongly with quoted tweets, ($r(37) = .342$, $p = .32$) and native tweets, ($r(37) = .338$, $p = .32$). Figure 60 really shows this relationship clearly. The correlations are positive, so as the number of quoted and native tweets increased, so did public opinion.

Figure 60

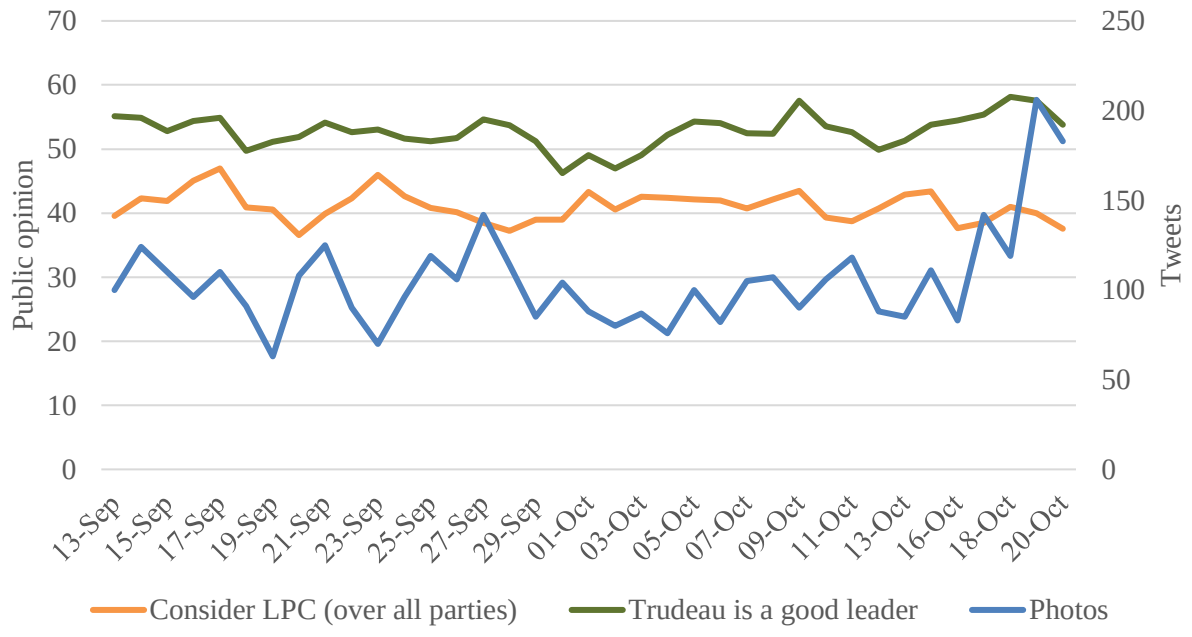
Chronological view of tweets and public opinion in Québec



Both provinces also saw significant correlations between the types of media attached to a tweet and public opinion markers. In particular, in Ontario, the number of photos posted by LPC candidates significantly correlated with those that considered voting Liberal over all, ($r(37) = -.366$, $p = .32$), and those that believed Trudeau had qualities of a good leader, ($r(37) = .457$, $p = .32$). In figure 61, one can see the same pattern emerges with the beige line (those that would consider voting Liberal overall) – a few days after the peaks in photo posting, public opinion rises.

Figure 61

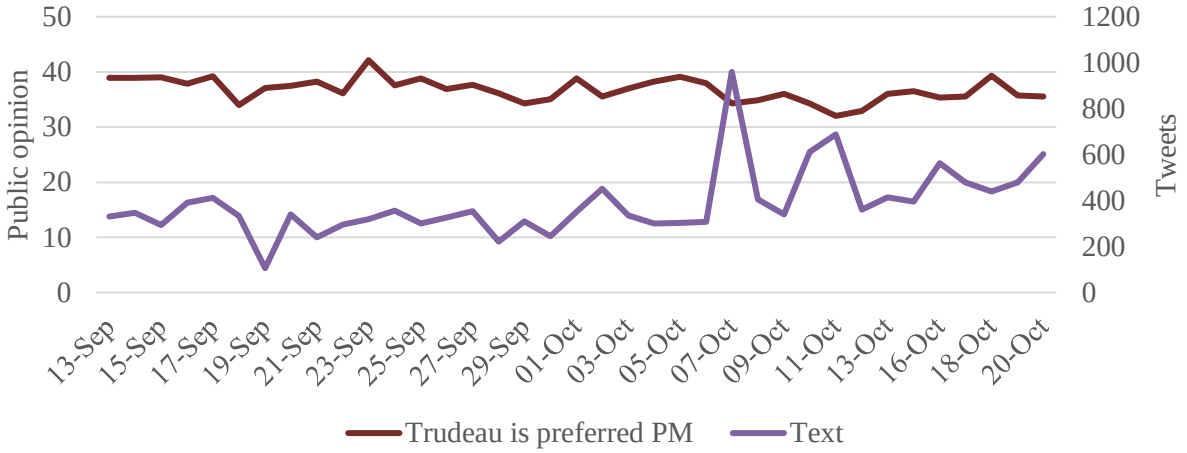
Chronological view of tweets and public opinion in Ontario



Further, Ontario also saw a negative correlation between those that preferred Trudeau as their Prime Minister and text-based tweets, ($r(37) = -.451$, $p = .32$). As can be seen in figure 62, the delayed public opinion reaction occurs here as well.

Figure 62

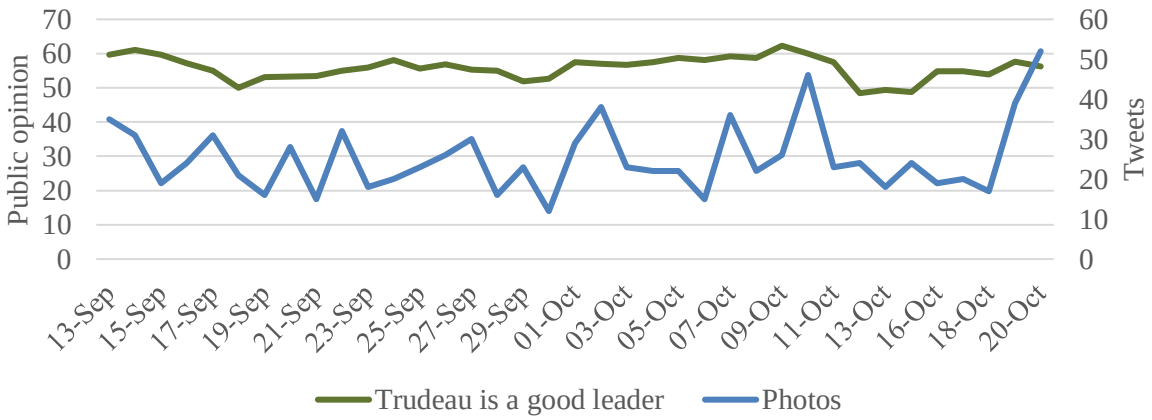
Chronological view of tweets and public opinion in Ontario



For Québec, most of the correlations were between GIFs and public opinion markers. However, there was only two GIFs posted on the first day of the election in Québec, and they were both posted by Trudeau. So, this finding should be taken with scepticism. There was, however, a true significant correlation between photos and those that believed Trudeau had the qualities of a good leader in this province, ($r(37) = .348$, $p = .32$). This correlation is positive, which can be seen in figure 63, as photo posting increases, so does public opinion.

Figure 63

Chronological view of tweets and public opinion in Québec



6.3.2.1.2 Summary of significant relationships

In summary, native tweets and tweets with photos were the most likely way of engaging on Twitter that resulted in a significant correlation with the public's opinion of the LPC. There was also one correlation with text-based tweets, but only in Ontario. The author sees this as an anomaly as the result could not be validated in other environments.

The directionality of the correlations was split between positive and negative. Native tweets positively correlated with those who preferred Trudeau as their Prime Minister, meaning the more native tweets LPC candidates posted, the more people said they would prefer Trudeau as Prime Minister. This was not true for Ontario where it negatively correlated.

Photos also positively correlated with public opinion, in particular those who believed Trudeau has qualities of a good leader. Other public opinion markers, like those who said they are considering voting Liberal, correlated negatively, meaning the more photos candidates posted, the less people considered voting Liberal.

However, for all negative correlations a unique trend emerged. This trend is seen later in the paper as well. When there is a negative correlation between a social media variable and public opinion markers, two to three days after a major spike in social media activity there is an increase in public opinion. In other words, two to three days after there was a major increase in native tweets, or tweets with photos, public opinion rose. The author theorizes there is a delayed reaction of the public's opinion to social media variables. This theory is validated many times again in the paper.

Table 12

Summary table: significant relationships – ways to tweet

Independent variable	Dependent variable	Direction of relationship	*N*	*r*	Critical *r*
Native tweets					
Frequency of posting native tweets	Consider voting LPC over all other parties	Negative	37	-.384*	.32
Frequency of posting native tweets in Québec	Preferred Prime Minister is Trudeau	Positive	37	.342*	.32
Frequency of posting retweets in Ontario	Preferred Prime Minister is Trudeau	Negative	37	-.449*	.32
Frequency of quoting others on Twitter in Ontario	Preferred Prime Minister is Trudeau	Negative	37	-.354*	.32
Frequency of quoting others on Twitter in Québec	Preferred Prime Minister is Trudeau	Positive	37	.338*	.32
Photos					
Frequency of posting photos on Twitter	Consider voting LPC over all other parties	Negative	37	-.406*	.32
Frequency of posting photos on Twitter	Trudeau has qualities of a good leader	Positive	37	.348*	.32
Frequency of posting photos on Twitter in Ontario	Consider voting LPC over all other parties	Negative	37	-.366*	.32
Frequency of posting photos on Twitter in Ontario	Trudeau has qualities of a good leader	Positive	37	.457*	.32
Frequency of posting photos on Twitter in Québec	Trudeau has qualities of a good leader	Positive	37	.348*	.32
Text-based tweets					
Frequency of posting text-based tweets in Ontario	Preferred Prime Minister is Trudeau	Negative	37	-.451*	.32

Note: *$p < .05$, two tailed.

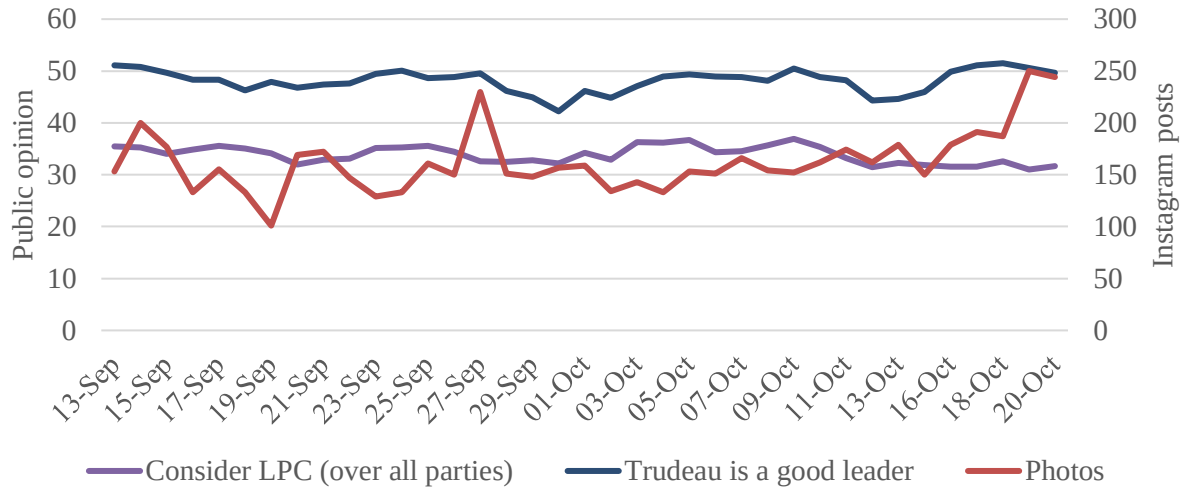
6.3.2.2 Instagram

On Instagram, there are two types of posts – video or photo. When correlation statistics are run, a significant correlation is found between the number of photos posted and those who would consider voting Liberal overall, ($r(37) = -.506$, $p = .32$), and those that believe Trudeau has qualities of a good leader, ($r(37) = .328$, $p = .32$). The first correlation is negative, meaning

as more photos were posted on Instagram by LPC candidates, fewer people considered voting Liberal overall. The second correlation was positive, meaning the more photos were posted, the more people believed Trudeau was a good leader. Figure 64 shows that these results do not show the trend of the delayed public opinion reaction.

Figure 64

Chronological view of public opinion and Instagram posts in Canada

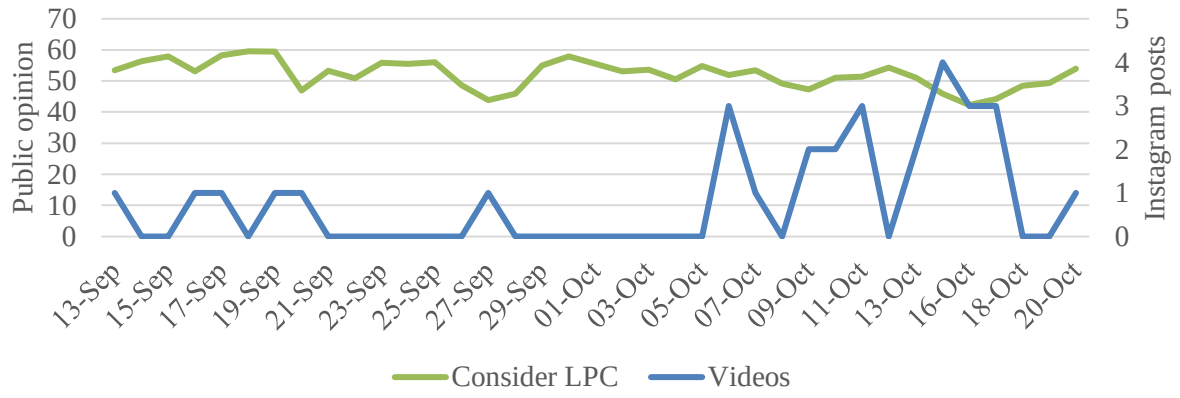


6.3.2.2.1 By region

Ontario and Atlantic Canada returned significant correlations between the type of Instagram posts and public opinion. In Atlantic Canada, there was a significant correlation between those considering voting Liberal and the number of videos being published on Instagram, ($r(37) = -.484$, $p = .32$). The correlation was negative, which means as the frequency of video posting in Atlantic Canada increases, the public's consideration of the Liberals decreases. As can be seen in figure 65, when there are peaks in public opinion, few videos are being posted. However, that pattern of delayed public opinion reaction surfaces again. Anywhere between one to three days after a major spike in video posting, there is an increase in public opinion.

Figure 65

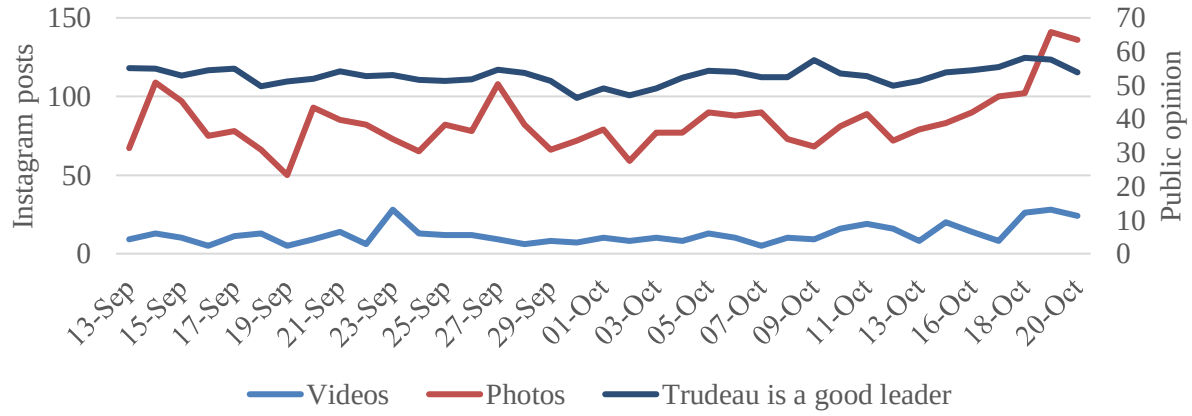
Chronological view of Instagram posts and public opinion, in Atlantic Canada



Ontario, on the other hand, saw a significant correlation between those that believe Trudeau has qualities of a good leader and the number of videos posted, (r(37) = .370, p = .32), and photos posted, (r(37) = .522, p = .32). Both correlations are positive, meaning as the frequency of posting videos and photos increases, so to does the public's opinion of Trudeau's leadership. As can be seen in figure 66, photo and video posting tracks public opinion closely. And as one would expect, given the *r* value, photo posting tracks more closely than video – as the *r* value for the correlation with photos is higher than that of the correlation with videos.

Figure 66

Chronological view of Instagram posts and public opinion, in Ontario



6.3.2.2.2 Summary of significant relationships

In summary, Instagram returned less significant correlations, as seen in table 13. However, both photos and videos proved to influence public opinion. Increase in photos or videos resulted in an increase in the public's opinion of Trudeau's leadership, but a decrease in those considering voting for the LPC.

Furthermore, the delayed reaction of the public's opinion to social media activity surfaced again when the correlations resulted in a negative association.

Table 13

Summary table: significant relationships – ways to engage on Instagram

Independent variable	Dependent variable	Direction of relationship	*N*	*r*	Critical *r*
Photos					
Frequency of posting photos on Instagram	Consider voting Liberal over all other parties	Negative	37	-.506*	.32
Frequency of posting photos on Instagram	Trudeau has qualities of a good leader	Positive	37	.328*	.32
Frequency of posting photos on Instagram in Ontario	Trudeau has qualities of a good leader	Positive	37	.522*	.32
Videos					
Frequency of posting videos on Instagram in Atlantic Canada	Consider voting Liberal	Negative	37	-.484*	.32
Frequency of posting videos on Instagram in Ontario	Trudeau has qualities of a good leader	Positive	37	.370*	.32

Note: *$p < .05$, two tailed.

6.3.3 Popularity of social posts

To analyze the popularity of social media posts and its impact on public opinion, the variables that indicate popularity were analyzed chronologically. Therefore, tweet favourite count, the number of times a candidate's tweets were quoted, the number of times a candidate's tweets were retweeted, the number of replies to a candidate's tweets, the number of comments on a candidate's Instagram posts, the number of likes on a candidate's Instagram posts, and the

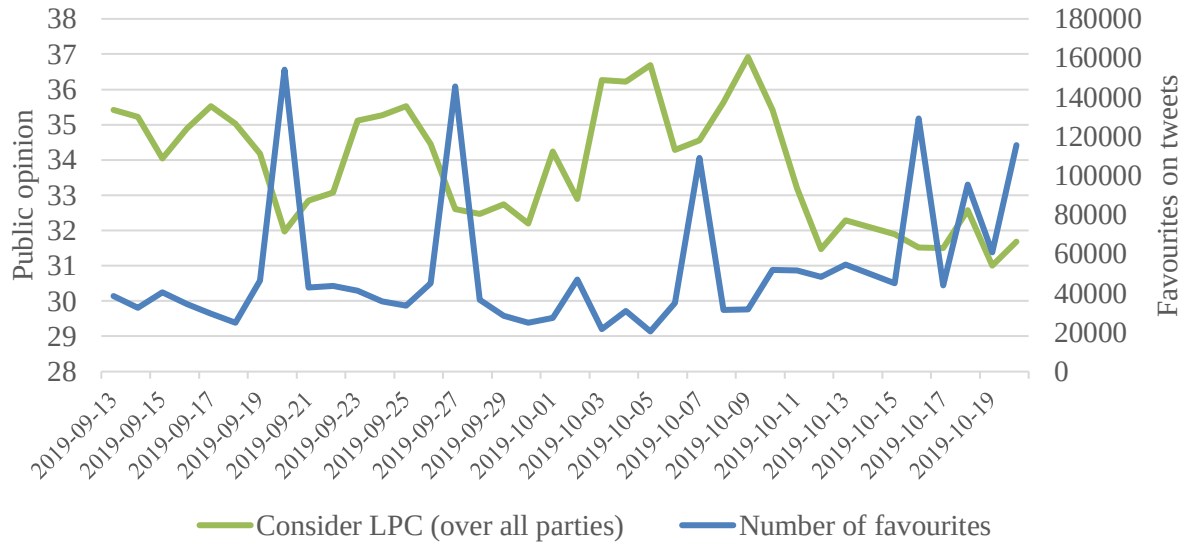
number of video views on Instagram posts, for all candidates were added up for each day of the campaign and compared with the each aspect of the Nanos public opinion research. The findings are reported by channel below.

6.3.3.1 Twitter

There was no correlation between the number of favourites LPC candidates received and most public opinion markers. However, those who would consider voting Liberal over all other parties did correlate, ($r(37) = -.499$, $p = .32$). The correlation was negative, which means that the more favourites LPC candidates received, the less would consider voting Liberal over other parties. Figure 67 shows the data chronologically. An interesting observation is that three days after almost all the peaks, the public's opinion started to increase. As seen with other analyses in this study, there may be a delayed reaction in public opinion to the increase in social media variables.

Figure 67

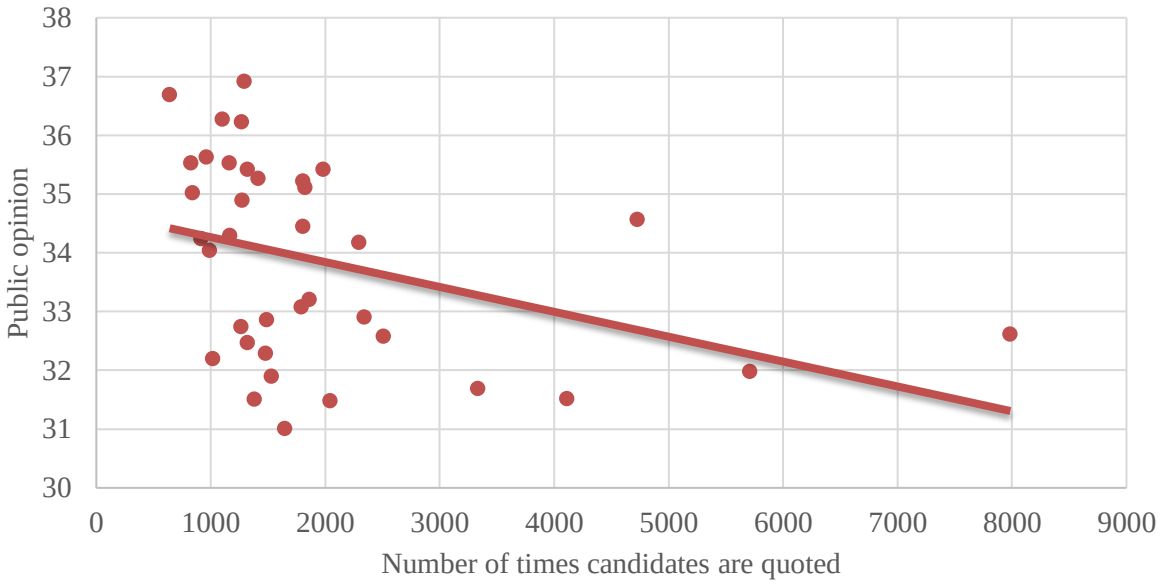
Chronological chart of public opinion and number of favourites on tweets



For the number of times candidates' tweets are quoted, there was only a correlation with those who said they would vote for the Liberals over any other party, ($r(37) = -.372$, $p = .32$). However, the correlation is quite weak as one can see in Figure 68. There is also a negative slope, which would indicate that the more times candidates' tweets are quoted, the more public opinion decreases.

Figure 68

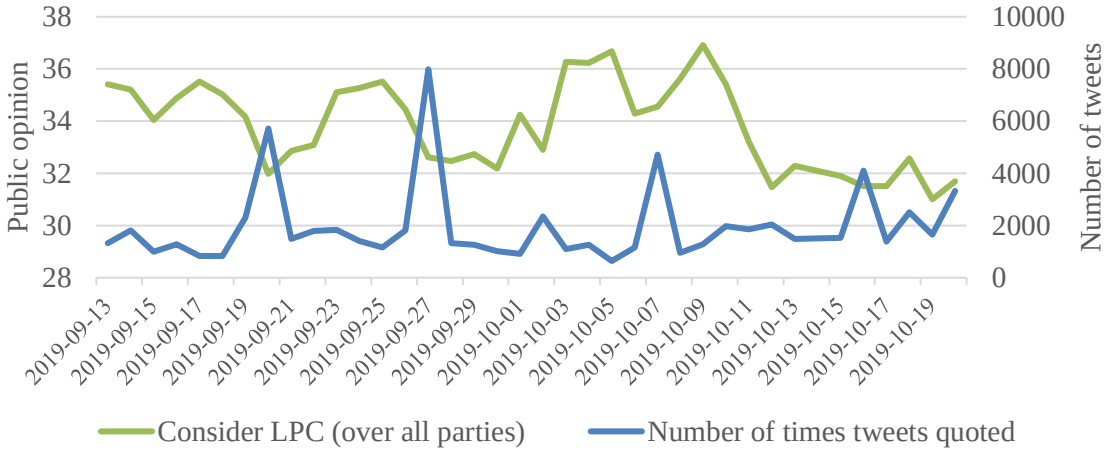
Correlation between public opinion and number of times candidates are quoted on Twitter



However, if one looks at the data chronologically, the same pattern emerges. Three to four days after major peaks, when candidates saw the most quoted tweets, there was an increase in public opinion. One can see this in Figure 69.

Figure 69

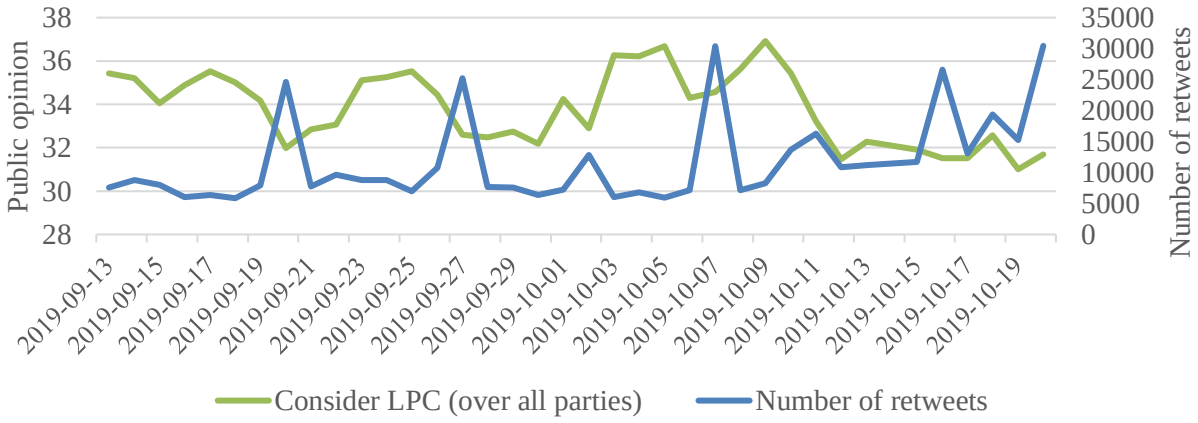
Chronological chart of public opinion and number of times candidates' tweets were quoted



There was no correlation between the number of times candidates got retweeted and most public opinion markers. There was, however, a correlation between the number of times candidates are retweeted and those that would vote Liberal over any other party, ($r(37) = -.496$, $p = .32$). Upon further investigation, the same trend occurs, where two to three days after a major spike in the social media variables, there is an increase in public opinion. This is shown in Figure 70.

Figure 70

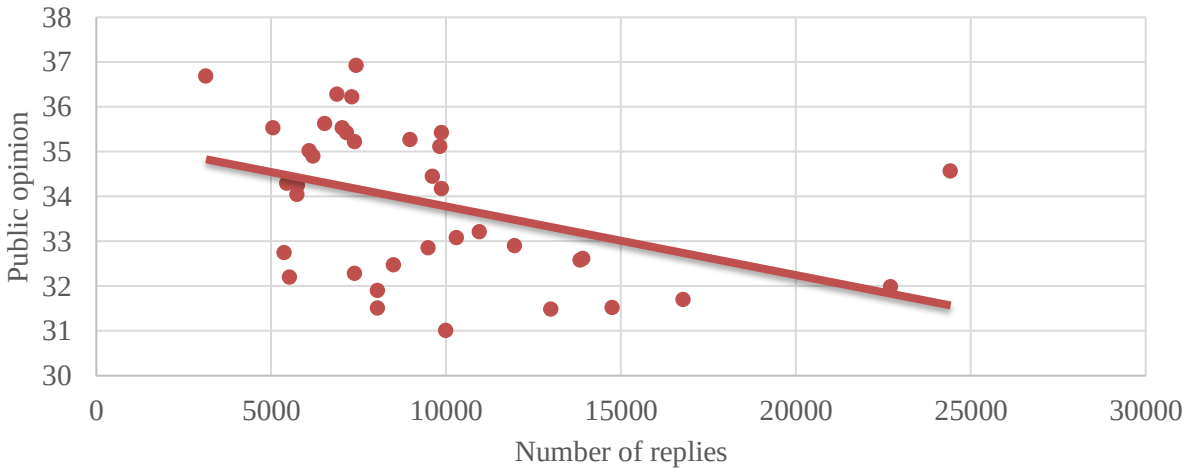
Chronological chart of public opinion and number of times candidates are retweeted, in Canada



The last Twitter variable the author looked at for this analysis was the number of replies on candidates' tweets. There is only a correlation between the number of replies and the number of people who would vote Liberal over any other party, ($r(37) = -.414$, $p = .32$). However, if one looks at a scatterplot of the results, as seen in Figure 71, two outliers are influencing the slope's formula. The highest two points on the x-axis happen in the middle of the campaign. On those days, the number of replies is more than 50 percent higher than the next most popular day for replies. On September 20, 65 percent of the replies were to tweets one candidate made, Trudeau. The same thing happened on October 7, 69 percent of replies on that peak day were to tweets posted by Trudeau. While the correlation remains, it is important to know that it is heavily influenced by one candidate.

Figure 71

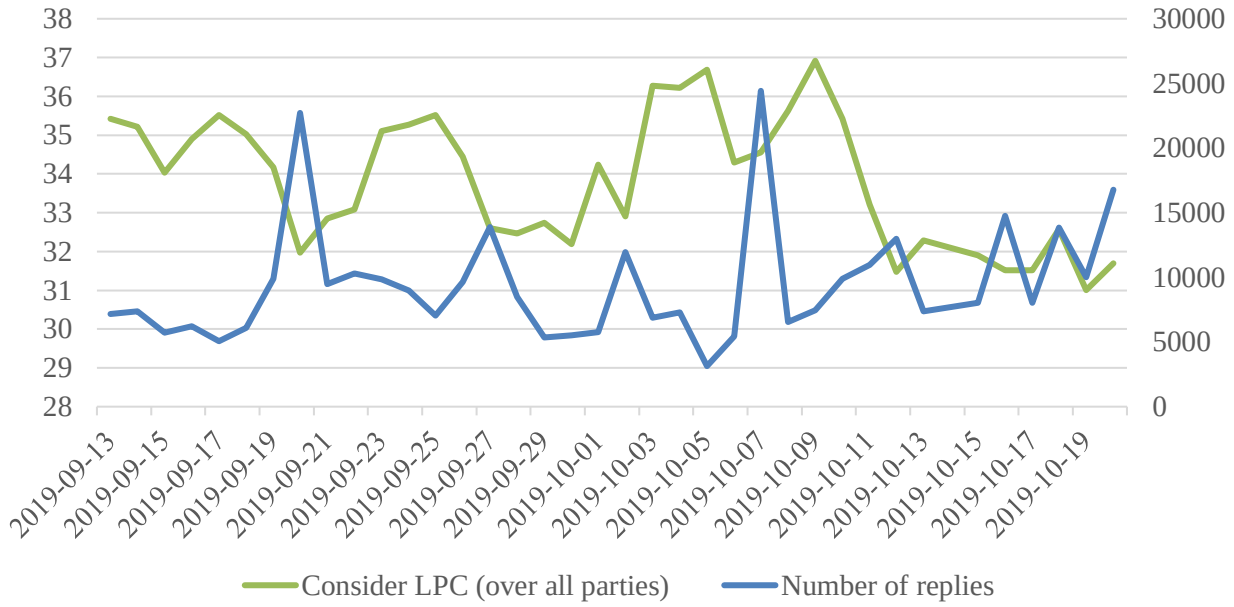
Correlation between the number of people who would consider Liberals over any other party and number of replies on candidates' tweets



Finally, as was seen with quoted tweets and retweets, two to three days after a major peak of replies on candidates' tweets, there is an increase in public opinion. This can be seen in Figure 72 below.

Figure 72

Chronological chart of public opinion and number of replies on candidates' tweets

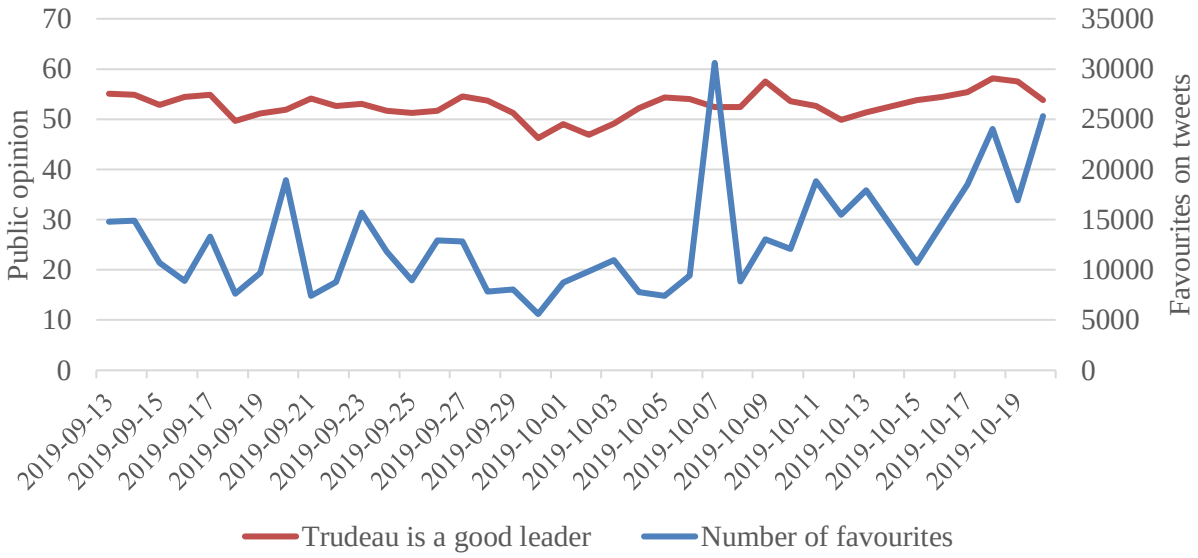


6.3.3.1.1 By region

For favourites, the only correlation was in Ontario and with the public's opinion of Trudeau as a good leader, ($r(37) = .359$, $p = .32$). The correlation was positive, as the number of favourites went up so did public opinion. However, there is one spike in the data driving the positive correlation, as can be seen in figure 73. On October 7, there were more than 30,000 favourites on all LPC tweets. The love for LPC tweets was fairly spread out, except candidates Catherine McKenna and Adam van Koeverden, who each had approximately 20 percent of the favourites on that day.

Figure 73

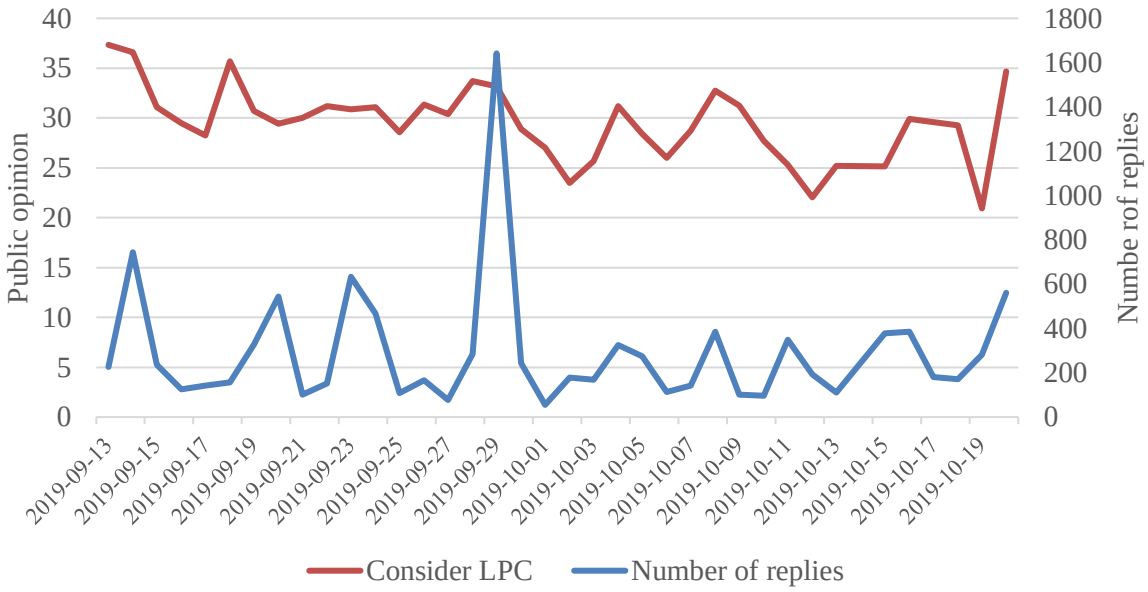
Chronological view of favourites on tweets and public opinion, in Ontario



In the Prairies, there was only one correlation between the number of replies to candidates' tweets and those who would consider voting Liberal, ($r(37) = .329$, $p = .32$). The correlation was also positive, as the number of replies went up so did public opinion. However, as can be seen in Figure 74, this correlation is heavily influenced by one major peak on September 29 when LPC candidates in the Prairies received more than 1,600 replies. More than 70 percent of those replies were to tweets made by candidate Jim Carr in Manitoba. While this may be a significant outlier, other smaller peaks in replies track public opinion closely.

Figure 74

Chronological view of number of people who would consider voting Liberal and number of replies on candidates' tweets, in the Prairies



For the number of times candidates are quoted or retweeted on Twitter, the was no correlation between any of the public opinion markers by province and these two Twitter variables.

6.3.3.1.2 Summary of significant relationships

In summary, all variables measuring the popularity of a tweet returned a significant correlation with public opinion. The popularity of LPC candidates on Twitter most often correlated with those considering voting for Liberals over all other parties. These correlations were negative, meaning the more popular LPC candidates were on Twitter, the further public opinion dropped. Yet, the delayed rection of the public's opinion to social media activity was validated with these results. Major spikes in popularity on Twitter resulted in an increase in public opinion two to three days later.

Table 14

Summary table: significant relationships – popularity of tweets

Independent variable	Dependent variable	Direction of relationship	*N*	*r*	*p*
Favourites					
Number of favourites on tweets	Consider voting Liberal over all other parties	Negative	37	-.499*	.32
Number of favourites on tweets by candidates in Ontario	Trudeau has qualities of a good leader	Positive	37	.359*	.32
Times quoted					
Number of times LPC candidates are quoted	Consider voting Liberal over all other parties	Negative	37	-.372*	.32
Times retweeted					
Number of times LPC candidates are retweeted	Consider voting Liberal over all other parties	Negative	37	-.496*	.32
Replies					
Number of replies to tweets	Consider voting Liberal over all other parties	Negative	37	-.414*	.32
Number of replies to tweets by candidates in the Prairies	Consider voting Liberal	Positive	37	.329*	.32

Note: *$p < .05$, two tailed.

6.3.3.2 Instagram

For Instagram, the author looked at the collective comments, likes and video views by day by all LPC candidates. Using correlation analysis in Excel, no significant correlation could be found between any of the public opinion markers and comments, likes or video views on Instagram.

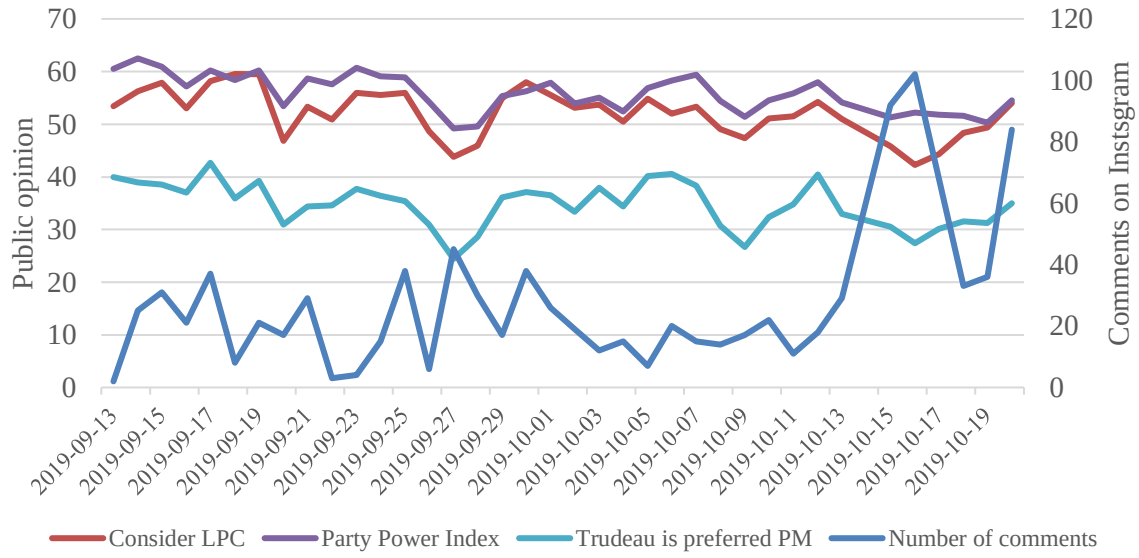
6.3.3.2.1 By region

The author also investigated results by region to see if one or more regions may have had a correlation. In Atlantic Canada, there was a correlation between the number of comments and those who would consider voting for the Liberals, (r(37) = -.425, p = .32), those that said they would prefer Trudeau as their Prime Minister, (r(37) = -.393, p = .32), and the Party Power Index, (r(37) = -.400, p = .32). The correlations were, however, negative. This means the more

comments candidates got on Instagram, the more support for Liberals dropped. There were significant increases in comments at the end of the campaign, which is when Liberals saw a dip in public opinion right before the election day. This can be seen visually in figure 75. On October 16, LPC candidates received 102 comments, which was driven by a post candidate Seamus O'Regan made that received 84 comments, that is 82 percent of the comments on that day. Apart from this unique spike in comments, nearly all other spikes show the delayed reaction of public opinion seen in previous analyses.

Figure 75

Chronological chart of comments on Instagram and public opinion, in Atlantic Canada

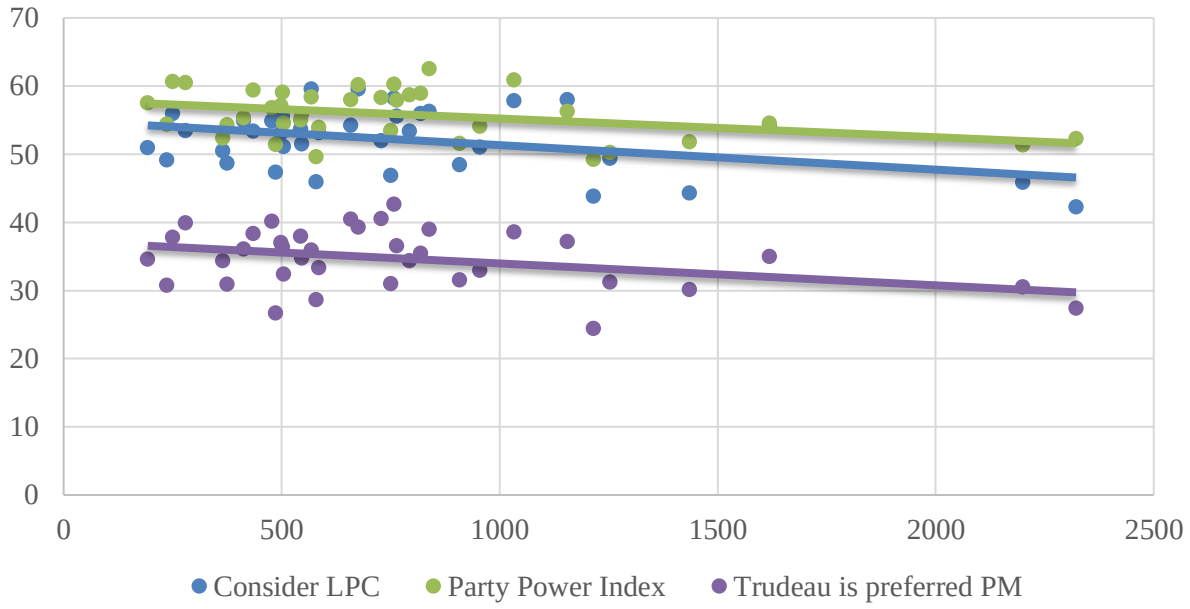


Atlantic Canada also saw a correlation between the number of likes and several public opinion markers, including those who considered voting for Liberals, (r(37) = -.393, p = .32), the Party Power Index, (r(37) = -.377, p = .32), and those that said they would prefer Trudeau as their Prime Minister, (r(37) = -.363, p = .32). The scatterplot in figure 76 shows the relationship between all variables. All three public opinion markers also correlate closely with each other, so it is no surprise the trendlines follow each other tightly. Therefore, in all cases as likes on

Instagram posts increased, public opinion decreased. However, the scatterplot also does show a few outliers, indicating peaks in likes during the campaign.

Figure 76

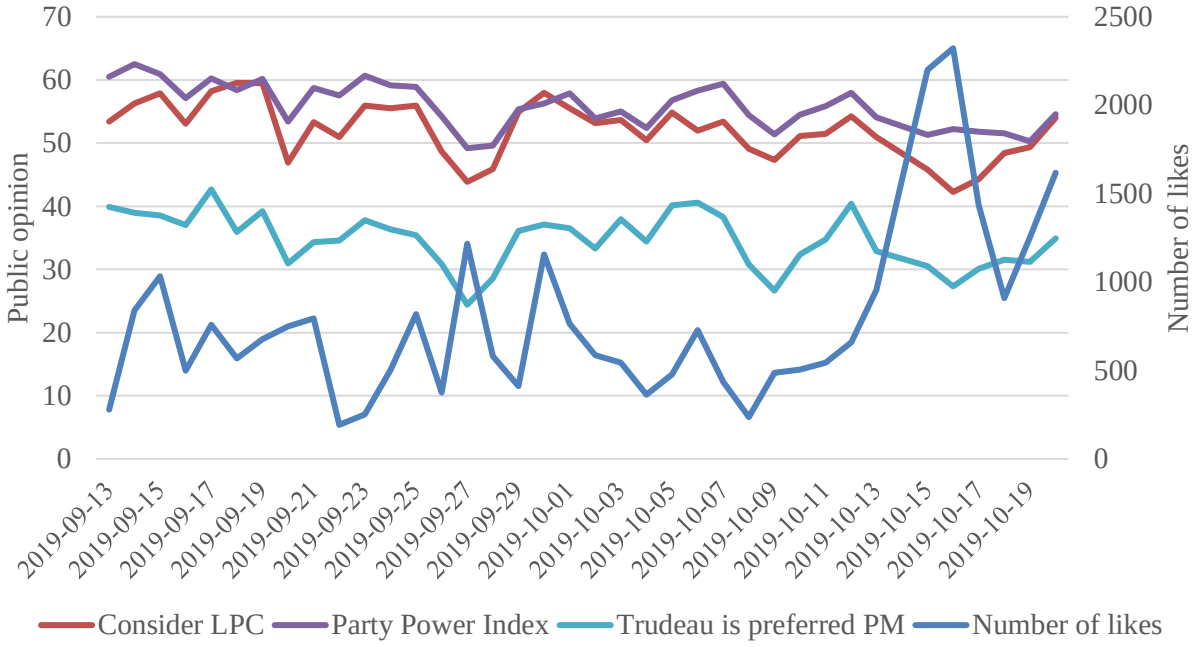
Correlation between the number of likes on Instagram and public opinion, in Atlantic Canada



In Figure 77, when one looks at the data chronologically, there is clearly a significant increase in likes right near the end of the campaign, which happen to be when the Liberal's support was down. The surge was on October 16 where LPC saw more than 2,300 likes on their Instagram posts. Those likes were driven again by candidate Seamus O'Regan who received nearly 1,800 of those likes.

Figure 77

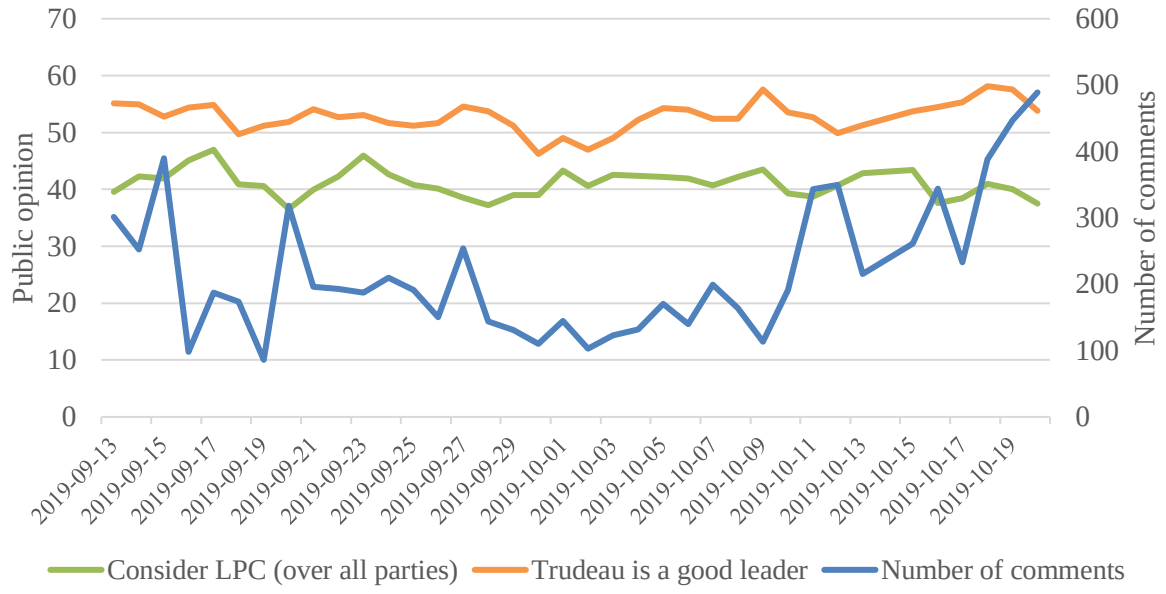
Chronological chart of likes on Instagram and public opinion, in Atlantic Canada



In Ontario, there was a significant correlation between the number of comments posted and those who would consider voting Liberal over any other party, ($r(37) = -.360$, $p = .325$), and those that said Trudeau had qualities of a good leader, ($r(37) = .418$, $p = .325$). One correlation was negative, the other was positive. This means as comments increased, those wanting to vote Liberal decreased and the public's opinion of Trudeau as a leader increased. As one can see in Figure 78, there were a few peaks, but none were influenced by one candidate. Yet, the delayed reaction trend we have seen in previous analyses also makes an appearance in these results, as one can see that a few days after peaks of comments, public opinion rises again.

Figure 78

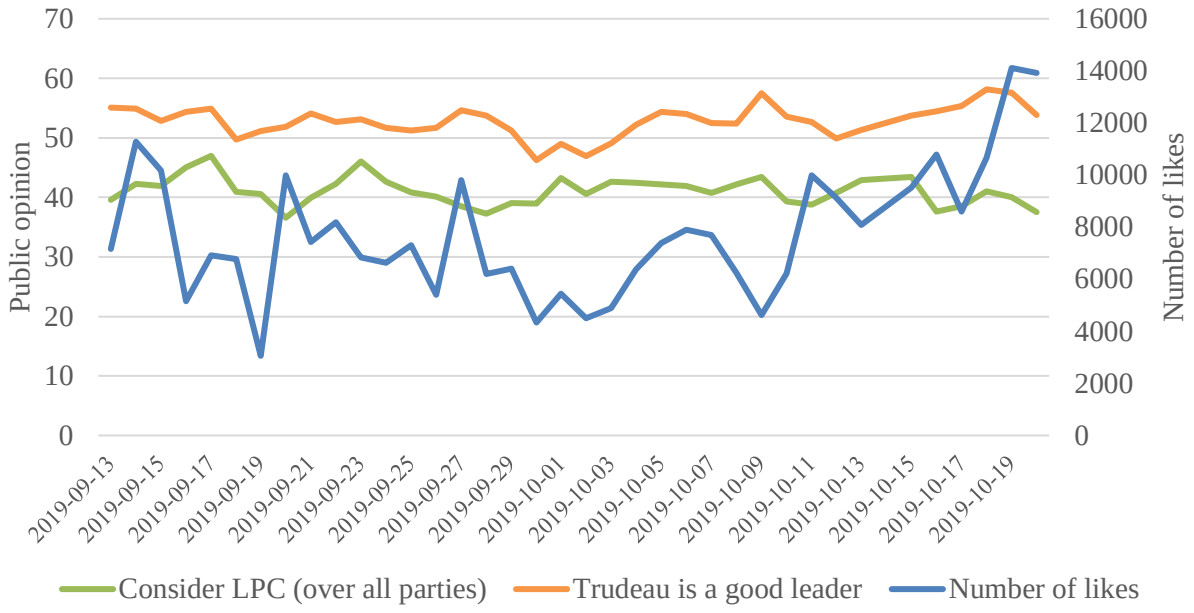
Correlation between the number of comments on Instagram and public opinion, in Ontario



Ontario also experienced a significant correlation between likes and public opinion. There was a correlation between the number of likes and those that considered voting for Liberals over any other party, ($r(37) = -.310$, $p = .32$), and those that said Trudeau had qualities of a good leader, ($r(37) = .498$, $p = .32$). There is both a positive and negative correlation. When likes increased, those wanting to vote Liberal decreased, and those who saw Trudeau as a good leader increased. In figure 79, one can see that the same trend happens here for almost all peaks, where three days after a peak, there is an increase in public opinion. However, this does not happen right at the end of the campaign when there is a surge in Instagram activity while the public's opinion drops right before election day. The surge is lead by candidate Adam van Koeverden with 18 percent of the likes, and Catherine McKenna with 10 percent of likes, the rest were spread evenly among Ontario candidates.

Figure 79

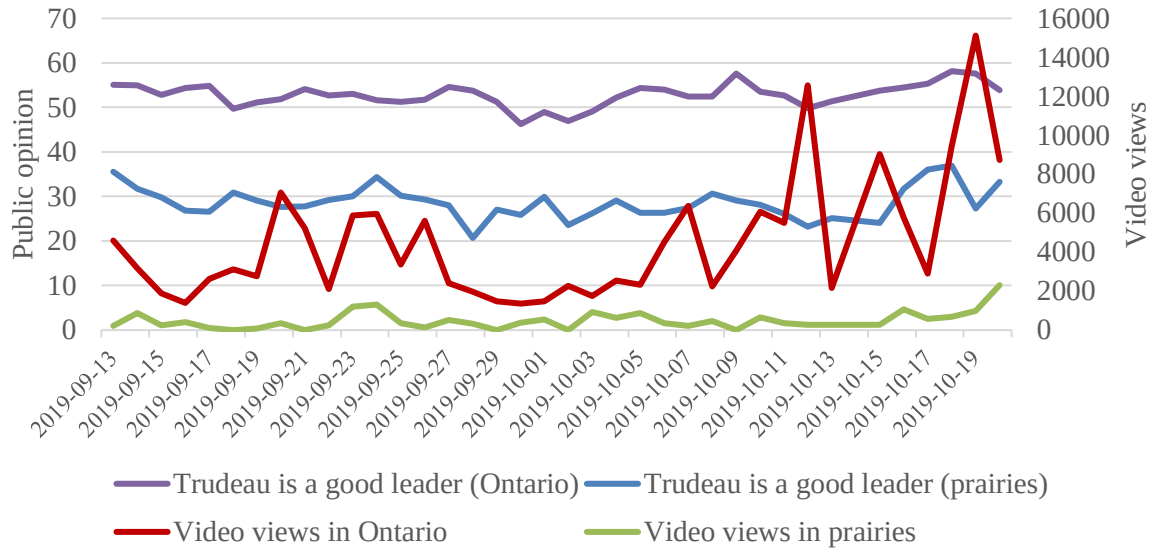
Chronological chart of likes on Instagram and public opinion, in Ontario



In Ontario, ($r(37) = .358$, $p = .32$), and the Prairies, ($r(37) = .379$, $p = .32$), there was a correlation between video views and those who said Trudeau had qualities of a good leader. Both correlations were positive, which means as video views increased, so did people's view of Trudeau as a leader. If we look at the data chronologically, in figure 80, one can see the peaks mainly at the end of the campaign. In Ontario, apart from the final peak at the end of the campaign, two to three days after significant spikes in video views, there is an additional increase in public opinion. The same does not occur in the Prairies.

Figure 80

Chronologically view of video views on Instagram and public opinion, in Ontario and the Prairies



6.3.3.2.2 Summary of significant relationships

In summary, candidates' popularity on Instagram did influence public opinion, but only in certain environments – mainly Atlantic Canada and Ontario. Likes and comments were more likely to correlate significantly with public opinion. However, those correlations were often negative. In other words, the more popular candidates were on Instagram, the more public opinion dropped. There were a few positive correlations between likes, comments and video views, but they only occurred with the public's opinion of Trudeau as a leader.

Nevertheless, the author's theory of a delayed reaction of the public's opinion to social media activity yet again is validated with these results. When there was a negative correlation, spikes in social media activity resulted in a rise of public opinion two to three days later.

Table 15

Summary table: significant relationships – popularity on Instagram

Independent variable	Dependent variable	Direction of relationship	*N*	*r*	Critical *r*
Likes					
Number of likes on Instagram posts by candidates in Atlantic Canada	Consider voting Liberal	Negative	37	-.393*	.32
Number of likes on Instagram posts by candidates in Atlantic Canada	Party Power Index	Negative	37	-.377*	.32
Number of likes on Instagram posts by candidates in Atlantic Canada	Preferred Prime Minister is Trudeau	Negative	37	-.363*	.32
Number of likes on Instagram posts by candidates in Ontario	Consider voting Liberal over all other parties	Negative	37	-.310*	.32
Number of likes on Instagram posts by candidates in Ontario	Trudeau has qualities of a good leader	Positive	37	.498	.32
Comments					
Number of comments on Instagram posts by candidates in Atlantic Canada	Consider voting Liberal	Negative	37	-.425*	.32
Number of comments on Instagram posts by candidates in Atlantic Canada	Preferred Prime Minister is Trudeau	Negative	37	-.393*	.32
Number of comments on Instagram posts by candidates in Atlantic Canada	Party Power Index	Negative	37	-.400*	.32
Number of comments on Instagram posts by candidates in Ontario	Consider voting Liberal over all other parties	Negative	37	-.360*	.32
Number of comments on Instagram posts by candidates in Ontario	Trudeau has qualities of a good leader	Positive	37	.418*	.32
Video views					
Number of video views on Instagram posts by candidates in Ontario	Trudeau has qualities of a good leader	Positive	37	.358*	.32
Number of video views on Instagram posts by candidates in the Prairies	Trudeau has qualities of a good leader	Positive	37	.379*	.32

Note: *$p < .05$, two tailed.

7 Conclusion and Discussion

The conclusion is divided in three parts – the three themes of the research questions. In part 1 the author answers which social media variables influence final election results, in part 2 she answers which social media variables influence political donations, and in part 3 she answers which social media variables influence public opinion.

7.1 Part 1: Election results

This study reinforces a statement made by Ashifa Kassam, the Canadian political correspondence with The Guardian in the United Kingdom. In 2019, Kassam (2019) said that Trudeau is the Prime Minister of the Instagram age, that he has successfully adapted political marketing to the realities of social media. This statement was validated as Trudeau consistently had the best performing social media variables. There is no surprise here, he is the leader of the LPC and likely has access to the most resources to make his presence the best on social media. Trudeau was so successful that his activity skewed most results. He won his seat and consistently received the highest engagement of any candidate. Trudeau received 5 times as many likes on his Instagram posts than all candidates combined, was retweeted more than all other candidates combines, and was the owner of 6,000 Facebook ads, 60 times the total of any other candidate. Still, the entire Liberal caucus performed extremely well, which is explored below.

Nanos (2018) said that campaigns are just big popularity contests. That theory is validated by many of the results in this study. The popularity of a candidate's social media posts strongly associated with winning the election. In other words, candidates with a lot of favourites on their tweets, who got retweeted and quoted were likely to win the election.

However, there were regional differences. Marland & Giasson (2015) argue in their study of political campaigns that brand loyalties are different across the country. This study validates

their theory. In the Prairies where the LPC lost most of the seats, popularity didn't matter. In Atlantic Canada, the vast majority of seats were won by LPC, so again, popularity didn't make a huge difference as more candidates won than lost despite their online activity. In Ontario and British Columbia where there was a lot of swing ridings, popularity mattered. In Ontario, candidates with a lot of likes, comments and video views on Instagram had significant relationships with winning.

However, regions are just one level of targeting an election. Kruikemeier, Sezgin & Boerman (2016) discussed the importance of microtargeting, especially when it came to identifying types of voters, such as swing voters. In this study, ridings were categorized based on the type of voters most likely found in those ridings. The study revealed that those swing ridings were important to the LPC. Swing ridings are key battlegrounds, according to Delacourt (2013). Not to mention, Marland and Giasson (2015) explain that parties put a lot of effort into swing ridings as they can make extra gains in these ridings. This study showed that the popularity of a candidate's posts in swing ridings has a strong relationship with winning an election. In particular, the number of times a candidate was retweeted and the number of favourites on a candidate's tweets were king to winning the election in swing ridings.

Marland (2016) discusses the importance of images in a political campaign, a photo can speak a thousand words and spark political action. This theory is validated by the study results, which concluded that candidates who posted videos and photos on Twitter were more likely to win. Purely text-based tweets got mixed results. In some cases, text-based tweets indicated a win, and in other cases it indicated a loss. More precisely, text-based tweets in British Columbia predicted a loss. The same happened in swing ridings, candidates that tweeted more text-based tweets were more likely to lose the election. Tweeting more text-based tweets could also be read

as not posting photos and videos, which are associated with winning. However, in safe ridings, Ontario, Québec, New Brunswick and Newfoundland, text-based tweets were strongly associated with winning.

Not a lot of the studies in the literature review discussed the way candidates tweeted, specifically the types of posts used and how they relate to election results. This study reveals how the way a candidate engages on social media can affect their likelihood of winning. On Twitter, native tweets, tweets posted directly on a candidate's profile, and retweets had a strong relationship with winning the election. This was true across regions, except in British Columbia and New Brunswick, where native tweets were significantly associated with losing the election.

Instagram told a different story. The way a candidate posted on Instagram had no significant relationship. However, in British Columbia, both candidates who posted videos and those that posted photos were more likely to lose. One will notice that in many cases British Columbia always seems to be on the losing side, that is because 67 percent of candidates in the province lost.

Marland (2016) said "advertising plays a profound role in Canadian political life and public sector branding" (p. 101). However, this study challenged Marland's argument. In fact, this study revealed that the more popular a candidate's Facebook ads were didn't necessarily relate to winning the election. The popularity of Facebook ads (the impressions behind the ads) did not associate strongly with election results. However, in some regions Facebook ads had minor relationships with election results, and when this happened, it was the smaller ads with less than 5,000 impressions that correlated with a win. Ads with less than 5,000 impressions did, however, account for 66 percent of all Facebook ads. The author concluded that running a lot of smaller ads, with less than 5,000 impressions, almost always indicated a win. In fact, in New

Brunswick, candidates who ran larger ads with more than 10,000 impressions were more associated with losing an election. More research is needed to confirm this theory.

Finally, Burke's (2019) theory that even with a few dollars in social media advertising one can make a difference in final election results, was validated by this study. Candidates who ran smaller ads, and invested less than $500, were more associated with winning ridings. However, these results should be taken with some scepticism as small ads accounted for the majority of ads run by LPC candidates, 93 percent to be exact.

7.2 Part 2: Political donations

The literature was light on what influences political donations. Marland & Giasson (2015) did mention that political parties are getting smarter at measuring what leads to more donations, but those data are stored behind party walls. The author, using publicly available data was able to extrapolate which social media variables influence donations.

Multiple social media variables had strong and significant correlations with the donations received in a candidate's riding. Most notably, the frequency of posting on Twitter returned a significant correlation with donations. As candidates posted more on Twitter, the more donations they received. This was not true for Facebook and Instagram. Unless, of course, that candidate was in a swing riding or Alberta, where the more ads candidates ran on Facebook the more donations candidates received to their riding. And in Québec, the frequency of posting on Instagram positively correlated with donations. But the slope was quite flat for the correlation in Québec, indicating that while more posts did increase donations, the increase in donation amounts were very minimal.

Marland's (2016) study of news coverage and sentiment concluded that the stronger influence was the breadth of the coverage. If social media is the same, then the popularity of

posts are important. And while the theory of a popularity was validated for election results, it was contradicted for political donations. The popularity of social posts on Twitter did not have an impact on donations, except for in British Columbia, Ontario and Manitoba. In these provinces, the candidates saw an increase in donations when they got more favourites on their tweets, were quoted and retweeted more, and received more replies to their tweets. Popularity also played a role in battleground ridings, or swing ridings. Favourites, retweets, replies and quotes all positively correlated with donations. The number of times a candidate was quoted had the highest positive correlation, meaning even if a candidate received one or two more quotes, their donations increased significantly. The steep slope of quoted tweets validates Grunig's (2013) theory of two-way communications. Quoting tweets involve engaging in a public conversation by openly adding comments to someone else's content and is more active than a retweet.

Popularity on Instagram for the most part did not impact donations, except for those candidates in Alberta, Ontario and Prince-Edward-Island. In Alberta, more comments and likes on Instagram posts predicted more donations. While in Ontario, comments, likes and videos views contributed to more donations. Prince-Edward-Island, on the other had, just needed more video views to see an increase in donations. Candidates in swing ridings also benefited from comments, likes and videos views, which all contributed to more donations.

Further, Marland's (2016) theory of images is yet again validated. The study revealed that posting videos and photos on Twitter significantly correlated with donations. The more candidates posted photos or videos the more donations the candidate's riding received. The same wasn't true for Instagram, because photos nor videos returned a significant correlation.

Delacourt (2013) discussed that the LPC's strategy relied heavily on Facebook, but this study didn't validate her claim. When it came to Facebook, the impressions and spend on ads had no impact on donations. Granted, as discussed in the limitations of this study, this could be due to the limitations of the data the author was able to pull from Facebook. Further research is required.

Finally, in a study by Small et al. (2014), the scholars concluded that two-way communication was absent among politicians on social media. This study proves this theory. In fact, only 9 percent of tweets were candidates replying to others on Twitter, and only 10 percent quoted another person's tweet – in other words shared a tweet with a comment. Nearly half of the tweets were candidates posting native tweets to their profile. What the author didn't examine is if the native tweets included special hashtags or tagged other Twitter users, indicating more active engagement. This can be done using the data set collected for the study and merits further investigation. However, for now, this study revealed that while the way a candidate engaged on Twitter mattered significantly, it didn't make a difference on Instagram. On Twitter, the more a candidate quoted other tweets, the more donations they received in their riding, which reaffirms the importance of two-way communications on social media.

7.3 Part 3: Public opinion

A unique trend emerged with many social media variables and their impact on public opinion. While several social media variables returned a negative correlation, meaning the higher the variable the lower the public's opinion of the LPC, something happened a few days after a significant increase in social media activity. Public opinion increased. Between two and three days after major spikes in social media activity, public opinion rose. This was not a phenomenon documented in the literature reviewed for this study. Therefore, based on these results, the author

has created her own theory – social media variables have a delayed affect on public opinion. One of the causes behind this delay could be the nature of polling. The Nanos Research poll used for this study relied on a three-day rolling average. This means it can take up to three days to see changes in public opinion. However, more research is needed to prove this theory. Currently, this delay happened only after major social media activity. In particular, on days that saw massive peaks in social media variables.

However, not all social media variables returned negative correlations. In fact, there were several variables that had a positive impact on public opinion. The Nanos Research poll used for this study had various markers. Nanos believed that tracking just those people who said they would consider voting is too shallow, and that to truly capture a voter's intention, one needs to ask several questions (Nanos, n.d.). One of those questions is "Do voters believe the party leaders have qualities of a good leader?" In nearly all cases, the positive correlations with social media variables were with those who believed Trudeau had qualities of a good leader. These results validate Marland's (2016) theory that the leader of a party is central to the success of a political campaign. In particular, the frequency of posting on Instagram had a positive correlation with Trudeau's leadership. Native tweets, and tweets and Instagram posts with photos also contributed to a more positive view of Trudeau's leadership. Lastly, in Ontario only, the more popular tweets and Instagram posts were, the more the public opinion of Trudeau as a leader increased. However, while these values were increasing, the number of people who felt Trudeau was a good leader, the same variables – native tweets, tweets with photos, and Instagram posts of photos – had a negative correlation with the number of people who would consider voting Liberal. In Ontario and Québec, quoted tweets and retweets, as well as text-based tweets in Ontario, also negatively correlated with the public's consideration to vote Liberal.

In the end, these results end up contradicting themselves. Which public opinion marker should be trusted? One way is to rely on an average of all public opinion markers. Nanos Research uses the Party Power Index (PPI), which is an average of all public opinion markers. The author did include the PPI in her analyses, but it rarely correlated with any variable. The author's theory is that even the negatively correlated variables have a positive impact, just a few days later. So, while some of these variables correlated negatively, on average several days after major social media activity, candidates saw an increase in public opinion. Further research is required to validate this theory.

Finally, Burke's (2019) theory that even with a few dollars one can increase public opinion, was contradicted by this study. Public opinion was negatively influenced by the frequency of posting Facebook ads. The more Facebook ads were posted, the more public opinion dropped. This was one case where the author's delayed theory was not true. The author could not dig further into the relationship between Facebook ads and public opinion as it required advanced statistical analysis beyond her current capability.

8 Limitations

Like any well thought out study, there are limitations to the findings. A lot of the limitations were related to the data collected. First, even though the author did work with a professional advanced developer to extract these data for the study, there is no guarantee the data is error free. With more than 272,000 records, there is always the chance of erroneous data that slipped into the database. The author did validate the records as often as she could throughout the process to ensure these data she was working with were as accurate as possible. But she cannot guarantee it was perfect.

Another limitation is that the political donations data is based on data submitted by the party. These data have not been reviewed and verified by Elections Canada. A report is published only twice a year with verified donations data. In a personal conversation with Elections Canada, they told the author that for the 2019 general federal election, Elections Canada would likely publish a report on all financial activity in the summer or fall of 2020. Given the timelines imposed on this study, the author needed to rely on financial records as submitted by the political party. This means mistakes could have been made in entering the data into Elections Canada's database.

Public opinion polling data also has its limitations. The results are based on the feelings and opinions of respondents on the day the questions were asked. As the Nanos Research survey uses a three-night rolling average, that could mean feelings shifted before the nightly tracking revealed a shift. However, lacking other resources, the author maintains that this remains the best possible proxy to tracking the public's sentiment during the election. Not to mention, the author uses five public opinion markers to gauge the public's opinion.

There is also a personal bias of the author. The author does associate herself with the Liberal Party of Canada, and in fact is a regular donor. She has also volunteered for the party during multiple past elections.

9 Recommendations

The author wanted this study to open a discussion on what communications strategists should be measuring on social media during a political campaign. Given the results and conclusion stated above, here are ten recommendations for political candidates and their staff.

1. The number of times a candidate is quoted has a very strong relationship with multiple election outcomes and should be measured frequently.
2. The popularity of a candidate's social media posts is strongly associated with winning ridings. Communications strategists should concentrate on increasing favourites on tweets, the number of times their candidate is retweeted and quoted, and engage in two-way communication by encouraging replies to their tweets.
3. The popularity of a candidate on Instagram is equally important. Communications strategists should increase likes, comments and video views, as they all positively relate to winning the election.
4. There is a short delay in seeing the impact of social media activity. When strategists want to see a rise in public opinion, they should encourage their party caucus to increase activity on social media, but only expect a boost in public opinion a few days later.
5. Diversify your strategy and allocate resources wisely. Each channel has variables that positively influence election outcomes and not all activity on social channels is effective. Strategists should pick the effective elements of each channel and focus on them. This is especially important in an age where companies and the public are boycotting social networks, which means audiences may shift from channel to channel (Gollom, 2020).
6. Strategists looking to boost their donations should consider increasing activity on Twitter, as it had the strongest correlation with increased donations.

7. Strategists who are advising communications strategies for swing ridings should track the popularity of their Twitter posts. Favourites, retweets, replies and quotes are key to a battleground riding. As those social media variables increase, so too do donations to ridings.
8. Photos and videos are still key to successful political campaigns. Communications strategists should ensure as many posts on Twitter have either a photo attached that tells the candidates story and reinforces the party brand.
9. On Instagram while both media contribute to positive outcomes, posting videos is key. High video views increase the chances of winning the election, as well as increased donations to a riding.
10. Communications strategists investing in Facebook ads should spread their budget over multiple smaller ads. Investing less than $500 an ad with less than 5,000 impressions has a positive correlation with political donations and increases the likelihood of winning the election.

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11 Appendix A: Levels of measurement

11.1 General variables

Variable	Level of measurement
Political candidate	Nominal
Riding ID	Nominal
Province	Nominal

11.2 Social media variables

Variable	Level of measurement
Twitter	
Number of tweets	Ratio
Date of tweets	Interval
Tweet type (retweet, quote, reply, native)	Nominal
Tweet favourite count	Ratio
Tweet quote count	Ratio
Tweet retweet count	Ratio
Tweet reply count	Ratio
Tweet category (text, video, photo, GIF)	Nominal
Facebook	
Number of Facebook ads	Ratio
Date of Facebook ads	Interval
Impression of Facebook ad[a]	Ordinal
Spend behind Facebook ad[a]	Ordinal

Instagram	
Number of Instagram posts	Ratio
Date of Instagram post	Interval
Number of comments	Ratio
Number of likes	Ratio
Post category (video, photo)	Nominal

[a] Impressions and spend behind Facebook ads are ordinal, because the Facebook API returned categorical data – i.e. the API did not give an exact spend behind the Facebook data, but rather a band of spending. For impressions, the categories start at 0 and increment in bands of 1000 impressions. For spend, the categories are in bands of 100 to 5,000 depending on the ad.

11.3 Election outcome variables

Variable	Level of measurement
Donations	
Number of donations	Ratio
Donation amount	Ratio
Date of donation	Interval
Election results	
Winning candidate (by riding)	Nominal
Winning margin	Ratio
Riding category (safe, swing and unlikely)	Nominal

Public opinion polling	
Number of people who will consider voting Liberal (Ranked)	Ratio
Number of people who would consider voting Liberal (non-ranked)	Ratio
Party Power Index (Liberal)	Ratio
Number of people who think Justin Trudeau has the qualities of a good leader	Ratio
Number of people who prefer Justin Trudeau as the Prime Minister	Ratio

12 Appendix B: Detailed list of statistical experiments

12.1 Research question 1

	Independent variable	Dependent variable	Statistical experiment	Null Hypothesis
1	Number of tweets by each candidate	Win or lose election	T-test	The number of times a candidate tweets has no relationship to whether the candidate win or losses an election
2	Number of Facebook ads by each candidate	Win or lose election	T-test	The number of times a candidate put up a Facebook ad has no relationship to whether the candidate win or losses an election
3	Number of Instagram posts by each candidate	Win or lose election	T-test	The number of times a candidate posted on Instagram has no relationship to whether the candidate win or losses an election
4	The way a candidate tweeted	Win or lose election	Chi-square and T-test	The way a candidate tweeted, be it a retweet, quote, reply or native tweet, has no relationship to whether a candidate win or losses an election
5	The type of tweet a candidate posted	Win or lose election	Chi-square and T-test	The type of tweet a candidate posted, be it a text, video, GIF or photo tweet, has no relationship to whether a candidate win or losses an election

6	The type of content a candidate posted on Instagram	Win or lose election	Chi-square and T-test	The type of content a candidate posts on Instagram, be is a photo or video, has no relationship to whether a candidate win or losses an election
7	The total number of favourites on all tweets made by each candidate	Win or lose election	T-test	There is no relationship between the number of times a candidate's tweets are favourited and whether that candidate win or losses an election
8	The total number times all tweets made by each candidate were quoted	Win or lose election	T-test	There is no relationship between the number of times a candidate's tweets are quoted and whether that candidate win or losses an election
9	The total number of times all tweets made by each candidate were retweeted	Win or lose election	T-test	There is no relationship between the number of retweets a candidate received and whether that candidate win or losses an election
10	The total number of replies to all tweets made by each candidate	Win or lose election	T-test	There is no relationship between the number of replies on a candidate's tweets and whether that candidate win or losses an election

11	The total number of comments on a all Instagram posts made by each candidate	Win or lose election	T-test	There is no relationship between the number of comments on a candidate's Instagram posts and whether that candidate win or losses an election
12	The total number of likes on all Instagram posts made by each candidate	Win or lose election	T-test	There is no relationship between the number of likes on a candidate's Instagram posts and whether that candidate win or losses an election
13	The total number of video views of videos posted on a candidate's Instagram profile	Win or lose election	T-test	There is no relationship between the number of video views a candidate's videos received on Instagram and whether that candidate win or losses an election
14	Impressions a candidate's Facebook ad received	Win or lose election	Chi-square and T-test	There is no relationship between the impressions a candidate's Facebook ad received and whether that candidate win or losses an election
15	The spend put behind a candidate's Facebook ad	Win or lose election	Chi-square and T-test	There is no relationship between the spend put behind a candidate's Facebook ad and whether that candidate win or losses an election

12.2 Research question 2

	Independent variable	Dependent variable	Statistical experiment	Null Hypothesis
17	Number of tweets by each candidate	Donations to riding	Correlation	There is no relationship between the number of times a candidate tweets and the donations to the candidate's riding
18	Number of Facebook ads by each candidate	Donations to riding	Correlation	There is no relationship between the number of Facebook ads a candidate runs and the donations to the candidate's riding
19	Number of Instagram posts by each candidate	Donations to riding	Correlation	There is no relationship between the number of Instagram posts a candidate makes and the donations to the candidate's riding
20	The way a candidate tweeted	Donations to riding	Regression	The way a candidate tweeted, be it a retweet, quote, reply or native tweet, has no relationship to the donations made to the candidate's riding

21	The type of tweet a candidate posted	Donations to riding	Regression	The type of tweet a candidate posted, be it a text, video, or photo tweet, has no relationship to the donations made to the candidate's riding
22	The type of content a candidate posted on Instagram	Donations to riding	Regression	The type of content a candidate posts on Instagram, be is a photo or video, has no relationship to the donations made to the candidate's riding
23	The number of favourites on a candidate's tweet	Donations to riding	Correlation	There is no relationship between the number of times a candidate's tweets are favourited and the donations made to the candidate's riding
24	The number of people who quoted a candidate's tweet	Donations to riding	Correlation	There is no relationship between the number of times a candidate's tweets are quoted and the donations made to the candidate's riding
25	The number of people who retweeted a candidate's tweets	Donations to riding	Correlation	There is no relationship between the number of retweets a candidate received, and the donations made to the candidate's riding

26	The number of people who replied to a candidate's tweet	Donations to riding	Correlation	There is no relationship between the number of replies on a candidate's tweets and the donations made to the candidate's riding
27	The number of people who commented on a candidate's Instagram posts	Donations to riding	Correlation	There is no relationship between the number of comments on a candidate's Instagram posts and the donations made to the candidate's riding
28	The number of people who liked a candidate's Instagram posts	Donations to riding	Correlation	There is no relationship between the number of likes on a candidate's Instagram posts and the donations made to the candidate's riding
29	The total number of video views of videos posted on a candidate's Instagram profile	Donations to riding	Correlation	There is no relationship between the number of video views a candidate's videos received on Instagram and the donations made to the candidate's riding
30	Impressions a candidate's Facebook ad received	Donations to riding	Regression	There is no relationship between the impressions a candidate's Facebook ad received and the donations made to the candidate's riding

31	The spend put behind a candidate's Facebook ad	Donations to riding	ANOVA	There is no relationship between the spend put behind a candidate's Facebook ad and the donations made to the candidate's riding

12.3 Research question 3

	Independent variable	Dependent variable[a]	Statistical experiment	Null Hypothesis
34	Number of tweets by candidates in each region	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of times candidates' tweets and the public's opinion of the LPC in the candidates' region
35	Number of Facebook ads by candidates in each region	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of Facebook ads candidates run and the public's opinion of the LPC in the candidates' region
36	Number of Instagram posts by candidates in each region	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of Instagram posts candidates make and the public's opinion of the LPC in the candidates' region

37	The way candidates tweeted	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Regression	The way candidates' tweet, be it a retweet, quote, reply or native tweet, has no relationship to the public's opinion of the LPC in the candidates' region
38	The type of tweet candidates posted	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Regression	The type of tweet candidates post, be it a text, video, or photo tweet, has no relationship to the public's opinion of the LPC in the candidates' region
39	The type of content candidates posted on Instagram	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Regression	The type of content candidates posts on Instagram, be is a photo or video, has no relationship to the public's opinion of the LPC in the candidates' region
40	The number of favourites on candidates' tweets	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of times candidates' tweets are favourited and the public's opinion of the LPC in the candidates' region

41	The number of people who quoted candidates' tweets	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of times candidates' tweets are quoted and the public's opinion of the LPC in the candidates' region
42	The number of people who retweeted candidates' tweets	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of retweets candidates receive, and the public's opinion of the LPC in the candidates' region
43	The number of people who replied to a candidate's tweet	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of replies on a candidate's tweets and the donations made to the candidate's riding
44	The number of people who commented on candidates' Instagram posts	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of comments on candidates' Instagram posts and the public's opinion of the LPC in the candidates' region

45	The number of people who liked candidates' Instagram posts	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of likes on candidates' Instagram posts and the public's opinion of the LPC in the candidates' region
46	The total number of video views of videos posted on a candidate's Instagram profile	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Correlation	There is no relationship between the number of video views a candidate's videos received on Instagram and the donations made to the candidate's riding
47	Impressions candidates' Facebook ads received	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Regression	There is no relationship between the impressions candidates' Facebook ads received and the public's opinion of the LPC in the candidates' region
48	The spend put behind candidates' Facebook ads	Considering LPC Party Power Index Preferred PM Qualities of a leader Preferred party	Regression	There is no relationship between the spend put behind candidates' Facebook ads and the public's opinion of the LPC in the candidates' region

[a] The analysis done with public opinion has four different dependent variables. The author compared the independent variable with each dependent variable to see if relationships exists.

13 Appendix C: Statistics Tables

13.1 Elections results

13.1.1 Presence on social media

Table 16

Relationship between frequency of posting on social media and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Number of Tweets	129.76	12747.58	165.86	44162.47	-1.76	.08
Number of Facebook ads	32.92	485.76	87.30	323651.35	-1.01	.31
Number of Instagram ads	29.64	557.47	33.38	644.08	-1.18	.24

Note: * $p < .05$, two tailed. M = Mean. SD = Standard Deviation. For number of tweets *N = 263*. For number of Facebook ads *N = 201*. For number of Instagram posts *N = 241*.

Table 17

Relationship between frequency of posting on Twitter and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	114.12	9836.27	154.90	8965.43	-1.14	.27
Manitoba	47.40	1124.30	150.00	14203.00	-1.46	.28
New Brunswick	53.33	1564.33	69.33	4069.33	-.37	.74
Ontario	161.80	17202.57	190.57	58658.30	-.83	.41
Québec	87.22	5667.54	163.77	43824.65	-1.88	.07

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia *N = 36*. For Manitoba *N = 8*. For New Brunswick *N = 6*. For Ontario *N = 115*. For Québec *N = 54*.

Table 18

Table of correlations, public opinion against number of Facebook ads

	1	2	3	4	5	6
1. Number of Facebook ads	--					
2. Consider voting Liberal	-.143	--				
3. Consider Liberal over all parties	-.452*	.619*	--			
4. Party Power Index	-.506*	.754*	.632*	--		
5. Preferred Prime Minister is Trudeau	-.373*	.652*	.756*	.835*	--	
6. Trudeau is a good leader	.037	.592*	.291	.740*	.668*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 19

Relationship between the number of Facebook ads and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	35.42	323.70	38.11	389.36	-.35	.73
Manitoba	50.67	310.33	35.33	101.33	1.31	.28
New Brunswick	31.00	351.00	16.50	403.00	.98	.37
Ontario	32.08	497.83	32.41	538.87	-.06	.95
Québec	28.71	708.91	308.27	1645036.0	-1.02	.32

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia $N = 28$. For Manitoba $N = 6$. For New Brunswick $N = 7$. For Ontario $N = 85$. For Québec $N = 46$.

Table 20

Relationship between the number of Instagram posts and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	30.78	234.18	39.45	569.07	-1.10	.29
Manitoba	25.25	610.92	31.00	618.00	-.33	.75
New Brunswick	22.67	209.33	39.00	98.00	-1.50	.23
Ontario	37.63	417.62	38.71	683.24	-.22	.82
Québec	16.32	163.64	25.28	584.92	-1.80	.08

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia $N = 34$. For Manitoba $N = 8$. For New Brunswick $N = 5$. For Ontario $N = 103$. For Québec $N = 57$.

Table 21

Relationship between frequency of posting on Twitter and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	97.33	11890.33	166.92	59909.42	-1.00	.39
Swing ridings	128.30	12562.90	164.91	30744.22	-1.56	.12

Note: * p < .05, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, *N = 69*. For swing ridings, *N = 168*.

Table 22

Relationship between the number of Facebook ads and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	48.00	1058.00	159.53	771028.73	-.86	.40
Swing ridings	33.60	521.66	35.08	554.48	-.37	.71

Note: * *p* < .05, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, *N = 49*. For swing ridings, *N = 138*.

Table 23

Relationship between the number of Instagram posts and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	45.50	364.50	30.05	522.21	1.12	.46
Swing ridings	30.12	458.56	36.09	735.15	-1.54	.13

Note: * p < .05, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, *N = 64*. For swing ridings, *N = 161*.

13.1.2 Ways to engage

Table 24

Relationship between the type of tweet and election results

	Total *N* = 39204	Loss *N* = 15975	Win *N* = 23229	
	n	*n*	*n*	X^2
Type of tweet				
Native	13035	4656	8379	.000**
Quote	3827	1563	2264	.999
Reply	3538	2052	2052	.470
Retweet	18804	8270	10534	.000**

Note: * X^2 = < .05. ** X^2 < .000.

Table 25

Relationship between the type of tweet and election results in British Columbia

	Total *N* = 4519	Loss *N* = 2970	Win *N* = 1549	
	n	*n*	*n*	X^2
Type of tweet				
Native	1689	1007	682	.000**
Quote	524	334	190	.793
Reply	415	348	67	.000**
Retweet	1891	1281	610	.117

Note: * X^2 = < .05. ** X^2 < .000.

Table 26

Relationship between the type of tweet and election results in Manitoba

	Total *N* = 687	Loss *N* = 237	Win *N* = 450	
	n	*n*	*n*	X^2
Type of tweet				
Native	283	109	174	.329
Quote	64	20	44	.954
Reply	14	12	2	.001*
Retweet	326	96	230	.072

Note: * X^2 = < .05. ** X^2 < .000.

Table 27

Relationship between the type of tweet and election results in New Brunswick

	Total *N* = 368	Loss *N* = 160	Win *N* = 208	
	n	*n*	*n*	X^2
Type of tweet				
Native	109	68	41	.000**
Quote	20	16	4	.009*
Reply	20	9	11	.999
Retweet	219	67	152	.000**

Note: * X^2 = < .05. ** X^2 < .000.

Table 28

Relationship between the type of tweet and election results in Newfoundland

	Total *N* = 753	Loss *N* = 268	Win *N* = 485	
	n	*n*	*n*	X^2
Type of tweet				
Native	252	54	198	.000**
Quote	35	3	32	.000**
Reply	155	103	52	.009*
Retweet	311	108	203	.982

Note: * X^2 = < .05. ** X^2 < .000.

Table 29

Relationship between the type of tweet and election results in Ontario

	Total *N* = 20774	Loss *N* = 6473	Win *N* = 14301	
	n	*n*	*n*	X^2
Type of tweet				
Native	7085	2159	4926	.501
Quote	2203	643	1560	.215
Reply	1908	422	1486	.000**
Retweet	9578	3249	6329	.000**

Note: * X^2 = < .05. ** X^2 < .000.

Table 30

Relationship between the type of tweet and election results in Québec

	Total *N* = 7083	Loss *N* = 2006	Win *N* = 5077	
	n	*n*	*n*	X^2
Type of tweet				
Native	2254	377	1877	.000**
Quote	439	88	351	.000**
Reply	223	19	204	.001*
Retweet	4167	1522	2645	.000**

Note: * X^2 = < .05. ** X^2 < .000.

Table 31

Relationship between the type of media on a tweet and election results

	Total *N* = 39181	Loss *N* = 15961	Win *N* = 23220	
	n	*n*	*n*	X^2
Media attached to a tweet				
GIF	34	8	26	.243
Photo	7317	2335	4982	.000**
Text	30643	13251	13251	.000**
Video	1187	367	367	.000**

Note: * X^2 = < .05. ** X^2 < .000.

Table 32

Relationship between the type of media on a tweet and election results in British Columbia

	Total *N* = 4516	Loss *N* = 2967	Win *N* = 1549	
	n	*n*	*n*	X^2
Media attached to a tweet				
GIF	2	1	1	.974
Photo	785	451	334	.000**
Text	3585	2416	1169	.000**
Video	144	99	45	.893

Note: * X^2 = < .05. ** X^2 < .000.

Table 33

Relationship between the type of media on a tweet and election results in Manitoba

	Total *N* = 687	Loss *N* = 237	Win *N* = 450	
	n	*n*	*n*	X^2
Media attached to a tweet				
Photo	179	64	115	.982
Text	480	159	321	.722
Video	28	14	14	.376

Note: * X^2 = < .05. ** X^2 < .000.

Table 34

Relationship between the type of media on a tweet and election results in New Brunswick

	Total *N* = 368	Loss *N* = 160	Win *N* = 208	
	n	*n*	*n*	X^2
Media attached to a tweet				
Photo	56	42	14	.000**
Text	306	114	192	.000**
Video	6	4	2	.721

Note: * X^2 = < .05. ** X^2 < .000.

Table 35

Relationship between the type of media on a tweet and election results in Newfoundland

	Total *N* = 752	Loss *N* = 268	Win *N* = 484	
	n	*n*	*n*	X^2
Media attached to a tweet				
Photo	150	14	136	.000**
Text	593	250	343	.000**
Video	9	4	5	.959

Note: * X^2 = < .05. ** X^2 < .000.

Table 36

Relationship between the type of media on a tweet and election results in Ontario

	Total *N* = 20765	Loss *N* = 6472	Win *N* = 14293	
	n	*n*	*n*	X^2
Media attached to a tweet				
GIF	20	5	15	.949
Photo	4348	1105	3243	.000**
Text	15758	5200	10558	.000**
Video	639	162	477	.015*

Note: * X^2 = < .05. ** X^2 < .000.

Table 37

Relationship between the type of media on a tweet and election results in Québec

	Total *N* = 7083	Loss *N* = 2006	Win *N* = 5077	
	n	*n*	*n*	X^2
Media attached to a tweet				
GIF	4	0	4	.664
Photo	1047	172	875	.000**
Text	5766	1820	3946	.000**
Video	266	14	252	.000**

Note: * X^2 = < .05. ** X^2 < .000.

Table 38

Relationship between the type of media on a tweet and election results in safe ridings

	Total *N* = 11309	Loss *N* = 292	Win *N* = 11017	
	n	*n*	*n*	X^2
Media attached to a tweet				
GIF	14	0	14	.946
Photo	2348	112	2236	.000**
Text	8541	166	8375	.000**
Video	406	14	392	.740

Note: * X^2 = < .05. ** X^2 < .000.

Table 39

Relationship between the type of media on a tweet and election results in swing ridings

	Total *N* = 24263	Loss *N* = 12060	Win *N* = 12203	
	n	*n*	*n*	X^2
Media attached to a tweet				
GIF	18	6	12	.587
Photo	4592	1846	2746	.000**
Text	18938	9921	9017	.000**
Video	715	287	428	.000**

Note: * X^2 = < .05. ** X^2 < .000.

Table 40

Relationship between the type of media on an Instagram post and election results

	Total *N* = 7659	Loss *N* = 3053	Win *N* = 4606	
	n	*n*	*n*	X^2
Instagram media type				.402
Video	921	391	530	
Photo	6738	2662	4076	

Note: * *p* = < .05. ** X^2 < .000.

13.1.3 Popularity of social posts

Table 41

Relationship between popularity of posts on a candidate's social profile and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Favourite count on tweets	1244.0	7101593.4	14358.6	13225749249.6	-1.35	.18
Quote count on tweets	38.0	8709.2	519.0	14445078.2	-1.50	.14
Retweet count on tweets	372.7	585416.8	3085.7	422777013.6	-1.56	.12
Reply count on tweets	160.3	227383.4	2565.0	359572852.5	-1.50	.14
Comments on Instagram	44.3	17916.3	691.8	49198757.0	-1.08	.28
Likes on Instagram	1249.495	10255653.1	29155.072	89549869371	-1.10	.28
Video views on Instagram	1319.5	8116893.2	35247.2	107959441435.8	-1.05	.30

Note: * $p < .05$, two tailed. M = Mean. SD = Standard Deviation. For favourite count on tweets N = 263. For quote count, $N = 263$. For retweet count, $N = 263$. For reply count, $N = 263$. For comments on Instagram, $N = 241$. For likes on Instagram, $N = 241$. For video view count on Instagram, $N = 173$.

Table 42

Relationship between popularity of posts on a candidate's social profile and election results, without Trudeau

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Favourite count on tweets	1244.0	7101593.4	4701.1	169508200.8	-3.06	.003**
Quote count on tweets	38.0	8709.2	203.1	472474.5	-2.80	.006**
Retweet count on tweets	372.7	585416.8	1374.6	12974925.4	-3.20	.002**
Reply count on tweets	160.3	227383.4	1008.8	20658973.1	-2.19	.03*
Comments on Instagram	44.3	17916.3	94.9	26315.6	-2.64	.009**
Likes on Instagram	1249.495	10255653.1	3695.219	98416486.76	-2.70	.008**
Video views on Instagram	1319.5	8116893.2	2878.3	42309017.7	-2.14	.03*

Note: * $p < .05$, ** $p < .01$, two tailed. M = Mean. SD = Standard Deviation. For favourite count on tweets N = 262. For quote count, $N = 262$. For retweet count, $N = 262$. For reply count, $N = 262$. For comments on Instagram, $N = 240$. For likes on Instagram, $N = 240$. For video view count on Instagram, $N = 172$.

Table 43

Relationship between the number of favourites on each tweet and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	1363.58	7091625.53	5322.80	36237846.62	-2.01	.07
Manitoba	516.20	512267.70	2007.00	7063693.00	-.95	.44
New Brunswick	777.67	361314.33	826.33	1526974.33	-.06	.95
Ontario	1232.95	5698031.33	6482.05	291741938.51	-2.61	.01*
Québec	139.22	86616.00	46095.74	59191742504.53	-1.05	.30

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia $N = 36$. For Manitoba $N = 8$. For New Brunswick $N = 6$. For Ontario $N = 115$. For Québec $N = 54$.

Table 44

Relationship between the number of favourites on each tweet and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	3580.00	30489676.00	24419.73	27787224437.83	-1.00	.32
Swing ridings	1303.49	7754262.12	5385.09	268080294.31	-2.12	.04*

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, $N = 69$. For swing ridings $N = 168$.

Table 45

Relationship between the number of times each tweet was quoted and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	42.35	8132.40	199.50	58406.50	-2.00	.07
Manitoba	18.00	834.50	160.00	64117.00	-.97	.44
New Brunswick	39.33	1870.33	32.33	2500.33	.18	.86
Ontario	28.33	2457.30	260.72	760989.02	-2.30	.02*
Québec	3.09	37.17	1597.74	63454137.73	-1.11	.27

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia $N = 36$. For Manitoba $N = 8$. For New Brunswick $N = 6$. For Ontario $N = 115$. For Québec $N = 54$.

Table 46

Relationship between the number of times each tweet was quoted and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	139.00	43561.00	859.71	29841501.25	-1.06	.30
Swing ridings	39.23	9768.65	215.18	735285.05	-1.76	.08

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, $N = 69$. For swing ridings $N = 168$.

Table 47

Relationship between the number of times a tweet was retweeted and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	412.31	498509.34	1598.50	2635735.83	-2.23	.05*
Manitoba	191.00	37383.50	880.00	1465729.00	-.98	.43
New Brunswick	232.33	51772.33	223.00	122428.00	.04	.97
Ontario	374.05	432490.87	1818.16	21673426.49	-2.64	.01*
Québec	37.09	5021.45	8639.58	1862139970.25	-1.11	.28

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia $N = 36$. For Manitoba $N = 8$. For New Brunswick $N = 6$. For Ontario $N = 115$. For Québec $N = 54$.

Table 48

Relationship between the number of times a tweet was retweeted and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	1232.67	3309714.33	4870.89	875713361.79	-.96	.34
Swing ridings	393.82	636441.31	1493.45	19817666.20	-2.10	.04*

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, $N = 69$. For swing ridings $N = 168$.

Table 49

Relationship between the number of replies to each tweet and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	166.27	194420.36	903.60	1768021.16	-1.72	.12
Manitoba	68.60	12110.30	512.33	646149.33	-.95	.44
New Brunswick	102.67	6865.33	157.33	53502.33	-.39	.73
Ontario	95.50	33265.64	1464.75	37175924.16	-1.94	.06
Québec	10.30	329.22	7546.13	1539776289.52	-1.07	.29

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia $N = 36$. For Manitoba $N = 8$. For New Brunswick $N = 6$. For Ontario $N = 115$. For Québec $N = 54$.

Table 50

Relationship between the number of replies to each tweet and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	714.00	1310788.00	4044.58	723160006.62	-.99	.33
Swing ridings	171.26	255590.92	1245.36	37012002.76	-1.51	.13

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, $N = 69$. For swing ridings $N = 168$.

Table 51

Relationship between the number of likes on Instagram posts and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	2435.96	41844866.04	11947.45	922174257.67	-1.03	.33
Manitoba	946.25	1484214.92	996.50	834667.67	-.07	.95
New Brunswick	1241.67	707305.33	2028.00	439922.00	-1.16	.33
Ontario	975.30	601818.63	4062.04	40576519.65	-4.07	.00***
Québec	360.44	138751.76	111313.47	386259730471.68	-1.01	.32

Note: * $p < .05$, *** $p < .001$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia $N = 34$. For Manitoba $N = 8$. For New Brunswick $N = 5$. For Ontario $N = 103$. For Québec $N = 57$.

Table 52

Relationship between the number of likes on Instagram posts and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	2357.00	313632.00	58866.85	199282110485.50	-1.00	.32
Swing ridings	1337.75	12225548.12	4916.51	169863918.71	-2.32	.02*

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, $N = 64$. For swing ridings $N = 161$.

Table 53

Relationship between the number of comments on Instagram posts and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	108.43	73676.71	134.73	27408.82	-.35	.73
Manitoba	24.25	816.92	29.25	888.92	-.24	.82
New Brunswick	51.67	389.33	968.00	968.00	-.34	.77
Ontario	24.87	323.71	125.78	39479.90	-4.30	.00***
Québec	8.12	93.69	2614.19	212350968.87	-1.01	.32

Note: * $p < .05$, *** $p < .001$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia $N = 34$. For Manitoba $N = 8$. For New Brunswick $N = 5$. For Ontario $N = 103$. For Québec $N = 57$.

Table 54

Relationship between the number of comments on Instagram posts and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	64.00	18.00	1398.48	109525206.91	-1.00	.32
Swing ridings	48.47	21488.44	115.33	39638.97	-2.40	.02*

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, $N = 64$. For swing ridings $N = 161$.

Table 55

Relationship between the number of video views Instagram and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
British Columbia	2658.47	26314370.14	9472.00	310250857.50	-1.14	.29
Manitoba	2013.67	10450057.33	714.67	325822.33	.69	.56
New Brunswick	1915.00	6111008.00	1394.00	421362.00	.29	.82
Ontario	741.88	654451.07	2884.34	20743237.01	-3.56	.00***
Québec	232.25	38996.20	176515.16	585707916448.59	-1.00	.33

Note: * $p < .05$, *** $p < .001$, two-tailed. M = Mean. SD = Standard Deviation. For British Columbia $N = 26$. For Manitoba $N = 6$. For New Brunswick $N = 4$. For Ontario $N = 86$. For Québec $N = 31$.

Table 56

Relationship between the number of video views Instagram and election results

	Loss		Win			
Variable	*M*	*SD*	*M*	*SD*	*t*	*p*
Safe ridings	4704.00	2167362.00	81350.60	264810302895.56	-.97	.34
Swing ridings	1366.50	9190460.22	3503.80	65040036.16	-1.93	.06

Note: * $p < .05$, two-tailed. M = Mean. SD = Standard Deviation. For safe ridings, $N = 44$. For swing ridings $N = 119$.

Table 57

Relationship between Facebook ad impressions and election results

	Total *N* = 12708	Loss *N* = 2930	Win *N* = 9778	
	n	*n*	*n*	X^2
Impressions				
0-5K	8361	2000	6361	.016*
5K-10K	1757	300	1457	.000**
10K-50K	2022	482	1540	.843
50K-100K	331	100	231	.020*
100K-200K	153	43	110	.527
200K-500K	59	5	54	.069
500K+	25	0	25	.057

Note: * X^2 = < .05. ** X^2 < .000.

Table 58

Relationship between Facebook ad impressions and election results, by province

	Total *N* = 12708	Loss *N* = 2930	Win *N* = 9778	
	n	*n*	*n*	X^2
British Columbia	4516	2967	1549	.990
Manitoba	258	152	106	.080
New Brunswick	159	93	66	.001*
Newfoundland	32	30	2	.991
Ontario	2746	834	1912	.974
Québec	7471	689	6782	.002*

Note: * X^2 = < .05. ** X^2 < .000.

Table 59

Relationship between Facebook ad impressions and election results, by riding type

	Total *N* = 12708	Loss *N* = 2930	Win *N* = 9778	
	n	*n*	*n*	X^2
Safe riding	7594	96	7498	.000**
Swing riding	4733	2453	2280	.911

Note: * X^2 = < .05. ** X^2 < .000.

13.1.4 Investment in Facebook ads

Table 60

Relationship between investment in Facebook ads and election results

	Total N = 12,708	Loss N = 2930	Win N = 9778	
	n	*n*	*n*	X^2
Spend category				
0-499	11855	2669	9186	.000**
500-999	481	149	332	
1000-4999	349	112	237	
5000-9999	16	0	16	
10000-25000	7	0	7	

Note: * *p* = < .05. ** X^2 < .000.

13.2 Political donations

13.2.1 Presence on social media

Table 61

Table of correlation, frequency of tweeting and donations

	1	2
1. Donations	--	
2. Number of tweets	.456*	--

Note: *$p < .05$, two tailed. $N = 263$.

Table 62

Correlation coefficients, frequency of tweeting by province and donations

	r	*p*	N
Alberta	.068	.46	19
British Columbia	.185	.33	36
Manitoba	.865*	.71	8
New Brunswick	-.746*	.81	6
Newfoundland	.927*	.75	7
Nova Scotia	.365	.75	7
Ontario	.536*	.18	115
PEI	.172	1.00	3
Québec	.244	.27	54
Saskatchewan	-.240	.81	6

Note: *$p < .05$, two tailed.

Table 63

Correlation coefficients, frequency of tweeting by riding type and donations

	r	*p*	N
Safe	.385*	.24	69
Swing	.573*	.15	168
Unlikely	-.069	.39	26

Note: *$p < .05$, two tailed.

Table 64

Table of correlation, number of Facebook ads and donations

	1	2
1. Donations	--	
2. Number of Facebook ads	-.024	--

Note: *$p < .05$, two tailed. $N = 201$.

Table 65

Correlation coefficients, number of Facebook ads by province and donations

	r	*p*	N
Alberta	.733*	.67	9
British Columbia	-.146	.37	28
Manitoba	-.469	.81	6
New Brunswick	.385	.75	7
Nova Scotia	.037	.67	9
Ontario	.187	.21	85
PEI	.110	1.00	3
Québec	.001	.29	46
Saskatchewan	-.498	.95	4

Note: *$p < .05$, two tailed.

Table 66

Correlation coefficients, number of Facebook ads by swing riding and donations

	r	*p*	N
Safe	-.079	.28	49
Swing	.156	.17	138
Unlikely	.129	.53	14

Note: *$p < .05$, two tailed.

Table 67

Table of correlation, frequency of posting on Instagram and donations

	1	2
1. Donations	--	
2. Number of Instagram posts	.122	--

Note: *$p < .05$, two tailed. $N = 241$.

Table 68

Correlation coefficients, frequency of posting on Instagram by province and donations

	r	*p*	N
Alberta	.200	.53	14
British Columbia	-.093	.34	34
Manitoba	.297	.71	8
New Brunswick	-.141	.88	5
Newfoundland	-.187	0.95	4
Nova Scotia	-.101	.67	9
Ontario	.016	.19	103
Québec	.289*	.26	57
Saskatchewan	-.696	1.00	3

Note: *$p < .05$, two tailed.

Table 69

Correlation coefficients, frequency of posting on Instagram by riding type and donations

	r	*p*	N
Safe	.054	.25	64
Swing	.205	.15	161
Unlikely	-.092	.50	16

Note: *$p < .05$, two tailed.

13.2.2 Ways to engage

Table 70

Regression statistics, type of tweets and donations

	Coefficients	Standard Error	*t* Stat	*p*
native	12.61	8.14	1.549	.12
quote	119.98	23.54	5.097	.00*
reply	2.77	14.37	.193	.85
retweet	8.05	5.78	1.393	.16

Note: *$p < .05$, two tailed. $N = 263$.

Table 71

Regression statistics, types of tweets and donations, by province

	Coefficients	Standard Error	*t* Stat	*p*
Saskatchewan, *N* = 6				
native	-331.26	103.48	-3.201	.19
quote	-2481.53	814.74	-3.046	.20
reply	623.73	195.86	3.185	.19
retweet	127.35	46.07	2.765	.22
Québec, *N* = 54				
native	-36.99	14.87	-2.488	.02*
quote	246.66	91.18	2.705	.01*
reply	205.96	116.90	1.762	.08
retweet	10.62	14.82	.716	.48
Ontario, *N* = 115				
native	41.02	18.01	2.278	.02*
quote	96.39	40.13	2.402	.02*
reply	1.24	18.62	.066	.95
retweet	5.63	7.83	.718	.47
Nova Scotia, *N* = 7				
native	-74.11	97.77	-.758	.53
quote	117.83	430.00	.274	.81
reply	168.38	226.75	.743	.54
retweet	-45.99	94.87	-.485	.68
Newfoundland, *N* = 7				
native	17.25	10.42	1.656	.24
quote	-162.79	62.55	-2.603	.12
reply	42.54	7.29	5.833	.03*
retweet	36.12	5.28	6.843	.02*
New Brunswick, *N* = 6				
native	-8.18	12.02	-.681	.62
quote	-2.56	53.96	-.047	.97
reply	-129.58	72.81	-1.780	.33
retweet	-2.18	6.12	-.357	.78
Manitoba, *N* = 8				
native	-12.54	83.91	-.149	.89
quote	306.14	466.28	.657	.56
reply	426.67	871.13	.490	.66
retweet	65.72	76.68	.857	.45
British Columbia, *N* = 36				
native	29.41	48.03	.612	.54
quote	41.62	90.46	.460	.65
reply	27.12	76.66	.354	.73
retweet	-10.09	30.58	-.330	.74
Alberta, *N* = 19				
native	115.63	75.01	1.542	.15
quote	-47.51	57.15	-.831	.42
reply	-69.60	95.90	-.726	.48
retweet	-1.72	23.87	-.072	.94

Note: *$p < .05$, two tailed.

Table 72

Regression statistics, types of tweets and donations, by riding type

	Coefficients	Standard Error	*t* Stat	*p*
Safe, *N* = 69				
native	-6.71	14.36	-.467	.642
quote	354.65	107.91	3.287	.002*
reply	-40.40	24.43	-1.653	.103
retweet	5.99	13.75	.435	.665
Swing, *N* = 168				
native	36.00	10.87	3.311	.001*
quote	89.31	23.85	3.745	.000*
reply	41.51	24.70	1.681	.095
retweet	-7.70	6.89	-1.117	.266
Unlikely, *N* = 26				
native	10.12	19.43	.521	.608
quote	32.16	43.48	.740	.468
reply	5.12	50.16	.102	.920
retweet	-20.88	14.15	-1.476	.155

Note: *$p < .05$, two tailed.

Table 73

Regression statistics, media types on tweets and donations, by province

	Coefficients	Standard Error	*t* Stat	*p*
Saskatchewan, *N* = 6				
photo	49.66	50.32	.987	.428
text	-25.82	17.28	-1.494	.274
video	5718.17	3070.84	1.862	.204
Québec, *N* = 54				
GIF	7621.53	14216.69	.536	.594
photo	37.98	50.50	.752	.456
text	34.27	10.09	3.396	.001*
video	-367.91	395.20	-.931	.356
Ontario, *N* = 115				
GIF	412.35	1502.85	.274	.784
photo	49.93	25.95	1.924	.057
text	8.71	5.35	1.630	.106
video	257.02	82.04	3.133	.002*
Nova Scotia, *N* = 7				
GIF	-14421.95	30571.99	-.472	.684
photo	520.15	1108.84	.469	.685
text	0.11	94.38	.001	.999
video	889.62	1215.67	.732	.540
Newfoundland, *N* = 7				
photo	3.95	29.02	.136	.900
text	50.80	21.93	2.316	.103
video	-942.10	1317.37	-.715	.526
New Brunswick, *N* = 6				
photo	-27.84	10.79	-2.581	.123
text	-7.63	2.24	-3.399	.077
video	298.40	92.33	3.232	.084
Manitoba, *N* = 8				
photo	-91.23	107.78	-.846	.445
text	94.52	28.12	3.361	.028
video	570.64	344.81	1.655	.173
British Columbia, *N* = 36				
GIF	9574.12	5428.29	1.764	.088
photo	34.55	79.71	.433	.668
text	-1.59	15.55	-.102	.919
video	153.52	336.24	.457	.651
Alberta, *N* = 19				
GIF	2622.51	3064.35	.856	.407
photo	56.45	101.93	.554	.588
text	-2.97	15.51	-.192	.851
video	16.67	495.84	.034	.974

Note: *$p < .05$, two tailed.

Table 74

Regression statistics, media types on tweets and donations, by riding type

	Coefficients	Standard Error	t Stat	P-value
Safe, *N* = 69				
GIF	-2190.98	1981.49	-1.106	.273
photo	87.82	46.53	1.887	.064
text	21.43	8.16	2.627	.011*
video	-153.65	79.98	-1.921	.059
Swing, *N* = 168				
GIF	1621.49	931.71	1.740	.084
photo	2.09	15.41	.136	.892
text	1.65	4.43	.371	.711
video	410.54	55.65	7.377	.000*
Unlikely, *N* = 26				
GIF	2447.76	1828.71	1.339	.195
photo	-93.63	57.42	-1.631	.118
text	-4.99	6.79	-.736	.470
video	758.85	327.46	2.317	.031

Note: *$p < .05$, two tailed.

Table 75

Regression statistics, types on Instagram posts, by province

	Coefficients	Standard Error	*t* Stat	*p*
Québec, *N* = 57				
photo	111.59	49.48	2.255	.028*
video	-123.67	255.56	-.484	.630
Ontario, *N* = 103				
photo	-31.89	47.22	-.675	.501
video	305.44	193.76	1.576	.118
Nova Scotia, *N* = 9				
photo	-80.10	195.74	-.409	.697
video	792.70	2504.40	.317	.762
Newfoundland, *N* = 4				
photo	-22.11	130.17	-.170	.893
video	1635.52	3487.40	.469	.721
New Brunswick, *N* = 5				
photo	-7.85	28.35	-.277	.808
video	18.63	90.15	.207	.855
Manitoba, *N* = 8				
photo	115.89	195.98	.591	.580
video	-19.26	637.51	-.030	.977
British Columbia, *N* = 34				
photo	-33.12	82.00	-.404	.689
video	-45.05	241.55	-.187	.853
Alberta, *N* = 14				
photo	8.50	84.42	.101	.922
video	247.39	525.16	.471	.647

Note: *$p < .05$, two tailed.

Table 76

Regression statistics, types on Instagram posts and donations, by riding type

	Coefficients	Standard Error	*t* Stat	*p*
Safe, *N* = 64				
photo	13.87	82.00	.169	.866
video	97.06	295.94	.328	.744
Swing, *N* = 161				
photo	26.27	25.91	1.014	.312
video	295.73	116.79	2.532	.012*
Unlikely, *N* = 16				
photo	-11.99	28.51	-.421	.681
video	140.06	465.47	.301	.768

Note: *$p < .05$, two tailed.

13.2.3 Popularity on social posts

Table 77

Table of correlation between popularity of tweets and donations

	1	2	3	4	5
1. Donations	--				
2. Number of favourites on tweets	.047	--			
3. Number of times tweets are quoted	.090	.996*	--		
4. Number of times tweets were retweeted	.088	.998*	.998*	--	
5. Number of replies on tweets	.113	.989*	.997*	.993*	--

Note: * $p < .05$, two tailed. $N = 263$.

Table 78

Table of correlation between popularity of Instagram posts and donations

	1	2	3
1. Donations	--		
2. Number of comments	-.018	--	
3. Number of likes	-.022	.999*	--

Note: * $p < .05$, two tailed. $N = 241$.

Table 79

Table of correlation between popularity of Instagram videos and donations

	1	2
1. Donations	--	
2. Video views on Instagram	-.032	--

Note: * $p < .05$, two tailed. $N = 173$.

Table 80

Regression statistics, impressions on Facebook ads

	Coefficients	Standard Error	*t* Stat	*p*
0-5K	41.93	38.28	1.095	.275
5K-10K	55.99	259.48	.216	.829
10K-50K	123.83	178.66	.693	.489
50K-100K	-181.78	524.31	-.347	.729
100K-200K	-1875.05	972.82	-1.927	.055
200K-500K	-850.87	2880.15	-.295	.768
500K+	-5749.86	10968.81	-.524	.601

Note: * $p < .05$, two tailed. $N = 201$.

Table 81

Regression statistics, impressions of Facebook ads and donations, by province

	Coefficients	Standard Error	t Stat	p
Québec, *N* = 46				
0-5K	11.01	59.85	.184	.855
5K-10K	-143.43	347.27	-.413	.682
10K-50K	11.55	264.19	.044	.965
50K-100K	-225.28	789.00	-.286	.777
100K-200K	-1819.64	1799.30	-1.011	.318
200K-500K	40.92	2571.03	.016	.987
500K+	9839.99	13769.72	.715	.479
Ontario, *N* = 85				
0-5K	90.64	63.10	1.436	.155
5K-10K	731.88	506.75	1.444	.153
10K-50K	-109.86	346.09	-.317	.752
50K-100K	-1455.53	1195.12	-1.218	.227
100K-200K	-4173.26	1864.94	-2.238	.028
Nova Scotia, *N* = 9				
0-5K	-123.51	69.85	-1.768	.175
5K-10K	14.39	452.90	.032	.977
10K-50K	575.14	165.49	3.475	.040
50K-100K	704.77	553.35	1.274	.293
100K-200K	-607.46	1507.43	-.403	.714
New Brunswick, *N* = 7				
0-5K	7.51	35.09	.214	.850
5K-10K	142.59	283.92	.502	.665
10K-50K	-28.52	173.17	-.165	.884
50K-100K	500.87	392.08	1.277	.330
Manitoba, *N* = 6				
0-5K	-5897.25	937.18	-6.293	.100
5K-10K	-1336.09	348.03	-3.839	.162
10K-50K	1203.99	247.07	4.873	.129
50K-100K	-102.87	1059.59	-.097	.938
British Columbia, *N* = 28				
0-5K	31.28	98.79	.317	.755
5K-10K	-865.65	583.66	-1.483	.152
10K-50K	87.72	426.58	.206	.839
50K-100K	724.24	1286.74	.563	.579
100K-200K	-1196.83	2135.98	-.560	.581
Alberta, *N* = 9				
0-5K	379.52	219.39	1.730	.182
5K-10K	-686.72	863.73	-.795	.485
10K-50K	-41.84	355.56	-.118	.914
50K-100K	1272.98	652.40	1.951	.146
100K-200K	-3529.73	2326.89	-1.517	.227

Note: * $p < .05$, two tailed.

Table 82

Regression statistics, impressions of Facebook ads and donations, by riding type

	Coefficients	Standard Error	*t* Stat	*p*
Safe, *N* = 49				
0-5K	40.36	134.57	.300	.766
5K-10K	-213.90	882.07	-.243	.810
10K-50K	449.10	535.48	.839	.407
50K-100K	-1605.55	1858.89	-.864	.393
100K-200K	-3962.10	2773.80	-1.428	.161
200K-500K	-4081.05	12654.93	-.322	.749
500K+	12610.77	38845.91	.325	.747
Swing, *N* = 138				
0-5K	47.56	36.82	1.292	.199
5K-10K	227.64	258.44	.881	.380
10K-50K	-16.64	183.33	-.091	.928
50K-100K	26.16	498.38	.052	.958
100K-200K	-904.53	995.26	-.909	.365
Unlikely, *N* = 14				
0-5K	-58.90	280.14	-.210	.839
5K-10K	101.83	947.60	.107	.917
10K-50K	235.79	559.41	.421	.684
50K-100K	164.02	2208.82	.074	.943
100K-200K	1578.41	4191.90	.377	.716

Note: * $p < .05$, two tailed.

13.2.4 Investment in Facebook ads

Table 83

Regression statistics, spend category for Facebook ads and donations, by province

	Coefficients	Standard Error	*t* Stat	*p*
Québec, *N* = 46				
0-499	-10.25	32.34	-.317	.753
500-999	551.54	594.83	.927	.359
1000-4999	-1172.37	707.59	-1.657	.105
5000-9999	8560.10	12047.39	.711	.481
Ontario, *N* = 85				
0-499	115.07	55.22	2.084	.040*
500-999	-846.29	753.48	-1.123	.265
1000-4999	-30.90	1071.59	-.029	.977
Nova Scotia, *N* = 9				
0-499	-72.36	41.59	-1.740	.142
500-999	3378.14	734.17	4.601	.006
1000-4999	1375.32	1397.96	.984	.370
New Brunswick, *N* = 7				
0-499	1.05	22.38	.047	.965
500-999	371.78	217.23	1.711	.162
Manitoba, *N* = 6				
0-499	-236.47	275.18	-.859	.453
500-999	-709.23	2303.91	-.308	.778
Alberta, *N* = 9				
0-499	133.88	58.04	2.307	.069
500-999	778.72	956.59	.814	.453
1000-4999	649.30	1187.79	.547	.608
British Columbia, *N* = 28				
0-499	-57.56	73.47	-.784	.441
500-999	519.74	590.81	.880	.388
1000-4999	-1232.35	1086.71	-1.134	.268

Note: *$p < .05$, two tailed.

Table 84

Regression statistics, spend category for Facebook ads and donations, by riding type

	Coefficients	Standard Error	*t* Stat	*p*
Safe, N = 49				
0-499	33.42	100.06	.334	.740
500-999	-27.37	1176.77	-.023	.982
1000-4999	-188.13	2104.15	-.089	.929
5000-9999	-10684.58	37090.12	-.288	.775
Swing, N = 138				
0-499	51.61	27.86	1.853	.066
500-999	-125.01	376.47	-.332	.740
1000-4999	142.75	543.58	.263	.793
Unlikely, N = 14				
0-499	-4.07	102.24	-.040	.969
500-999	330.26	1107.90	.298	.772
1000-4999	937.92	1312.93	.714	.491

Note: *$p < .05$, two tailed.

13.3 Public opinion

13.3.1 Presence on social media

Table 85

Table of correlations, public opinion against frequency of tweeting

	1	2	3	4	5	6
1. Number of tweets	--					
2. Consider Liberal over all parties	-.236	--				
3. Party Power Index	-.172	.632*	--			
4. Preferred Prime Minister is Trudeau	-.037	.756*	.835*	--		
5. Trudeau is a good leader	.183	.291	.740*	.688*	--	
6. Consider voting Liberal	.042	.619*	.754*	.652*	.592*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 86

Table of correlation, frequency of tweeting and public opinion in Atlantic Canada

	1	2	3	4	5	6
1. Number of tweets	--					
2. Consider voting Liberal	-.076	--				
3. Consider Liberal over all parties	.175	.760*	--			
4. Party Power Index	.018	.821*	.740*	--		
5. Preferred Prime Minister is Trudeau	-.057	.841*	.691*	.848*	--	
6. Trudeau is a good leader	-.080	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 87

Table of correlation, frequency of tweeting and public opinion in British Columbia

	1	2	3	4	5	6
1. Number of tweets	--					
2. Consider voting Liberal	.191	--				
3. Consider Liberal over all parties	.271	.751*	--			
4. Party Power Index	.276	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	.252	.637*	.706*	.750*	--	
6. Trudeau is a good leader	.257	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 88

Table of correlation, frequency of tweeting and public opinion in Ontario

	1	2	3	4	5	6
1. Number of tweets	--					
2. Consider voting Liberal	.153	--				
3. Consider Liberal over all parties	-.202	.327*	--			
4. Party Power Index	-.155	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	-.431*	.233	.481*	.621*	--	
6. Trudeau is a good leader	.246	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 89

Table of correlation, frequency of tweeting and public opinion in the Prairies

	1	2	3	4	5	6
1. Number of tweets	--					
2. Consider voting Liberal	-.081	--				
3. Consider Liberal over all parties	-.276	.658*	--			
4. Party Power Index	-.215	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	-.119	.285	.391*	.387*	--	
6. Trudeau is a good leader	.132	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 90

Table of correlation, frequency of tweeting and public opinion in Québec

	1	2	3	4	5	6
1. Number of tweets	--					
2. Consider voting Liberal	.133	--				
3. Consider Liberal over all parties	-.083	.724*	--			
4. Party Power Index	.034	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	.320	.681*	.554*	0.700*	--	
6. Trudeau is a good leader	.266	.800*	.560*	0.838*	.701*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 91

Table of correlation, number of Facebook ads and public opinion in Atlantic Canada

	1	2	3	4	5	6
1. Number of Facebook ads	--					
2. Consider voting Liberal	-.442*	--				
3. Consider Liberal over all parties	-.357*	.760*	--			
4. Party Power Index	-.600*	.821*	.740*	--		
5. Preferred Prime Minister is Trudeau	-.354*	.841*	.691*	.848*	--	
6. Trudeau is a good leader	-.528*	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 92

Table of correlation, number of Facebook ads and public opinion in British Columbia

	1	2	3	4	5	6
1. Number of Facebook ads	--					
2. Consider voting Liberal	.301	--				
3. Consider Liberal over all parties	.209	.751*	--			
4. Party Power Index	.211	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	-.064	.637*	.708*	.750*	--	
6. Trudeau is a good leader	.255	.545*	.366*	.879*	.610*	--

Note: *p < .05, two tailed. N = 37.

Table 93

Table of correlation, number of Facebook ads and public opinion in Ontario

	1	2	3	4	5	6
1. Number of Facebook ads	--					
2. Consider voting Liberal	.232	--				
3. Consider Liberal over all parties	-.224	.327*	--			
4. Party Power Index	-.289	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	-.435*	.233	.481*	.621*	--	
6. Trudeau is a good leader	.209	.371*	.049	.431*	.264	--

Note: *p < .05, two tailed. N = 37.

Table 94

Table of correlation, number of Facebook ads and public opinion in the Prairies

	1	2	3	4	5	6
1. Number of Facebook ads	--					
2. Consider voting Liberal	-.531*	--				
3. Consider Liberal over all parties	-.338*	.658*	--			
4. Party Power Index	-.555*	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	-.165	.285	.391*	.387*	--	
6. Trudeau is a good leader	-.048	.513*	-.011	.668*	.397*	--

Note: *p < .05, two tailed. N = 37.

Table 95

Table of correlation, number of Facebook ads and public opinion in Québec

	1	2	3	4	5	6
1. Number of Facebook ads	--					
2. Consider voting Liberal	-.252	--				
3. Consider Liberal over all parties	-.498*	.724*	--			
4. Party Power Index	-.572*	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	-.120	.681*	.554*	.700*	--	
6. Trudeau is a good leader	-.197	.800*	.560*	.838*	.701*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 96

Table of correlations, public opinion against frequency of posting on Instagram

	1	2	3	4	5	6
1. Number of Instagram posts	--					
2. Consider voting Liberal	-.020	--				
3. Consider Liberal over all parties	-.502*	.619*	--			
4. Party Power Index	-.045	.754*	.632*	--		
5. Preferred Prime Minister is Trudeau	-.124	.652*	.756*	.835*	--	
6. Trudeau is a good leader	.347*	.592*	.291	.740*	.668*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 97

Table of correlation, frequency of posting on Instagram in Atlantic Canada

	1	2	3	4	5	6
1. Number of Instagram posts	--					
2. Consider voting Liberal	-.321	--				
3. Consider Liberal over all parties	-.181	.760*	--			
4. Party Power Index	-.332*	.821*	0.740*	--		
5. Preferred Prime Minister is Trudeau	-.325*	.841*	.691*	.848*	--	
6. Trudeau is a good leader	-.155	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 98

Table of correlation, frequency of posting on Instagram in British Columbia

	1	2	3	4	5	6
1. Number of Instagram posts	--					
2. Consider voting Liberal	.017	--				
3. Consider Liberal over all parties	.056	.751*	--			
4. Party Power Index	.056	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	-.134	.637*	.708*	.750*	--	
6. Trudeau is a good leader	.073	.545*	.366*	.879*	0.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 99

Table of correlation, frequency of posting on Instagram in Ontario

	1	2	3	4	5	6
1. Number of Instagram posts	--					
2. Consider voting Liberal	.215	--				
3. Consider Liberal over all parties	-.243	.327*	--			
4. Party Power Index	.145	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	.062	.233	.481*	.621*	--	
6. Trudeau is a good leader	.536*	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 100

Table of correlation, frequency of posting on Instagram in the Prairies (Manitoba, Saskatchewan, and Alberta)

	1	2	3	4	5	6
1. Number of Instagram posts	--					
2. Consider voting Liberal	-.008	--				
3. Consider Liberal over all parties	-.157	.658*	--			
4. Party Power Index	.099	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	-.183	.285	.391*	.387*	--	
6. Trudeau is a good leader	.179	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 101

Table of correlation, frequency of posting on Instagram in Québec

	1	2	3	4	5	6
1. Number of Instagram posts	--					
2. Consider voting Liberal	.058	--				
3. Consider Liberal over all parties	-.012	.724*	--			
4. Party Power Index	.009	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	.187	.681*	.554*	.700*	--	
6. Trudeau is a good leader	-.057	.800*	.560*	.838*	.701*	--

Note: *$p < .05$, two tailed. $N = 37$.

13.3.2 Ways to engage

Table 102

Table of correlation, types of tweets and public opinion

	1	2	3	4	5	6	7	8	9
1. Number of retweets	--								
2. Number of replies	.484*	--							
3. Number of quoted tweets	.764*	.610*	--						
4. Number of native tweets	.767*	.435*	.522*	--					
5. Consider voting Liberal	.037	.082	.120	-.001	--				
6. Consider Liberal over all parties	-.191	-.115	-.090	-.384*	.619*	--			
7. Party Power Index	-.201	-.038	-.064	-.088	.754*	.632*	--		
8. Preferred Prime Minister is Trudeau	-.045	-.032	.087	-.050	.652*	.756*	.835*	--	
9. Trudeau is a good leader	.122	.193	.159	.318	.592*	.291	.740*	.668*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 103

Table of correlation, types of tweets and public opinion, in Atlantic Canada

	1	2	3	4	5	6	7	8	9
1. Number of retweets	--								
2. Number of replies	.471*	--							
3. Number of quoted tweets	.368*	.324	--						
4. Number of native tweets	.411*	.459*	.352*	--					
5. Consider voting Liberal	-.129	.149	-.051	-.140	--				
6. Consider Liberal over all parties	.138	.285	.063	-.013	.760*	--			
7. Party Power Index	-.090	.272	.060	-.048	.821*	.740*	--		
8. Preferred Prime Minister is Trudeau	-.073	.174	-.034	-.244	.841*	.691*	.848*	--	
9. Trudeau is a good leader	-.217	.271	.058	-.121	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 104

Table of correlation, types of tweets and public opinion, in British Columbia

	1	2	3	4	5	6	7	8	9
1. Number of retweets	--								
2. Number of replies	.223	--							
3. Number of quoted tweets	.670*	.200	--						
4. Number of native tweets	.723*	.283	.487*	--					
5. Consider voting Liberal	.156	.146	.132	.187	--				
6. Consider Liberal over all parties	.283	.031	.261	.187	.751*	--			
7. Party Power Index	.229	.117	.253	.266	.785*	.586*	--		
8. Preferred Prime Minister is Trudeau	.299	-.068	.151	.187	.637*	.708*	.750*	--	
9. Trudeau is a good leader	.208	.063	.205	.292	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 105

Table of correlation, types of tweets and public opinion, in Ontario

	1	2	3	4	5	6	7	8	9
1. Number of retweets	--								
2. Number of replies	.388*	--							
3. Number of quoted tweets	.585*	.525*	--						
4. Number of native tweets	.532*	.216	.350*	--					
5. Consider voting Liberal	.123	.024	.110	.190	--				
6. Consider Liberal over all parties	-.204	.219	.000	-.303	.327*	--			
7. Party Power Index	-.211	.007	-.070	.003	.718*	.556*	--		
8. Preferred Prime Minister is Trudeau	-.449*	-.106	-.354*	-.232	.233	.481*	.621*	--	
9. Trudeau is a good leader	.132	.201	.154	.421*	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 106

Table of correlation, types of tweets and public opinion, in the Prairies

	1	2	3	4	5	6	7	8	9
1. Number of retweets	--								
2. Number of replies	.431*	--							
3. Number of quoted tweets	.763*	.342*	--						
4. Number of native tweets	.578*	.336*	.367*	--					
5. Consider voting Liberal	-.052	-.181	-.039	-.045	--				
6. Consider Liberal over all parties	-.232	-.211	-.205	-.296	.658*	--			
7. Party Power Index	-.187	-.337*	-.180	-.028	.849*	.415*	--		
8. Preferred Prime Minister is Trudeau	-.065	-.223	-.076	-.193	.285	.391*	.387*	--	
9. Trudeau is a good leader	.194	-.163	.006	.098	.513	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 107

Table of correlation, types of tweets and public opinion, in Québec

	1	2	3	4	5	6	7	8	9
1. Number of retweets	--								
2. Number of replies	.266	--							
3. Number of quoted tweets	.773*	.247	--						
4. Number of native tweets	.896*	.277	.682*	--					
5. Consider voting Liberal	.116	.081	.211	.144	--				
6. Consider Liberal over all parties	-.102	-.116	.172	-.076	.724*	--			
7. Party Power Index	.001	-.001	.159	.111	.775*	.761*	--		
8. Preferred Prime Minister is Trudeau	.293	.258	.342*	.338*	.681*	.554*	.700*	--	
9. Trudeau is a good leader	.243	.047	.271	.314	.800*	.560*	.838*	.701*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 108

Table of correlation, types of media on tweets and public opinion, in Atlantic Canada

	1	2	3	4	5	6	7	8	9
1. Number of photos	--								
2. Number of videos	.201	--							
3. Number of GIFs	-.253	-.142	--						
4. Number of text-based tweets	.259	.316	.032	--					
5. Consider voting Liberal	.099	-.096	-.248	-.097	--				
6. Consider Liberal over all parties	.069	.131	-.205	.173	.760*	--			
7. Party Power Index	.112	.035	-.318	-.003	.821*	.740*	--		
8. Preferred Prime Minister is Trudeau	.001	-.159	-.223	-.049	.841*	.691*	.848*	--	
9. Trudeau is a good leader	.007	.067	-.312	-.088	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 109

Table of correlation, types of media on tweets and public opinion, in British Columbia

	1	2	3	4	5	6	7	8	9
1. Number of photos	--								
2. Number of videos	.464*	--							
3. Number of GIFs	.025	.099	--						
4. Number of text-based tweets	.523*	.568*	.095	--					
5. Consider voting Liberal	.106	.109	.009	.193	--				
6. Consider Liberal over all parties	.043	.075	.194	.301	.751*	--			
7. Party Power Index	.278	.206	-.143	.250	.785*	.586*	--		
8. Preferred Prime Minister is Trudeau	.145	.184	-.104	.251	.637*	.708*	.750*	--	
9. Trudeau is a good leader	.319	.304	-.141	.213	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 110

Table of correlation, types of media on tweets and public opinion, in Ontario

	1	2	3	4	5	6	7	8	9
1. Number of photos	--								
2. Number of videos	.289	--							
3. Number of GIFs	.097	.394*	--						
4. Number of text-based tweets	.306	.190	.141	--					
5. Consider voting Liberal	.071	.088	.186	.147	--				
6. Consider Liberal over all parties	-.366*	.227	.158	-.163	.327*	--			
7. Party Power Index	.068	.118	.028	-.188	.718*	.556*	--		
8. Preferred Prime Minister is Trudeau	-.106	.061	-.063	-.451*	.233	.481*	.621*	--	
9. Trudeau is a good leader	.457*	.190	.166	.169	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 111

Table of correlation, types of media on tweets and public opinion, in the Prairies

	1	2	3	4	5	6	7	8	9
1. Number of photos	--								
2. Number of videos	.091	--							
3. Number of GIFs	-.077	.010	--						
4. Number of text-based tweets	.351*	.144	.407*	--					
5. Consider voting Liberal	-.123	.044	-.151	-.073	--				
6. Consider Liberal over all parties	-.318	-.086	-.092	-.251	.658*	--			
7. Party Power Index	-.061	.036	-.186	-.221	.849*	.415*	--		
8. Preferred Prime Minister is Trudeau	-.160	-.278	.052	-.095	.285	.391*	.387*	--	
9. Trudeau is a good leader	.039	.014	-.125	.135	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 112

Table of correlation, types of media on tweets and public opinion, in Québec

	1	2	3	4	5	6	7	8	9
1. Number of photos	--								
2. Number of videos	.337*	--							
3. Number of GIFs	.186	-.064	--						
4. Number of text-based tweets	.607*	.608*	-.085	--					
5. Consider voting Liberal	.242	.001	.553*	.124	--				
6. Consider Liberal over all parties	-.033	-.073	.428*	-.085	.724*	--			
7. Party Power Index	.240	-.005	.349*	.019	.775*	.761*	--		
8. Preferred Prime Minister is Trudeau	.251	.110	.236	.319	.681*	.554*	.700*	--	
9. Trudeau is a good leader	.348*	.185	.195	.253	.800*	.560*	.838*	.701*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 113

Table of correlation, types of media on Instagram posts and public opinion, in Atlantic Canada

	1	2	3	4	5	6	7
1. Number of videos	--						
2. Number of photos	.166	--					
3. Consider voting Liberal	-.484*	-.183	--				
4. Consider Liberal over all parties	-.281	-.100	.760*	--			
5. Party Power Index	-.278	-.271	.821*	.740*	--		
6. Preferred Prime Minister is Trudeau	-.274	-.264	.841*	.691*	.848*	--	
7. Trudeau is a good leader	-.099	-.138	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 114

Table of correlation, types of media on Instagram posts and public opinion, in British Columbia

	1	2	3	4	5	6	7
1. Number of videos	--						
2. Number of photos	.506*	--					
3. Consider voting Liberal	.151	-.042	--				
4. Consider Liberal over all parties	.288	-.033	.751*	--			
5. Party Power Index	.047	.040	.785*	.586*	--		
6. Preferred Prime Minister is Trudeau	.114	-.204	.637*	.708*	.750*	--	
7. Trudeau is a good leader	.062	.052	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 115

Table of correlation, types of media on Instagram posts and public opinion, in Ontario

	1	2	3	4	5	6	7
1. Number of videos	--						
2. Number of photos	.509*	--					
3. Consider voting Liberal	.082	.231	--				
4. Consider Liberal over all parties	.035	-.304	.327*	--			
5. Party Power Index	.065	.153	.718*	.556*	--		
6. Preferred Prime Minister is Trudeau	.114	.037	.233	.481*	.621*	--	
7. Trudeau is a good leader	.370*	.522*	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 116

Table of correlation, types of media on Instagram posts and public opinion, in the Prairies

	1	2	3	4	5	6	7
1. Number of videos	--						
2. Number of photos	.080	--					
3. Consider voting Liberal	.105	-.045	--				
4. Consider Liberal over all parties	-.207	-.100	.658*	--			
5. Party Power Index	.233	.029	.849*	.415*	--		
6. Preferred Prime Minister is Trudeau	-.164	-.143	.285	.391*	.387*	--	
7. Trudeau is a good leader	.247	.110	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 117

Table of correlation, types of media on Instagram posts and public opinion, in Québec

	1	2	3	4	5	6	7
1. Number of videos	--						
2. Number of photos	.116	--					
3. Consider voting Liberal	-.180	.128	--				
4. Consider Liberal over all parties	-.173	.048	.724*	--			
5. Party Power Index	-.176	.072	.775*	.761*	--		
6. Preferred Prime Minister is Trudeau	.076	.179	.681*	.554*	.700*	--	
7. Trudeau is a good leader	-.053	-.044	.800*	.560*	.838*	.701*	--

Note: *p < .05, two tailed. N = 37.

13.3.3 Popularity of social posts

13.3.3.1 Twitter

Table 118

Table of correlation, number of favourites on tweets and public opinion, in Canada

	1	2	3	4	5	6
1. Number of favourites	--					
2. Consider voting Liberal	-.192	--				
3. Consider Liberal over all parties	-.499*	.619*	--			
4. Party Power Index	-.143	.754*	.632*	--		
5. Preferred Prime Minister is Trudeau	-.146	.652*	.756*	.835*	--	
6. Trudeau is a good leader	.208	.592*	.291	.740*	.668*	--

Note: *p < .05, two tailed. N = 37.

Table 119

Table of correlation, number of favourites and public opinion, in Atlantic Canada

	1	2	3	4	5	6
1. Number of favourites	--					
2. Consider voting Liberal	-.211	--				
3. Consider Liberal over all parties	-.211	.760*	--			
4. Party Power Index	-.130	.821*	.740*	--		
5. Preferred Prime Minister is Trudeau	-.177	.841*	.691*	.848*	--	
6. Trudeau is a good leader	-.189	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 120

Table of correlation, number of favourites and public opinion, in British Columbia

	1	2	3	4	5	6
1. Number of favourites	--					
2. Consider voting Liberal	.035	--				
3. Consider Liberal over all parties	.032	.751*	--			
4. Party Power Index	.178	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	.196	.637*	.708*	.750*	--	
6. Trudeau is a good leader	.248	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 121

Table of correlation, number of favourites and public opinion, in Ontario

	1	2	3	4	5	6
1. Number of favourites	--					
2. Consider voting Liberal	.089	--				
3. Consider Liberal over all parties	-.204	.327*	--			
4. Party Power Index	-.072	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	-.144	.233	.481*	.621*	--	
6. Trudeau is a good leader	.359*	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 122

Table of correlation, number of favourites and public opinion, in the Prairies (Manitoba, Saskatchewan and Alberta)

	1	2	3	4	5	6
1. Number of favourites	--					
2. Consider voting Liberal	.171	--				
3. Consider Liberal over all parties	.016	.658*	--			
4. Party Power Index	.083	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	-.245	.285	.391*	.387*	--	
6. Trudeau is a good leader	.174	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 123

Table of correlation, number of favourites and public opinion, in Québec

	1	2	3	4	5	6
1. Number of favourites	--					
2. Consider voting Liberal	-.101	--				
3. Consider Liberal over all parties	-.135	.724*	--			
4. Party Power Index	-.135	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	-.121	.681*	.554*	.700*	--	
6. Trudeau is a good leader	-.128	.800*	.560*	.838*	.701*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 124

Table of correlation, number of times tweets are quoted and public opinion, in Canada

	1	2	3	4	5	6
1. Number of times tweets quoted	--					
2. Consider voting Liberal	-.158	--				
3. Consider Liberal over all parties	-.372*	.619*	--			
4. Party Power Index	-.080	.754*	.632*	--		
5. Preferred Prime Minister is Trudeau	-.075	.652*	.756*	.835*	--	
6. Trudeau is a good leader	.138	.592*	.291	.740*	.668*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 125

Table of correlation, number of times candidates are quoted on Twitter and public opinion, in Atlantic Canada

	1	2	3	4	5	6
1. Number of times tweets quoted	--					
2. Consider voting Liberal	.029	--				
3. Consider Liberal over all parties	-.079	.760*	--			
4. Party Power Index	.113	.821*	.740*	--		
5. Preferred Prime Minister is Trudeau	.058	.841*	.691*	.848*	--	
6. Trudeau is a good leader	.037	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 126

Table of correlation, number of times candidates are quoted on Twitter and public opinion, in British Columbia

	1	2	3	4	5	6
1. Number of times tweets quoted	--					
2. Consider voting Liberal	.048	--				
3. Consider Liberal over all parties	-.090	.751*	--			
4. Party Power Index	.169	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	.172	.637*	.708*	.750*	--	
6. Trudeau is a good leader	.202	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 127

Table of correlation, number of times candidates are quoted on Twitter and public opinion, in Ontario

	1	2	3	4	5	6
1. Number of times tweets quoted	--					
2. Consider voting Liberal	.164	--				
3. Consider Liberal over all parties	-.023	.327*	--			
4. Party Power Index	-.001	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	-.002	.233	.481*	.621*	--	
6. Trudeau is a good leader	.204	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 128

Table of correlation, number of times candidates are quoted on Twitter and public opinion, in the Prairies (Manitoba, Saskatchewan and Alberta)

	1	2	3	4	5	6
1. Number of times tweets quoted	--					
2. Consider voting Liberal	.243	--				
3. Consider Liberal over all parties	.179	.658*	--			
4. Party Power Index	.118	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	-.306	.285	.391*	.387*	--	
6. Trudeau is a good leader	.044	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 129

Table of correlation, number of times candidates are quoted on Twitter and public opinion, in Québec

	1	2	3	4	5	6
1. Number of times tweets quoted	--					
2. Consider voting Liberal	-.062	--				
3. Consider Liberal over all parties	-.070	.724*	--			
4. Party Power Index	-.051	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	-.081	.681*	.554*	.700*	--	
6. Trudeau is a good leader	-.092	.800*	.560*	.838*	.701*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 130

Table of correlation, number of times candidates are retweeted and public opinion, in Canada

	1	2	3	4	5	6
1. Number of retweets	--					
2. Consider voting Liberal	-.131	--				
3. Consider Liberal over all parties	-.496*	.619*	--			
4. Party Power Index	-.177	.754*	.632*	--		
5. Preferred Prime Minister is Trudeau	-.169	.652*	.756*	.835*	--	
6. Trudeau is a good leader	.238	.592*	.291	.740*	.668*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 131

Table of correlation, number of times candidates are retweeted and public opinion, in Atlantic Canada

	1	2	3	4	5	6
1. Number of retweets	--					
2. Consider voting Liberal	-.106	--				
3. Consider Liberal over all parties	-.179	.760*	--			
4. Party Power Index	.027	.821*	.740*	--		
5. Preferred Prime Minister is Trudeau	-.043	.841*	.691*	.848*	--	
6. Trudeau is a good leader	-.084	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 132

Table of correlation, number of times candidates are retweeted and public opinion, in British Columbia

	1	2	3	4	5	6
1. Number of retweets	--					
2. Consider voting Liberal	.100	--				
3. Consider Liberal over all parties	.058	.751*	--			
4. Party Power Index	.236	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	.265	.637*	.708*	.750*	--	
6. Trudeau is a good leader	.276	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 133

Table of correlation, number of times candidates are retweeted and public opinion, in Ontario

	1	2	3	4	5	6
1. Number of retweets	--					
2. Consider voting Liberal	.194	--				
3. Consider Liberal over all parties	-.177	.327*	--			
4. Party Power Index	-.095	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	-.269	.233*	.481*	.621*	--	
6. Trudeau is a good leader	.324	.371*	.049	.431*	.264*	--

Note: *p < .05, two tailed. N = 37.

Table 134

Table of correlation, number of times candidates are retweeted and public opinion, in the Prairies (Manitoba, Saskatchewan and Alberta)

	1	2	3	4	5	6
1. Number of retweets	--					
2. Consider voting Liberal	.224	--				
3. Consider Liberal over all parties	.057	.658*	--			
4. Party Power Index	.124	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	-.236	.285	.391*	.387*	--	
6. Trudeau is a good leader	.210	.513*	-.011	.668*	.397*	--

Note: *p < .05, two tailed. N = 37.

Table 135

Table of correlation, number of times candidates are retweeted and public opinion, in Québec

	1	2	3	4	5	6
1. Number of retweets	--					
2. Consider voting Liberal	-.101	--				
3. Consider Liberal over all parties	-.244	.724*	--			
4. Party Power Index	-.168	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	-.109	.681*	.554*	.700*	--	
6. Trudeau is a good leader	-.067	.800*	.560*	.838*	.701*	--

Note: *p < .05, two tailed. N = 37.

Table 136

Table of correlation, number of replies on candidates' tweets and public opinion, in Canada

	1	2	3	4	5	6
1. Number of replies	--					
2. Consider voting Liberal	-.235	--				
3. Consider Liberal over all parties	-.414*	.619*	--			
4. Party Power Index	-.173	.754*	.632*	--		
5. Preferred Prime Minister is Trudeau	-.140	.652*	.756*	.835*	--	
6. Trudeau is a good leader	.102	.592*	.291	.740*	.668*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 137

Table of correlation, number of replies on candidates' tweets and public opinion, in Atlantic Canada

	1	2	3	4	5	6
1. Number of replies	--					
2. Consider voting Liberal	.052	--				
3. Consider Liberal over all parties	.007	.760*	--			
4. Party Power Index	.146	.821*	.740*	--		
5. Preferred Prime Minister is Trudeau	.032	.841*	.691*	.848*	--	
6. Trudeau is a good leader	.104	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 138

Table of correlation, number of replies on candidates' tweets and public opinion, in British Columbia

	1	2	3	4	5	6
1. Number of replies	--					
2. Consider voting Liberal	-.019	--				
3. Consider Liberal over all parties	-.091	.751*	--			
4. Party Power Index	.145	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	.155	.637*	.708*	.750*	--	
6. Trudeau is a good leader	.169	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 139

Table of correlation, number of replies on candidates' tweets and public opinion, in Ontario

	1	2	3	4	5	6
1. Number of replies	--					
2. Consider voting Liberal	.076	--				
3. Consider Liberal over all parties	-.127	.327*	--			
4. Party Power Index	-.150	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	-.130	.233	.481*	.621*	--	
6. Trudeau is a good leader	.126	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 140

Table of correlation, number of replies on candidates' tweets and public opinion, in the Prairies

	1	2	3	4	5	6
1. Number of replies	--					
2. Consider voting Liberal	.329*	--				
3. Consider Liberal over all parties	.221	.658*	--			
4. Party Power Index	.212	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	-.265	.285	.391*	.387*	--	
6. Trudeau is a good leader	.061	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 141

Table of correlation, number of replies on candidates' tweets and public opinion, in Québec

	1	2	3	4	5	6
1. Number of replies	--					
2. Consider voting Liberal	-.177	--				
3. Consider Liberal over all parties	-.215	.724*	--			
4. Party Power Index	-.172	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	-.144	.681*	.554*	.700*	--	
6. Trudeau is a good leader	-.088	.800*	.560*	.838*	.701*	--

Note: *p < .05, two tailed. N = 37.

13.3.3.2 Instagram

Table 142

Table of correlation, number of comments on Instagram and public opinion

	1	2	3	4	5	6
1. Number of comments	--					
2. Consider voting Liberal	-.060	--				
3. Consider Liberal over all parties	-.142	.619*	--			
4. Party Power Index	-.016	.754*	.632*	--		
5. Preferred Prime Minister is Trudeau	.165	.652*	.756*	.835*	--	
6. Trudeau is a good leader	.072	.592*	.291	.740*	.668*	--

Note: *p < .05, two tailed. N = 37.

Table 143

Table of correlation, number of comments on Instagram and public opinion, in Atlantic Canada

	1	2	3	4	5	6
1. Number of comments	--					
2. Consider voting Liberal	-.425*	--				
3. Consider Liberal over all parties	-.195	.760*	--			
4. Party Power Index	-.400	.821*	.740*	--		
5. Preferred Prime Minister is Trudeau	-.393*	.841*	.691*	.848*	--	
6. Trudeau is a good leader	-.185	.600*	.516*	.763*	.681*	--

Note: *p < .05, two tailed. N = 37.

Table 144

Table of correlation, number of comments on Instagram and public opinion, in British Columbia

	1	2	3	4	5	6
1. Number of comments	--					
2. Consider voting Liberal	-.031	--				
3. Consider Liberal over all parties	.030	.751*	--			
4. Party Power Index	.152	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	.013	.637*	.708*	.750*	--	
6. Trudeau is a good leader	.202	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 145

Table of correlation, number of comments on Instagram and public opinion, in Ontario

	1	2	3	4	5	6
1. Number of comments	--					
2. Consider voting Liberal	.125	--				
3. Consider Liberal over all parties	-.360*	.327*	--			
4. Party Power Index	.032	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	-.088	.233	.481*	.621*	--	
6. Trudeau is a good leader	.418*	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 146

Table of correlation, number of comments on Instagram and public opinion, in the Prairies

	1	2	3	4	5	6
1. Number of comments	--					
2. Consider voting Liberal	-.086	--				
3. Consider Liberal over all parties	-.126	.658*	--			
4. Party Power Index	-.016	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	.047	.285	.391*	.387*	--	
6. Trudeau is a good leader	.260	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 147

Table of correlation, number of comments on Instagram and public opinion, in Québec

	1	2	3	4	5	6
1. Number of comments	--					
2. Consider voting Liberal	-.050	--				
3. Consider Liberal over all parties	-.051	.724*	--			
4. Party Power Index	.051	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	.160	.681*	.554*	.700*	--	
6. Trudeau is a good leader	-.001	.800*	.560*	.838*	.701*	--

Note: *p < .05, two tailed. N = 37.

Table 148

Table of correlation, number of likes on Instagram and public opinion

	1	2	3	4	5	6
1. Number of likes	--					
2. Consider voting Liberal	.149	--				
3. Consider Liberal over all parties	-.028	.619*	--			
4. Party Power Index	.145	.754*	.632*	--		
5. Preferred Prime Minister is Trudeau	.257	.652*	.756*	.835*	--	
6. Trudeau is a good leader	.230	.592*	.291	.740*	.668*	--

Note: *p < .05, two tailed. N = 37.

Table 149

Table of correlation, number of likes on Instagram and public opinion, in Atlantic Canada

	1	2	3	4	5	6
1. Number of likes	--					
2. Consider voting Liberal	-.393*	--				
3. Consider Liberal over all parties	-.239	.760*	--			
4. Party Power Index	-.377*	.821*	.740*	--		
5. Preferred Prime Minister is Trudeau	-.363*	.841*	.691*	.848*	--	
6. Trudeau is a good leader	-.121	.600*	.516*	.763*	.681*	--

Note: *p < .05, two tailed. N = 37.

Table 150

Table of correlation, number of likes on Instagram and public opinion, in British Columbia

	1	2	3	4	5	6
1. Number of likes	--					
2. Consider voting Liberal	-.033	--				
3. Consider Liberal over all parties	.087	.751*	--			
4. Party Power Index	.142	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	.092	.637*	.708*	.750*	--	
6. Trudeau is a good leader	.038	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 151

Table of correlation, number of likes on Instagram and public opinion, in Ontario

	1	2	3	4	5	6
1. Number of likes	--					
2. Consider voting Liberal	.187	--				
3. Consider Liberal over all parties	-.310	.327*	--			
4. Party Power Index	.072	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	-.050	.233	.481*	.621*	--	
6. Trudeau is a good leader	.498*	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 152

Table of correlation, number of likes on Instagram and public opinion, in the Prairies

	1	2	3	4	5	6
1. Number of likes	--					
2. Consider voting Liberal	-.102	--				
3. Consider Liberal over all parties	-.296	.658*	--			
4. Party Power Index	-.049	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	-.072	.285	.391*	.387*	--	
6. Trudeau is a good leader	.303	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 153

Table of correlation, number of likes on Instagram and public opinion, in Québec

	1	2	3	4	5	6
1. Number of likes	--					
2. Consider voting Liberal	.140	--				
3. Consider Liberal over all parties	.018	.724*	--			
4. Party Power Index	.161	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	.172	.681*	.554*	.700*	--	
6. Trudeau is a good leader	.181	.800*	.560*	.838*	.701*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 154

Table of correlation, number of video views on Instagram and public opinion

	1	2	3	4	5	6
1. Video views	--					
2. Consider voting Liberal	-.032	--				
3. Consider Liberal over all parties	-.062	.619*	--			
4. Party Power Index	.034	.754*	.632*	--		
5. Preferred Prime Minister is Trudeau	.157	.652*	.756*	.835*	--	
6. Trudeau is a good leader	.116	.592*	.291	.740*	.668*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 155

Table of correlation, number of video views on Instagram and public opinion, in Atlantic Canada

	1	2	3	4	5	6
1. Video views	--					
2. Consider voting Liberal	-.296	--				
3. Consider Liberal over all parties	-.093	.760*	--			
4. Party Power Index	-.220	.821*	.740*	--		
5. Preferred Prime Minister is Trudeau	-.131	.841*	.691*	.848*	--	
6. Trudeau is a good leader	-.145	.600*	.516*	.763*	.681*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 156

Table of correlation, number of video views on Instagram and public opinion, in British Columbia

	1	2	3	4	5	6
1. Video views	--					
2. Consider voting Liberal	.241	--				
3. Consider Liberal over all parties	.121	.751*	--			
4. Party Power Index	.160	.785*	.586*	--		
5. Preferred Prime Minister is Trudeau	.165	.637*	.708*	.750*	--	
6. Trudeau is a good leader	.141	.545*	.366*	.879*	.610*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 157

Table of correlation, number of video views on Instagram and public opinion, in Ontario

	1	2	3	4	5	6
1. Video views	--					
2. Consider voting Liberal	.031	--				
3. Consider Liberal over all parties	-.194	.327*	--			
4. Party Power Index	-.123	.718*	.556*	--		
5. Preferred Prime Minister is Trudeau	-.183	.233	.481*	.621*	--	
6. Trudeau is a good leader	.358*	.371*	.049	.431*	.264	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 158

Table of correlation, number of video views on Instagram and public opinion, in the Prairies

	1	2	3	4	5	6
1. Video views	--					
2. Consider voting Liberal	.092	--				
3. Consider Liberal over all parties	-.192	.658*	--			
4. Party Power Index	.179	.849*	.415*	--		
5. Preferred Prime Minister is Trudeau	-.009	.285	.391*	.387*	--	
6. Trudeau is a good leader	.379*	.513*	-.011	.668*	.397*	--

Note: *$p < .05$, two tailed. $N = 37$.

Table 159

Table of correlation, number of video views on Instagram and public opinion, in Québec

	1	2	3	4	5	6
1. Video views	--					
2. Consider voting Liberal	-.113	--				
3. Consider Liberal over all parties	-.135	.724*	--			
4. Party Power Index	.022	.775*	.761*	--		
5. Preferred Prime Minister is Trudeau	.118	.681*	.554*	.700*	--	
6. Trudeau is a good leader	.133	.800*	.560*	.838*	.701*	--

Note: *$p < .05$, two tailed. $N = 37$.