# All a-Twitter: Did social media help Naheed Nenshi become mayor of Calgary?

By

Krista Stefan

Submitted to the Faculty of Extension

University of Alberta

In partial fulfillment of the requirements for the degree of

Masters of Arts in Communications and Technology

August 10, 2017

**Acknowledgements**

I would like to thank my supervisor, Dr. Linda Trimble, for her encouragement, help, understanding, and support throughout this project and Dr. Lois Harder for her advice and support (both in the Department of Political Science in the Faculty of Arts at the University of Alberta), and Kerri Calvert for giving me the push to get started in this program in the first place. I would also like to thank all of the instructors, supervisors, and staff in the MACT program for facilitating this incredible learning opportunity. Thanks also go out to my independent coders who helped with the data validation - Charlotte, Shannon, and Denise. Finally, a huge thanks goes to my family, friends, and colleagues, who have supported me throughout this process with kindness, understanding, and humour.

**Abstract**

As the use of social media platforms such as Twitter increase, so has the user-generated information available online. As more and more people are taking debates into cyberspace, it seems to be difficult to determine how these tools influence opinions. Traditional media, on the other hand, appears to be losing influence. This has certainly been seen in the area of political election campaigns where traditional media, including opinion polls, are becoming less and less a reliable way of gauging public opinion and social media is being examined as a means of determining the political climate. This project looks at the results of the Calgary 2010 mayoral election in which Naheed Nenshi staged a surprise win, the way in which the newspapers reported on this election, and the way in which the mayoral candidates used Twitter. By examining these I anticipated gaining a better understanding of how the political communication landscape is changing. This study found that traditional factors that are normally used to predict election results, including news reporting, campaign funding and candidate name recognition, were not reliable predictors of the outcome. Twitter data provided a more reliable cue. The winning candidate, Nenshi, was the only one of the mayoral contenders who extensively used Twitter as a tool for conversation rather than as a substitute for other communication media such as pamphlets or static web sites.

KEYWORDS: social media, Twitter, elections, voter engagement, newspaper influence, Calgary mayor, Nenshi

## Table of Contents

# Table of Figures

## Tables



## Charts



## Figures

# Chapter 1: Introduction

## Introduction

Public communication tools, such as public speaking, publishing in print media, and broadcasting on radio and television, are meant in part to inform others of one's ideas, and convince them that these ideas are valid and true. In the past these avenues of communication were limited to those with the means and knowledge to use them. With the advent of self-publishing via social media, however, anyone with access to the internet can make their voice heard by potentially large numbers of people. But is anybody listening? Can social media be used as a tool to inform and persuade others?

The role of social media in decision making is unclear. User generated content, such as the content posted on social media sites, has allowed anyone to make their knowledge and opinions available to a potentially large number of people. Unfortunately this same utility allows misinformation or personal biases to be spread with equal ease. For the most part, however, it seems that people will gravitate towards information that supports their own ideas (confirmation bias), so it may seem that everyone is "preaching to the choir". There are only a few situations where it appears that a person has "gone viral" in social media and their social media posts are reaching people who may not ordinarily pay attention to their posts. The question remains, however, how big a role viral social media really has in individual decision making.

The use of public communication is particularly evident in political election campaigns, where each candidate tries to convince the voters that he or she is the best representative of the people for that office and voters try to make the ideas and issues that are important to them heard and understood by others. In order to further narrow down the question of the effects of social

media as a communication tool, specifically its effects in election campaigns, the particular the question I would like to consider is:

RQ1: How was social media used in the 2010 election of Naheed Nenshi as Mayor of Calgary and did it affect the outcome?

In order to answer that question, however, I first need to consider the range of additional factors, particularly the role of traditional media, which may have affected the outcome of this particular election. Thus the sub-questions that I would also like to answer are:

RQ2: What role did other factors that have been shown to affect election have in the outcome of this election? And
RQ3: What role did traditional media have in the use of social media, the perception of the importance of social media, and the outcome of this election?

I will answer these questions by examining the context of this election, reviewing how this election was reported on in the newspapers, and analyzing how the candidates used the social media micro-blogging (see Appendix A for a glossary of Twitter terms) website Twitter during this campaign.

**Background**

The advent of user generated content on the internet has contributed to the current information explosion. Previously, information was primarily disseminated via professionally published print channels - such as books, journals, and newspapers - and via broadcast

journalism such as radio and television news. Self-published material, such as pamphlets and newsletters, was limited in number and reach. With the onset of social media, any person is able to self-publish in real time with potentially global reach. This is seen as an advantage to certain groups such as politicians and activists. With the overabundance of information, however, the actual reach might be limited. People tend to follow social media posts of people they know or people they already agree with. There are only rare cases where a person's social media activity appears to have a much wider level of dissemination. These are the cases where the activity is said to have gone viral. A recent example of this is the Twitter use by Donald Trump in the 2016 US presidential election. The question remains, however, whether it is the actual message that is reaching a wider audience or whether it is the pronouncement that the activity has gone viral that has an effect.

This can be studied in the context of the election of Naheed Nenshi as mayor of Calgary in 2010. In the media, Nenshi's win was attributed in varying degrees to his use of social media, with many observers indicating "...he galvanized young people to get out and vote for him using social media like Twitter. ...That tactic helped him defeat two front runners and put him in charge of the city of more than 1.2 million people." (Dwyer-Joyce, 2011). Other news stories acknowledge that "...one can't ignore the lawn signs, the door knocking, the volunteers, the forums and debates, the oratory skill and, most of all, the strategy." (Lacombe, 2010). This project will provide insight into whether or not social media use is able to significantly affect other people's opinions. For those who wish to use social media as their global soap box, this insight may provide guidance in the effective use of these platforms.

# Chapter 2: Literature Review

## Literature Search Methodology

In order to approach this question, it must be situated within the context of previous research. First, I will provide some background about the features of Canadian municipal elections and the factors shaping electoral outcomes. As well, factors that are present in elections in general or elections in other jurisdictions were considered in order to place the Calgary municipal election within a broader view. Then, previous research on the use of social media in political campaigns can be considered. Note that a very broad definition of "social media" is used here. For the purposes of this literature review, social media is defined as any platform available on the internet that allows for user-generated content. This could be the currently common platforms such as Facebook or Twitter, but could also be comments sections of websites or web logs (i.e. blogs). Due to the relative lack of research in the use of social media in elections with the same context as the Calgary municipal election, other situations needed to be considered. For this reason I also looked at factors affecting campaigns and elections in other jurisdictions to help determine their applicability to the case of interest. As this use of social media in elections is the most closely tied to my research question, this topic demands the most in-depth examination of the existing literature.

In the previous research I examined, the researchers considered various aspects of the effects of social media including how social media was used to: create a dialogue and personal connections; disseminate information to persuade voters; and energize voters into action (such as trying to increase voter turnout, increase individual campaign donations, and encourage political activities such as participating in demonstrations, attending rallies, or signing petitions). Researchers can either view the use of social media from the point of view of the candidates'

campaigning activities or the voters' information-seeking and political discussion activities. Finally, it is important to consider the methods that have been used to study the use of social media in order to ensure that the most appropriate method is selected when answering the research questions.

**Factors Affecting Elections**

The 2010 Calgary mayoral election was chosen as my research topic for several reasons. First, municipal elections in Alberta are essentially non-partisan; that is, the candidates run on their own platforms, not as a part of a political party. This removes the effects of partisanship on the election results making it easier to isolate the impacts of social media tied to an individual candidate. Second, while there was no incumbent for this position, there were other well-known candidates, at least one of whom had previously been elected as an alderman and one who was a local media figure. This feature of the campaign eliminates the powerful impact of incumbency may have on election results, as borne out by the following literature review, which may override effects of social media use. Finally, the eventual winner, Nenshi, did not fit the usual profile of white male that typified all previous holders of the office; as this would not have given Nenshi an advantage in the election, and may have been a disadvantage, this factor may enhance the effect of social media use (2010 general election official results, 2004[sic], p. 1; City Clerk's Office, 2010).

One of the main factors affecting election results, at least in terms of Canadian municipal elections, is that of incumbency, particularly in large municipalities with populations greater than 100,000 where the incumbent is normally re-elected (Kushner, Siegel, & Stanwick, 1997). This advantage of incumbency may be related to the financial resources and fundraising opportunities available to fund the campaign (Kushner et al., 1997). Tolley (2015), on the other hand, relates

the advantage of incumbency to the perceived insider knowledge of the workings of government and thus the viability of the candidate as presented in media coverage. This also extends to racial distinctions where "In particular, white challengers (i.e., non-incumbents) receive significantly more viability coverage than visible minority challengers." (Tolley, 2015, p. 973). As Nenshi had no previous government experience and is a member of a visible minority population group, it could reasonably be hypothesized that he entered the campaign at a distinct disadvantage compared to his main competitors, one of whom was a white male the other a white female and both were well known in the community, so it would seem that these factors did not affect the outcome of his original election success.

Another factor to consider is the role of partisan identity in Canadian municipal elections. Unlike at the provincial or federal level, in many Canadian municipalities (including Calgary) formal political parties do not form. Even in some municipalities that have a party system, such as Vancouver, the parties are not directly related to the more well-known provincial or federal parties (Cutler, & Matthews, 2005). In other municipalities, although there may not be a party system at the municipal level, candidates may have previously contested provincial and federal elections as a candidate for a particular party (McGregor, Moore, & Stephenson, 2016). In either case, the general ideology of the municipal candidates can be related by the voters to one of the main provincial or federal parties, so a certain amount of partisanship may still be a factor and satisfaction or dissatisfaction with the higher level parties may affect voting behavior (Cutler, & Matthews, 2005; McGregor et al., 2016).

While incumbency and partisanship have been studied in the context of Canadian municipal elections, there are other factors that have not been researched, but still might need to be considered. These factors mainly revolve around the role of traditional mass media, such as

newspapers, television, radio and the websites of these media outlets, in election campaigns. The role may simply be one of providing information to potentially providing a biased view that may influence voters' opinions. As a means of providing information, watching candidate debates can have a strong influence on voters' knowledge of the candidates and issues and can increase general interest in politics (Boyle, 2013). The effectiveness of these debates to provide information may depend on the quality of the debate and what information is presented, but can also depend on the coverage of the debate after the fact. At such times, "What matters...is not the number of institutional sources of political information in the country, but that the press is free, and there are competing sources of information that voters can use to make informed voting decisions." (Charles, 2012, p. 299).

In some of the more emerging democracies, the traditional media may be owned or controlled by the ruling government, making this availability of varied sources of information more difficult - and potentially leaving a gap for social media to fill (Mohd Sani, 2014). Although this potential propaganda machine is an obvious factor in emerging democracies with controlled media, it is also a concern in established democracies with a varied free press where specific media outlets may be seen to be biased - whether they actually are or not - for or against particular political ideologies and where there is a worry that voters will only access outlets that align with their own partisan viewpoint to obtain campaign information (M. Lin, Haridakis, & Hanson, 2016).Contrary to this fear, however, in these situations people tend to use the major non-partisan outlets for information and only occasionally access the smaller partisan outlets (Weeks, Ksiazek, & Holbert, 2016). Despite this general assurance, there may be more subtle effects of the traditional media other than overt partisan bias. For example, Lengauer, & Höller

(2012) found a negative correlation between the media framing of the campaign as a "horse race" and voter turnout.

All of the research found examines how the traditional media describes the politicians, policies, ideologies, or activities of election campaigns. There is a gap in the literature regarding how the traditional media reports on the candidates' use of social media and the potential feedback mechanism this may create. I plan to examine not only social media use but also how the traditional media reports on this use in the 2010 Calgary mayoral election to investigate any potential links in order to address this gap.

**Social Media Use in Election Campaigns**

Several broad themes have emerged in the perspectives of researchers who have examined the use of social media in election campaigns. Some have studied the potential of social media to allow people to connect with each other and increase political discussion. Others have considered the increased information sharing made possible by social media. Another theme is the potential use of social media to stimulate political action by increasing voter turnout, facilitating political monetary donations, or encouraging participation in other political activities such as attending rallies or demonstrations or signing petitions. In exploring these themes, researchers have focused either on either how the candidates or the voters are using social media to achieve these aims.

**Social Media to Connect.** Candidates can use social media platforms to either try to connect with voters on a personal level or to have conversations on issues that may be important to voters. As the only study about the same election that is of interest to my project discovered, students felt that Nenshi's use of social media (in particular Twitter) increased his authenticity because he personally, rather than another member of his campaign team, responded to tweets

reasonably quickly; students perceived that he made an emotional connection with voters (Dumitrica, 2014). It should be noted that the researcher considered people's perceptions but did not look at actual Twitter interactions. In my project I intend to address this deficiency. Contrary to the findings of Dumitrica (2014), in many other cases researchers found that even though the potential exists for two-way conversations, candidates tend to use social media as a one-way broadcast medium with very little dialogue between candidates and voters (Baxter & Marcella, 2012; Baxter & Marcella, 2013; Hagar, 2014; López-García, 2016; Segaard & Nielsen, 2013; Zamora Medina & Zurutuza Muñoz, 2014). A pertinent example is a study that examined tweets posted by Canadian political parties and leaders, concluding that "Canadian politicians avoid online interaction with citizens" (Small, 2010, p. 45). Carlson, Djupsund, & Strandberg, (2014) examined this issue in terms of a cost-benefit perspective and concluded that the risks associated with politicians losing control of their message if they engaged too freely in the conversational aspect of social media was too high for most candidates except for those from the smaller fringe parties that may have little to lose. There may be some merit in this fear of the risks of social media, as has been shown in cases where unfortunate statements made by candidates have been repeated extensively via social media (i.e. "gone viral") and subsequently lost their elections (Spurlock, 2013). Small (2012) examined social media use by Canadian federal political parties and their leaders in terms of the potential for relationship marketing where the parties could build long term relationships with their "customers", or in this case voters, but found that at the time of the study in 2010 this potential was not being realized except by one party.

Another way in which candidates may try to connect with voters via social media is to post personal and informal content. The success of this tactic, however, seems to be strongly tied to the cultural context in which the election is situated. In Israel, this informal and personal use

of social media was found to allow for the candidates to appear authentic to the voters (Orkibi, 2015), similar to the Nenshi case. In Scotland, however, voters considered the posting of personal content as superfluous to the campaign and indicative of a lack of provision of pertinent policy information (Baxter & Marcella, 2013).

As well as the promise of greater dialogue between candidates and voters, social media offers the opportunity for voters to engage in political discussion. Although it might seem - particularly considering the importance Boyle (2013) placed on watching debates - that the opportunity for a shared experience would encourage social media discussion, research shows that, during these events, the majority of people discussing these events are those that have the largest number of followers, in political terms these might be known as the "pundits", and there are few conversations regarding the events (Y. Lin, Keegan, Margolin & Lazer, 2014). In Canada there has been a small step towards voters engaging in political discourse that occurs on web logs (or blogs) via the use of the Twitter keyword tag (known as a hashtag) #cdnpoli, but this was seen to be mostly amongst those with a particular interest in following politics in the first place (Small, 2011). The situation is somewhat different in emerging democracies, however; because the opportunities for public discourse may be more limited due to government control, social media does play a role in stimulating discussion (Mohd Sani, 2014).

**Social Media to Inform.** As scholars have discovered, rather than using social media for two-way conversations with voters, candidates tend to use these platforms as another one-way broadcast medium. This provides an advantage for candidates from smaller parties who do not have the same resources for other methods of informing voters of their positions as do the main parties (Gibson & McAllister, 2015). The fact that candidates use social media in this way provides a potential source for voters seeking information. In general, those who turn to online

sources including social media for political information demonstrate an interest in becoming informed citizens and are more likely to seek additional information from traditional media and to engage in political discussions either online and offline (Buente, 2015). Thus, there may be a democratic advantage even without the full use of the potential of social media. This link between social media use and offline political involvement was also found in the study conducted by Kim, Atkin, & Lin, (2016), although there was no discussion in this paper of any link between the general political involvement and any actual political action.

There does seem to be a difference in the demographics of those who use social media as a source of political information; in most studies younger people have been found to use social media the most and in the American context this use is more common among those who support the more liberal Democratic party rather than those who support the more conservative Republican party (Buente, 2015; Kaye, 2013; Mohd Sani, 2014). Candidates who wish to appeal to young progressive voters seem to understand that "...merely having a social media account can also have a symbolic value, signaling to voters that a given candidate is modern or, conversely, that (s)he is not old-fashioned." (Spierings & Jacobs, 2014, p. 218).

**Social Media to Activate.** The use of social media to create or enhance connections, or simply to transmit information, are both relatively passive activities that do not necessarily translate into voters taking any specific action. If there is any real power in social media, it would be to help generate some political action, whether it be encouraging people to vote (and from a candidate's perspective to vote for her or him), making monetary donations to the campaign, or attending events. Except for some of the activities related to voter turnout and election results, most of the available research focuses on the use of social media by citizens rather than by candidates. There does seem to be a correlation between social media use and

voter turnout, such as the case in the Calgary 2010 municipal election where the voter turnout was 53%, significantly higher that any of the previous three elections where voter turnout ranged from 19.8%-38% (Government of Alberta, n.d. in Dumitrica, 2014, p. 59). On the other hand, Hargittai & Shaw (2013) found no difference in voting behavior in their sample for the 2008 U.S. presidential election, which was also touted as an election influenced by social media. Another interesting study of the 2008 U.S. presidential election found practically no correlation between social media use and political involvement, except for partisan, and most notably conservative, voters who used blogs. Those who used blogs regularly for political information had a decreased level of political involvement as compared to those who used the blogs never or rarely (Groshek & Dimitrova, 2013). In comparing social media use to actual number of votes for candidates, it seems that the advantage in using these platforms is greatest for those candidates who had fewer resources to engage in more traditional campaign activities (Bekafigo, Cohen, Gainous & Wagner, 2013; Gibson & McAllister, 2015). As well, Spierings & Jacobs (2014) found that candidates who are more active on their social media accounts (without considering the type of post or level of interaction) tend to garner an increase in the number of votes. A similar study considered the number of tweets that mentioned candidates (without considering the sentiment of the tweets) and found a correlation with the actual election results (DiGrazia, McKelvey, Bollen & Rojas, 2013). These results comparing social media activity to number of votes do not necessarily indicate causation, but as suggested by DiGrazia et al. (2013) they may be used in lieu of more traditional opinion polls.

Another behavior that may be influenced by social media and the Web 2.0 technologies supporting these platforms is that of individuals making financial donations to candidates or political parties, as these technologies make online financial transactions very easy. Walchuk

(2012) notes that with recent changes to how Canadian federal candidates can obtain donations, such as limiting the amount permitted from companies and unions, it has become important to solicit smaller donations from individuals and the Web 2.0 technologies have facilitated this new donation model. In the North American campaign model where public campaign funding is limited or not available, using social media to obtain donations is important; it is less important in the European model where public campaign funding is the norm (Karlsen, 2010).

Some research has been conducted on using social media as a way of mobilizing citizens to attend political rallies or demonstrations. One notable example of this is the case of the 2004 general election in Spain when a terrorist attack occurred three days before the election (López García, 2007). In the intervening days, citizens turned to social media (at that time consisting primarily of blogs and internet bulletin boards) for the latest news, to speculate on who was responsible for the attack, to find and distribute information on both officially organized and unorganized demonstrations, and to express dissatisfaction with the government (López García, 2007). A much different event, but still taking advantage of social media use, is the victory rally for the 2008 U.S. presidential election where 70,000 tickets were issued and at least 125,000 people attended outside of the enclosed ticketed area. Due to the size of this crowd, picture and text messaging was used to communicate amongst attendees of the rally and social media was used by attendees to broadcast the event to the world, thus generating a communal one-time-only atmosphere that was compared to the original music festival at Woodstock (Jackson, Dorton & Heindl, 2010). Both of these examples have aspects of a flash mob, where people use social media to quickly organize public gatherings of potentially large numbers of people - a phenomenon that is not easily possible without these online tools.

Despite this evidence there are concerns that social media political engagement does not translate into offline activities, a phenomenon known as "clicktivism". For example, it was found that a majority of youth polled in Pakistan participated in social media political engagement but did not participate in offline political activities; however, some of the online activities went beyond just reading and forwarding materials or taking part in online discussions; the activities extended to areas such as convincing others to vote. So there may have still been a real-world impact once an election was held, but this cannot be determined as there does not appear to have been a Pakistani election during the period for which the data was collected (Ahmad & Sheikh, 2013). In the case of a similar survey done during the 2013 Czech parliamentary election, there was a correlation between political engagement in social media and offline political activities such as discussing politics, signing petitions, participating in political rallies or demonstrations, and voting (Štětka & Mazák, 2014). Thus it seems that citizens who are interested in politics do not consider it sufficient to confine their political engagement to mere clicktivism, although there is not necessarily a causal link between social media use and offline political activities.

**Methods of Analyzing Social Media Use**

A variety of methods are used to study and analyze social media use. Due to the significant time that has elapsed since the 2010 Calgary mayoral campaign, it is impractical to use methods such as surveys or focus groups of voters as the election is not fresh in their memories. It is interesting to consider that although Twitter data may not be a suitable replacement for a survey as there are no standardized questions, it may be interpreted as a continuous panel because a particular user's posts are tracked over time (Diaz, Gamon, Hofman, Kiciman & Rothschild, 2016). Neither of these methods is particularly suited to my project, so I am employing methods which use various types of document collection as the data collection

strategy. The documents I am particularly interested in are tweets and other data available from Twitter, traditional news reports (such as newspapers or articles by television and radio news that were published online), and available election data. Both quantitative and qualitative methods are useful when analyzing these types of data.

The studies describing straight quantitative analysis methods range from simple counts of various activity types to complex statistical regression calculations. As previously mentioned, Spierings & Jacobs (2014) found that by only selecting tweets that include the name of the candidate and considering no other aspect of the content it is possible to use simple counts of these tweets as an indicator of campaign success. Eom, Puliga, Smailovic, Mozetic & Caldarelli, (2015) take this a step further by analyzing the number of tweets by political parties daily in order to get a sense of changes over time, but found that unless an optimal period is chosen to examine these daily volumes the results may not accurately reflect the election outcome. So caution may be required if attempting to use only counts of numbers of tweets by candidates as a substitute for opinion polls. Although DiGrazia et al. (2013) used a similar count method of tweets, they were looking at tweets by potential voters who mentioned the candidates' names, so this might be a somewhat more accurate depiction of voter interest in the candidates. These counts of numbers of tweets may provide some indication of voter interest but do not provide information on voter connection and engagement. In order to more fully describe voter interactions, it is necessary to consider additional data such as: number of retweets (one user essentially forwarding someone else's tweets); number of mentions (one user including the Twitter name of another user in a tweet using the "@" character in order to reply to or initiate a conversation); number of replies (one user directly replying to another user's tweet); and number of hashtags (a user using the "#" character with a keyword, such as "#mact" to help categorize

the post), where increased use of replies indicates increased interaction but increased use of retweets and hashtags indicates decreased interaction (Y. Lin et al., 2014).

In considering quantitative analysis of Twitter data, it may be necessary to perform cross-validation to ensure that the data is statistically independent such that the occurrence of one event does not affect the probability of another by considering that specific events are time-limited, that keywords, and hashtags in particular are not standardized and may vary over time, and that retweets and original tweets that are paraphrases of others without actually retweeting may alter the statistical results (Karimi, Yin & Baum, 2015). For my data, as my tweets will likely contain retweets, these retweets may need to be removed to ensure data independence, and for the remaining data I may need to preform cross-validation to ensure that the same information does not get included in multiple categories. With increasing interest in studying Twitter data (including metadata such as user identity and geographic data) and with increasing general use of Twitter, it is becoming more important to be able to ensure that an appropriate dataset is being extracted and analysis are done is a consistent method so that different studies can be more directly compared. To aid in this, sets of standard metrics that can be used in various situations have been proposed (Bruns & Stieglitz, 2013; Graham, Thompson, Wolcott, Pollack & Tran, 2015). One metric that is already available is the Klout score, which is a web tool that provides a measure of a person's online credibility, but this may need to be used with caution as the Klout score may judge popularity rather than veracity (Edwards, Spence, Gentile, Edwards & Edwards, 2013).

For qualitative analysis of Twitter data, a content analysis of tweets is done such that the content is coded into themes and the themes are then analyzed. In large datasets, this can be extremely time consuming to do manually, so researchers are developing methods to automate

the coding. Data mining software, when used appropriately, can be a useful tool in automated content coding but may not be effective in all cases (López-Cantos, 2015). There are difficulties, however, when trying to code tweets as the full topic may be disjointed across several posts. Yıldırım, Üsküdarlı & Özgür (2016) propose an unusual method to cross reference topics with Wikipedia, where titles of Wikipedia pages are used to identify Twitter topics. Automated content analysis can be particularly difficult if what is of interest is the sentiment of the posts, as just automatically searching for keywords may code opposing sentiments similarly (for example statements such as "MACT is easy" versus "MACT is anything but easy" may both be coded the same); Bahrainian & Dengel (2015) have proposed a computational method to overcome this difficulty. A hybrid approach to qualitative content analysis where computational methods are used to sort and filter the data prior to manual coding has been shown to be effective to reduce the time needed for the analysis as compared to fully manual analysis but to increase the accuracy as compared to fully automated analysis (Lewis, Zamith & Hermida, 2013).

Combining both quantitative and qualitative analysis in a mixed method can take advantage of the benefits of both. Hagar (2014) used a mixed method and developed an interaction scale that gave a numeric score to various types of posts (e.g. original posts and replies) as well as the theme of the posts (e.g. campaign updates, questions and answers, and attacks to candidates' positions) to be able to quantitatively analyze what is essentially qualitative data. Several of the studies previously examined as well as others that were found that studied cases other than election campaigns used both quantitative and qualitative analysis but dealt with the two methods essentially separately (Baxter & Marcella, 2012; Baxter & Marcella, 2013; Hajar, Clauson & Jacobs, 2014; López-García, 2016; Procter, Vis & Voss, 2013; Small, 2010; Zamora Medina & Zurutuza Muñoz, 2014). A simple but flexible procedure with simple

step-by-step instructions for both quantitative and qualitative content analysis has been presented by White & Marsh (2006).

Reviewing the methods used in previous studies has given me insight into what has been effective in the past and can guide my choice of method for this project. Using methods consistent with other research should also more easily allow this research to be placed within the context of previous work. The mixed method used by Small (2010) including some simple counts of Twitter metrics along with a content analysis of the actual tweets posted by Canadian political parties and leaders fits well with the context of my project.

## Theoretical Context

**Medium Theory.** Medium theory is the primary lens through which this project will be viewed. It suggests that the medium used for communication carries meaning independent of the content of the communication. It steps beyond that to also suggest that communication media can alter the thinking and structure of the society that uses those media, thereby implying that new media will necessarily bring about significant changes to social and political structures. This theory is based in the ideas put forth by Harold Innis and particularly famously by Marshall McLuhan who stated that "the medium is the message" (McLuhan & Lapham, 1994).

The view Innis had of communication media is that they have either a time or a space bias. For example, media such as stone tablets or parchment are cumbersome and meant to endure in time whereas papyrus and paper are lighter but more fragile and are meant to be distributed over a larger area (Innis, 2008). Innis suggests that there can be tendency for a group to obtain exclusive control of a medium in what he calls a monopoly of knowledge when a particular bias becomes too large. A monopoly of knowledge leads to empire building, such as what happened when the Catholic Church had control over parchment in the monasteries during

the middle. During a phase of a monopoly of knowledge a new medium is developed with the opposite bias, such as the introduction of paper and the increase in literacy in the vernacular of the laity, which can then lead to the downfall of the empire and make room for the emergence of another (Innis & Watson, 2007). The time or space bias of media affect social structures: "Materials that emphasize time favour decentralization and hierarchical types of institutions, while those that emphasize space favour centralization and systems of government less hierarchical in character." (Innis & Watson, 2007, p. 27). Bringing these ideas to the current era, the space biased paper communication was supplanted by the broadcast media of radio and television in the early to mid-20th century. Although radio and television may seem more ephemeral than paper media, the control of these media tend to rest with a select few who work to a large part to perpetuate the status quo so these media can be considered monopolies of knowledge with time bias. With the introduction of electronic communication, and especially the democratizing potential of self-publishing inherent in Web 2.0 technology, both the monopoly of knowledge and time bias have been broken. Web technology is space biased due to its capacity for information to be communicated instantaneously around the globe.

McLuhan considered communication media as extensions of the body and thus saw changes in the media used for communication as not just enabling changes in society but also, by changing the structure of the mind and by amplifying certain senses and muting others, prompting changes in how people think (McLuhan & Lapham, 1994). Thus the left-brained, visual, linear way of thinking that is prevalent in western society is a direct result of the use of the phonetic alphabet, as opposed to the right-brained, acoustic, holistic way of thinking that is seen in eastern cultures with a more oral tradition of disseminating knowledge (McLuhan, 1978). This powerful effect of a medium to fundamentally alter how people think overpowers whatever

the content might be in that medium, hence "the medium is the message" (McLuhan & Lapham, 1994). This is not to say that the content is completely immaterial, but the content of one medium is another, older, medium; for example the content of a movie is the written word but the content of the written word is speech and the content of speech is thought. This might at first seem contradictory to a content analysis method:

> What we are considering here, however, are the psychic and social consequences of the designs or patterns as they amplify or accelerate existing processes. For the "message" of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs. (McLuhan & Lapham, 1994, p. 8).

In this information age of electronic communication, the linear, visual way of thinking is shifting towards the simultaneous, acoustic way of thinking that was evident in the oral traditions of tribal cultures but the tribe is no longer geographically constrained so in effect the entire world has become a global village. This shift can have an effect on political organization because "As the speed of information increases, the tendency is for politics to move away from representation and delegation of constituents toward immediate involvement of the entire community in the central acts of decision." (McLuhan & Lapham, 1994, p. 204). An example of such a decentralization of politics was evident in the role instantaneous and simultaneous communication via social media had in the Arab spring uprisings in 2011. By looking at two very different media featuring similar content, print newspapers and electronic social media, my project will glean insight into changes that may be happening as a result of the shift in communication technology.

**Rhetoric.** It is hard to consider an election campaign without bringing to mind rhetoric since it is considered "…that rhetorical study, in its strict sense, is concerned with the modes of

persuasion" (Aristotle in Craig and Muller, 2007, p. 122). Although this is arguably not a communication theory per se, persuasion is as important a use of communication now as it was in ancient Greece, and this should be kept in mind as the overall context of this project where the modes of persuasion are embedded in the communication media.

**Conclusion**

Unlike traditional communication tools such as the telephone which only allows one-to-one communication or traditional mass media such as television, radio, newspapers, and more recently websites which only allow for certain specialists to broadcast information to a wide audience, social media platforms such as Twitter allow for anyone to communicate with and broadcast information to a potentially wide number of people instantaneously. This potential can be viewed as beneficial to the process of democracy by allowing politicians and voters to more easily connect, for information to be distributed more quickly and easily, and for voters to participate in political discussions with a wider range of people. The reality, however, has fallen short of this promise. The extant literature indicates that for the most part social media is primarily used in ways similar to traditional mass media and in combination with traditional campaigning activities. However, there does seem to be potential advantages in social media use for lesser known candidates or candidates from smaller parties, for more easily allowing for donations from individuals, and for allowing for real-time communication of political events such as rallies. As with any other factor that affects election campaigns, the effect of social media seems to be highly dependent on the context of a particular election.

I am interested in the context of the original election of Nenshi as mayor of Calgary in 2010. In this case, the factor that would normally be a significant determinant, incumbency, was absent. This condition allows for smaller effects to have a larger influence on the results of the

campaign. I investigate the extent to which one of these smaller effects is the social media use by the candidates. One potential factor that is absent from the literature is the relationship between how the traditional media reports on the social media use by candidates and the results of the election. In order to study this, I plan to collect the tweets posted by the candidates during the campaign, the traditional media reports on the campaign, and the election data. In considering the methods used in previous studies, I concluded that a mixed method approach combining both quantitative and qualitative content analysis is appropriate. The method used by Small (2010) including some simple counts of Twitter metrics along with a content analysis of the actual tweets posted by Canadian political parties and leaders is very close to the research design methodology I propose to use and has helped guide my researcher design.

## Chapter 3: Research Design and Methodology

This is an inductive exploratory study in which I attempt to determine how Twitter can be used as a tool for rhetoric persuasion by answering the following specific research questions:

RQ1: How was social media used in the 2010 election of Naheed Nenshi as Mayor of Calgary and did it affect the outcome?

RQ2: What role did other factors that have been shown to affect election have in the outcome of this election? And

RQ3: What role did traditional media have in the use of social media, the perception of the importance of social media, and the outcome of this election?

My research methodology primarily takes a two-pronged approach to try to address the research questions. By examining more traditional media (specifically newspapers), I hope to see if this medium had an overriding effect on both the results of the election and the use made of social media. In considering the effect of various types of media on voting behaviour, it might be important to understand the pervasiveness and perceived reliability of the media in question. A study of Canadian internet users and non-users conducted in 2007 found that 58% of all respondents combined perceived most of all of the information in newspapers to be reliable as opposed to only 34% and 38% who perceived information on the internet and on television, respectively, to be reliable (Zamaria & Fletcher, 2008, p. 173). A poll conducted in 2009 indicated that only about 6% of the 26% of Canadians who were aware of Twitter actually used it, meaning that less than 1.5% of online Canadians used Twitter (Ipsos Reid, 2009). Based on these findings it might be expected that voters are more likely to turn to, and be influenced by, what is written in newspapers about election campaigns. I will also briefly examine some of the other factors that the literature review found to be potentially important in determining election

results, in particular the campaign financing and the role of incumbency and name recognition. The second prong of this study is to examine how the candidates used Twitter during the campaign. As previously noted, Dumitrica (2014) found that the students had more of an emotional connection with Nenshi than with the other candidates, and this may have affected their voting behavior. My study will look to see if there were significant differences in the content of tweets that also point to this connection.

My main research technique is content analysis, defined as "… a research technique for making replicable and valid inferences from texts (and other meaningful matter) to the contexts of their use." (Krippendorff, 2013, p. 24). Content analysis can be qualitative or quantitative; in this case I intend to use a mixed method that combines aspects of both. For the first prong, I qualitatively analyze the content of newspaper items to see how the items discuss the candidates and their social media use and to quantitatively analyze the items to determine how often the candidates are discussed; also I compare the number of tweets by the candidates in the period immediately following the items that discuss social media use to the baseline average number of tweets. For the second part of the study, I perform both a qualitative and simple quantitative content analysis of the tweets posted by the candidates during the campaign period.

**Sampling**

For the newspaper data, I did a search in the Canadian Newsstream (Canadian Newsstand Complete database) for articles relating to the 2010 Calgary mayoral election. I extracted all documents from January 1, 2010 to October 18, 2010 that contained the words "mayor" (or any variations, such as "mayors", "mayoral", etc.), and the "Calgary", and either "election" or "campaign". I excluded documents that were obituaries, headlines only, or letters to the editor as these documents would provide little information to the readers on the campaign. I also excluded

news items that only mentioned the other campaigns (such as for aldermen or school boards) without reference to the mayoral race or any of the mayoral candidates. I also decided to only include documents that were published in the Calgary Herald. The reasoning behind this is that the Calgary Sun was not included in the database, other newspapers not based in Calgary would likely have more limited readership in the city than local newspapers, and news stories are often shared via wire feeds with any news outlet that subscribes to that feed. An example of this duplication of stories can be found in the initial announcement that the incumbent Mayor Dave Bronconnier would not run for re-election which was published via the Canadian Press wire feed ("Calgary mayor Dave Bronconnier," 2010), featured in several items in the Calgary Herald ("Editorial: A hard act," 2010; Bronconnier, 2010; Corbella, 2010; Guttormson, 2010; Markusoff, 2010), and in a brief news item in the Edmonton Journal ("Calgary mayor won't," 2010). These examples show that even a relatively local news item does get picked up by multiple outlets at around the same time so it is reasonable to limit the data collected to a single newspaper.

For the data from Twitter, I decided to collect all tweets posted by the mayoral candidates who appeared on the final ballot from the date that they announced their candidacy until the date of the election, October 18, 2010. Although the official nomination deadline was September 20, 2010, many candidates began campaigning well before that time so I determined that it would be best to consider all tweets that would be considered related to the campaign. A quick review of tweets from before a candidate announced the intention to run showed that these were generally not directed towards the campaign, and some candidates did not begin to tweet until they announced their candidacy, so these tweets could safely be excluded. I also excluded all tweets from candidates who declared their intention to run but then dropped out of the race on or prior

to the nomination deadline because even though they may have been campaigning, the effort would not likely have materially affected the results of the election as they did not appear on the ballot.

**Data Collection**

For the first part of this study, the newspaper items that were selected via the sampling procedure described above were examined. I reviewed the content and noted which candidates were mentioned, plus looked for any; indication of a forecast of the election results (such as perceived frontrunner status or opinion poll results); editorial bias towards or away from any particular candidate; and any mention of the candidates' social media activity. These data were recorded in a spreadsheet along with the date the item originally appeared in the Calgary Herald.

The first step in data collection of tweets was to identify the Twitter username of each of the candidates. This was done by first searching in Twitter, then by cross referencing on the Calgary Democracy (2010) website, and in cases where a candidate's website could be identified by checking the website for a date during the campaign by using the Wayback machine page (Internet Archive, n.d.). This cross referencing allowed for selection of the correct username when there were more than one that could potentially be for a candidate. Some candidates did not have a Twitter username, and others do have one but posted no tweets during the duration of the campaign so these candidates were excluded from the Twitter analysis. The list of candidates and their Twitter usernames are shown in Table 1.

**Table 1: Candidates' Twitter Usernames**

| Candidate | Twitter Username | Comments |
|---|---|---|
| Burrows, Craig | @CraigForCalgary | |
| Connelly, Joe | @Connelly_yyc | |
| Devine, Bonnie | @BonnieforMayor | There were no tweets under this username. |
| Erskine, Barry | @BeCalgarian | |
| Fech, Oscar | @OscarFech4Mayor | |
| Hawkesworth, Bob | @hawkesworthbob<br>@ward4calgary<br>@Bob4mayor | There were no tweets under the @hawkesworthbob or @ward4calgary usernames for the period of the 2010 campaign. The @Bob4mayor username was identified as being for Bob Hawkesworth but seems to have been deactivated by this candidate and taken over by someone else. |
| Higgins, Barb | @Barb_Higgins | |
| Hunter, Sandra | n/a | No Twitter username found. |
| Johnston, Gary F. | n/a | No Twitter username found. |
| Knight, Dan | @danknight3 | No tweets for the period of the 2010 campaign. |
| Liu, Amanda | n/a | No Twitter username found. |
| Lord, Jon | @jonlordcalgary | |
| McIver, Ric | @RicMcIver | |
| Nenshi, Naheed | @nenshi | |
| Stewart, Wayne | @wayneforcalgary | |

Once the correct usernames were identified, several methods were tried to extract the content of the tweets. The first method tried was using the Twitter “firehose” API GET statuses/user_timeline.json to extract the timelines for each username. This was unsuccessful as this will only extract the most recent 3200 statuses (Twitter, GET, n.d.). I then attempted to copy

all tweets directly off the timelines for each username. This was also unsuccessful for some candidates (especially Nenshi and McIver) as there is also a limit on the number of recent statuses that can be viewed. This method was used to extract the tweets by Stewart, as there were few enough in the timeline that all were captured. The method used for the remaining candidates was to run a Twitter search twice for each username for the period January 1, 2010 to October 31, 2010 (to ensure all desired tweets were included, the tweets outside of the sampling range were then discarded) using the filter:nativeretweets and -filter:nativeretweets as search operators to isolate and exclude, respectively, the retweets from the timeline (Followthehashtag, n.d.). This method collected all tweets by the candidates for the desired period. The tweets found by the search were then copied and pasted into a spreadsheet with images removed, with each row of the spreadsheet being the data for an individual tweet, with columns for the candidate's name, sender of the post (which might be different than the candidate if the post is a direct retweet with no modification), date of post, actual text of the tweet, number of replies, number of retweets, and number of likes.

Once all of the tweets were collected and entered into the spreadsheet, the retweets (where the candidate retweeted another post without any modification) were identified and marked and temporarily removed from the dataset. These retweets will be included in the count of total tweets since they would appear on the candidates' timelines and any of the candidates' followers would see them but were removed from any other analysis as any other data would refer to the username of the original post rather than the candidate. A summary of the content analysis coding that was then used for the remaining tweets is in the Table 2. A more detailed description of how the coding terms were determined based on the extracted tweets, including examples from the actual analysis, is provided in the Coding Scheme section below.

**Table 2: Summary of Coding for Content Analysis of Tweets**

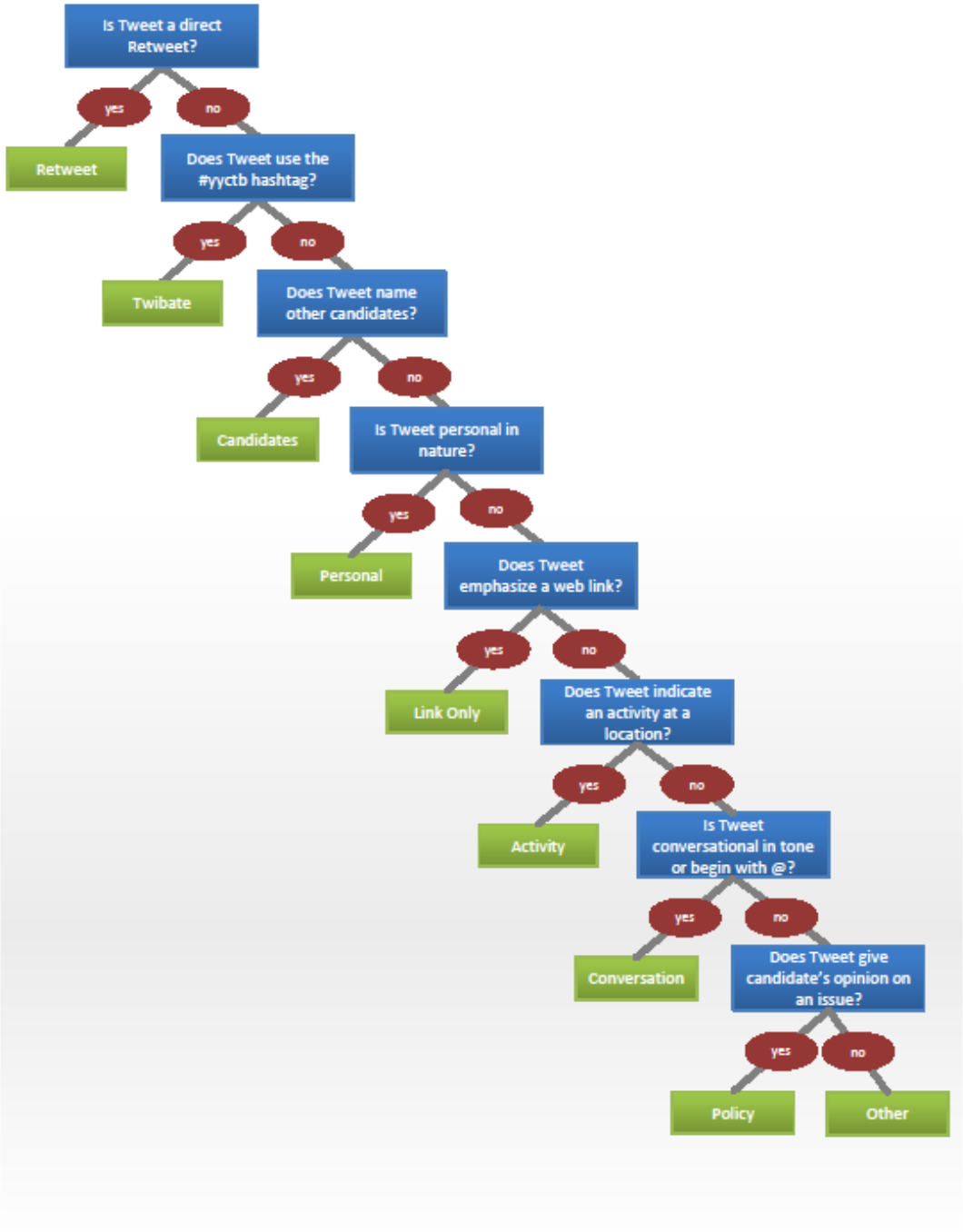
| Coding Term | Description |
|---|---|
| Activity | The content of the tweet describes what the candidate was doing or going in relation to the campaign or council business. |
| Candidates | The tweet mentions the name or username of one or more of the other candidates. |
| Conversation | The tweet is a direct reply (beginning with the @ symbol) or is otherwise obviously trying to engage another Twitter user in a dialogue. These may also be retweets with content added by the candidate. These tweets often appear to be one side of a conversation. |
| Link Only | The main purpose of the tweet is to provide a link to another web page. The tweet may contain just the link or may include a heading or brief description of the information to be found at the link location. |
| Other | The content of the tweet does not fit into any other category. It may have general campaign-related content, including content related to the then-current council business (using the #yyccc hashtag) or content that seems personal but uses the #yycvote, or similar, hashtag. |
| Personal | The content of the tweet is personal in nature. It may be something the candidate would have tweeted whether or not the person was involved in the campaign or council business. |
| Policy | The content of the tweet relates to the candidate's view on campaign issues but does not fall under the Link Only or Conversation categories. |
| Retweet | The tweet is a straight redirection of another's tweet with no content added by the candidate. These tweets were removed from certain analyses so as not to skew the results. |
| Twibate | The tweet contains the hashtag #yyctb. The tweet is directly connected to the Twitter debate that occurred on September 14, 2010. |

I examined all of the tweets and coded them according to these terms. I then reviewed my coding by looking at the tweets in a different order to ensure consistency and to reduce any bias that the original order may have introduced.

A random selection of 41 (approximately 1%) of the remaining tweets was made using the random number function in the MS Excel spreadsheet and those tweets selected were sent to

two independent coders for verification via an online form. The instructions given to the independent coders, shown in full in the Coding Scheme section below, consisted primarily of slightly altered versions of the coding descriptions in the Table 2. According to Merrigan, Johnston, & Huston (2012), "intercoder reliability is the percentage of coding decisions on which all coders agree...As a rule of thumb, anything over 70% constitutes an acceptable level of reliability for unitizing and categorizing message content" (p. 138). In cases where the two independent coders disagreed, a third coder with the same level of training was used to break the tie. As well as being reliable, in order to be valid the coding scheme used should be mutually exclusive so that the definitions in the coding scheme do not allow one text to be coded under more than one category, and exhaustive so that all of the texts can be coded within the coding scheme (Merrigan, Johnston, & Huston, 2012, p. 139). The definitions of the coding scheme were designed essentially via the decision tree shown in Figure 1 in order to ensure mutual exclusivity. The independent coders, however, were not provided a copy of this decision tree in order to ensure that the reliability coding would be as similar as possible to how an average reader would interpret the tweets.

**Figure 1: Decision Tree**



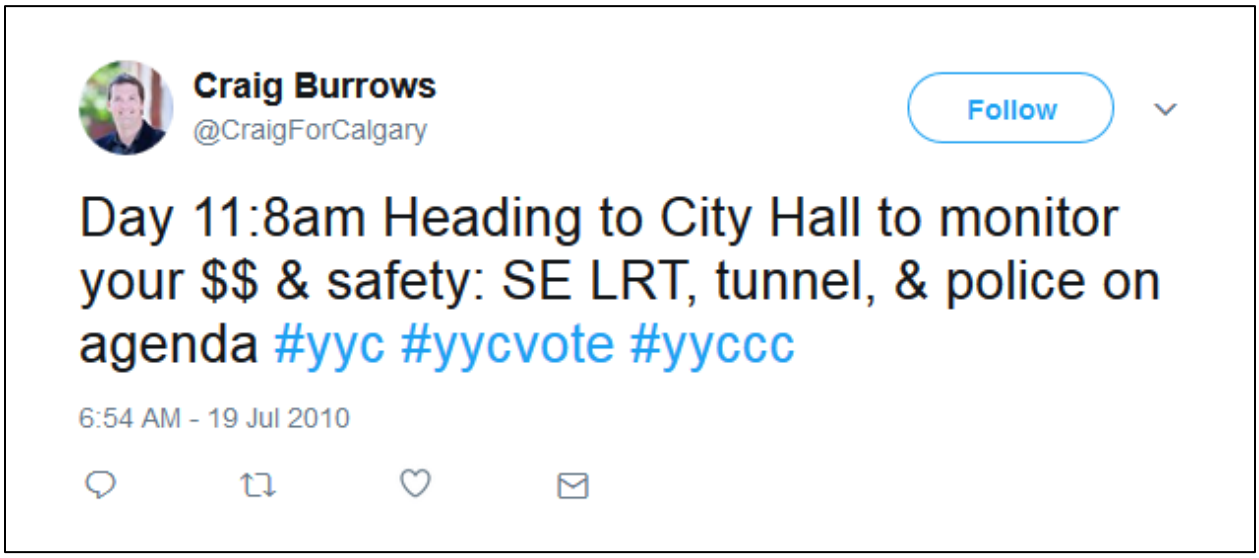
**Coding Scheme**

I carefully designed the coding scheme in order to ensure that it is valid in terms of both intercoder reliability and mutual exclusivity. In order to do so, for each coding term I: defined in terms of the general description; determined the justification of the logic used both to select the coding term and to use it; provided slightly altered version to the secondary coders for data validation in lieu of other training; and identified examples that illustrate the coding term. It was noted that a single tweet may contain more than one element and could possibly be coded into multiple categories. The justification for each coding term describes the decision hierarchy used to ensure that the tweet can only be coded into a single category as summarized in Figure 1.

- Activity
    - Description: The content of the tweet describes what the candidate was doing or going in relation to the campaign or council business.
    - Justification: As Twitter is an immediate way for the candidates to contact their Twitter followers, it is an obvious platform to use to announce what the candidate is doing or has just done. It can be used as an open invitation for people to meet the candidate in person or via broadcast media (for example television or radio appearances). As some of the candidates were already involved in the Calgary city council, it is expected that they would use activities related to the current council business to also campaign for the position of mayor. This is borne out by noting that often the hashtag used for council business (#yyccc) is used in the same tweet as that used for the election (#yycvote). As conversations are directed to specific usernames rather than to the general Twitter population, tweets that could be coded as conversations are not included here. For this same reason,

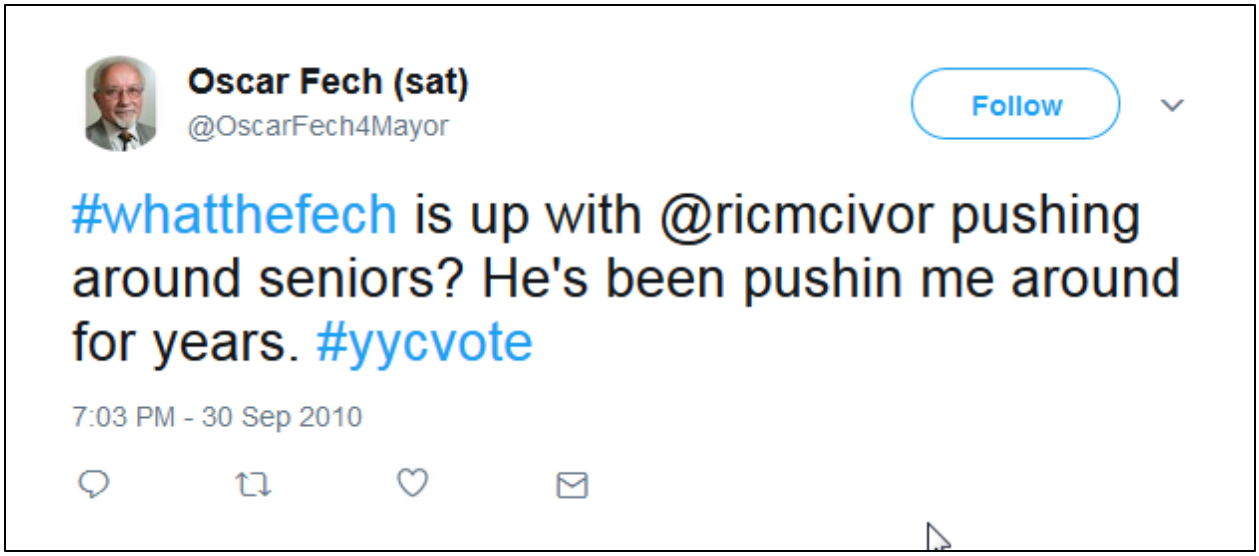
tweets that directly reference other candidates were not included here. Due to the 140 character limit of Twitter but ability to have real-time updates, it was determined that tweets that mention activities but also policy have more relevance related to the activity so are coded as such. If a link were in direct relation to an activity rather than sending people to general campaign information (such as campaign websites or online news articles), then the tweet was coded as an activity rather than a link only. This category also excludes activities that are obviously personal in nature.

- Data Validation Description: Activity - Tweet describes where the candidate is going/has been in relation to the campaign (may contain the hashtag #yycvote)
- Examples: An activity that is related to council business but is also used to campaign for the next election can be seen in this tweet:

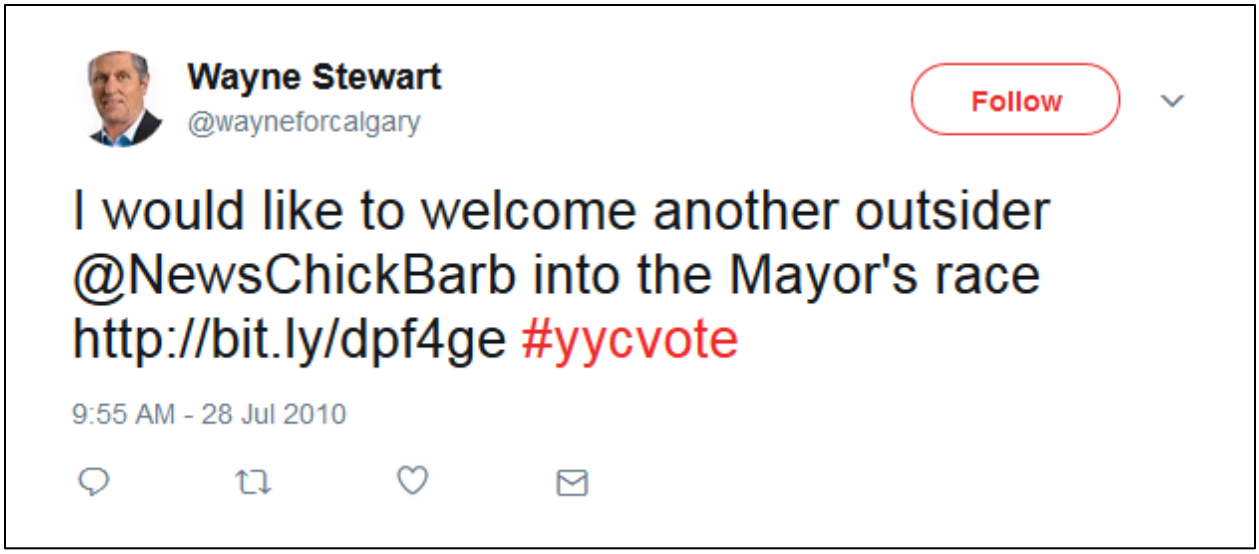



Below is an example of a link in an activity-related tweet:

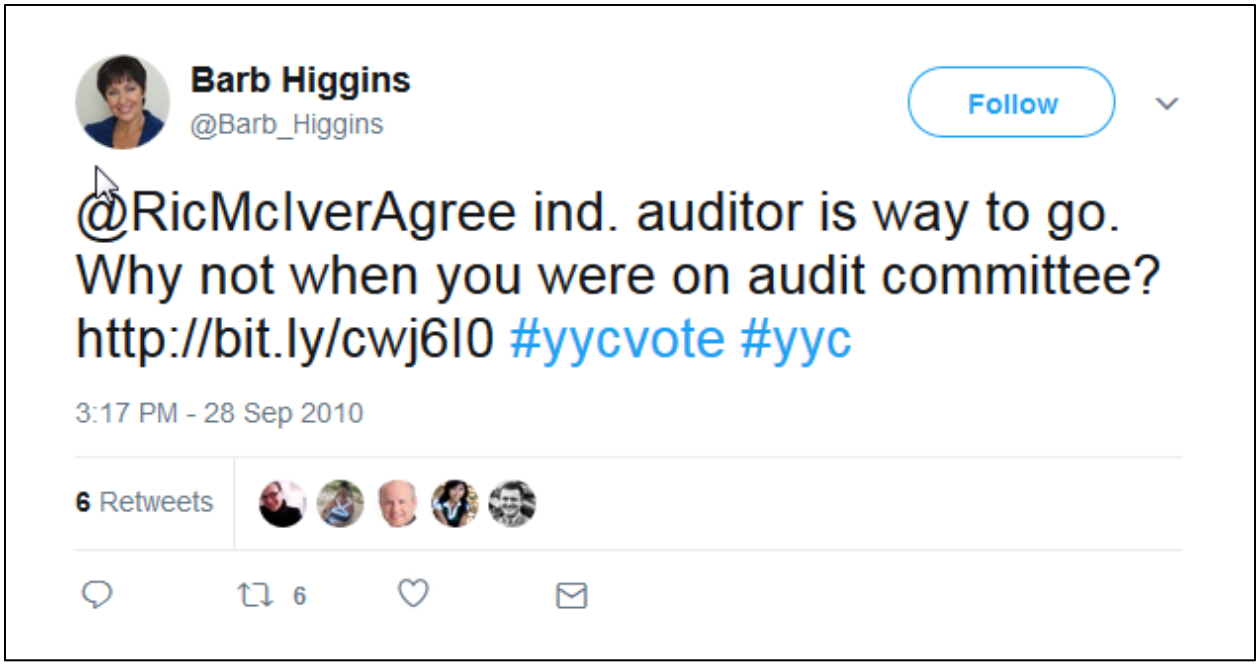

- Candidates
    - Description: The tweet mentions the name or username of one or more of the other candidates.
    - Justification: Conversations with or comments directed at other candidates may have a different tone or purpose to other tweets. They may be intended to reach not only the Twitter followers of the candidate who posts the tweet but also the other candidates and possibly the Twitter followers of those candidates. Any tweet that mentioned one or more of the other candidates was coded with this category due to the different tone and purpose these tweets have compared to any other category.
    - Data Validation Description: Candidates - Tweet talks about one of the other candidates. The candidates are: Burrows, Connelly, Devine, Erskine, Fech, Hawkesworth, Higgins, Hunter, Johnston, Knight, Liu, Lord, McIver, Nenshi, and Stewart.
    - Examples: These tweets might be used to send negative or satirical comments about the other candidates or call them out on election issues such as:




Other tweets make positive or supportive comments about the other candidates such as:

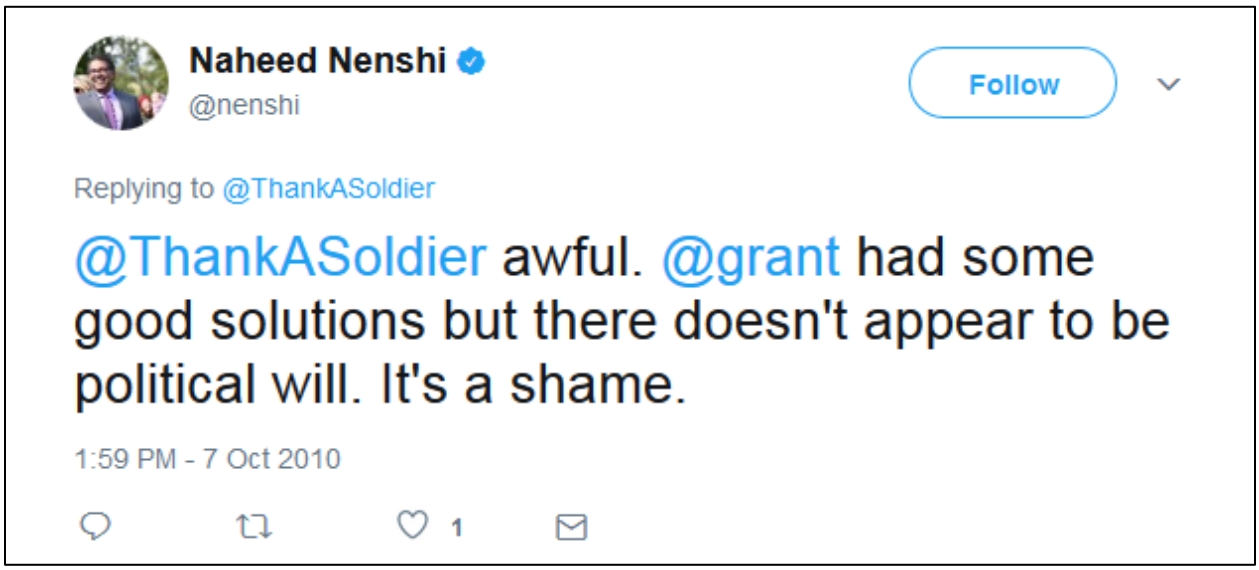



Still other tweets address campaign issues either to agree or disagree with the other candidates, perhaps in an attempt to stimulate a dialogue or debate:

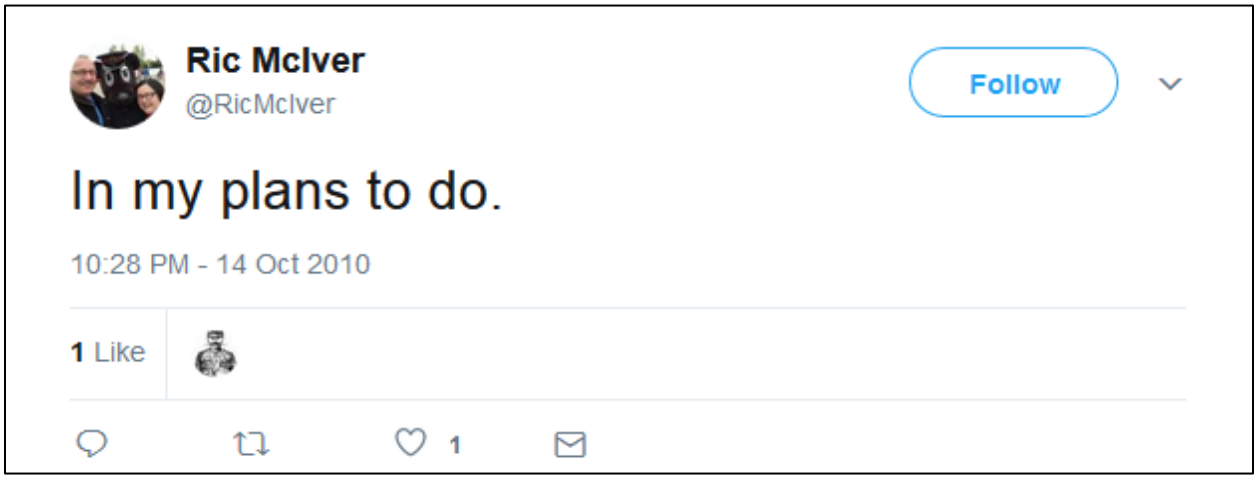



- Conversation
    - Description: The tweet is a direct reply (beginning with the @ symbol) or is otherwise obviously trying to engage another Twitter user in a dialogue. These may also be retweets with content added by the candidate. These tweets often appear to be one side of a conversation.
    - Justification: Conversations are one of the main ways candidates have of trying to engage the voters and are arguably the most social aspect of social media. As such, it is important to identify this type of tweet. Any tweet that began with @username was coded as conversation except for those coded as candidates, personal, retweets, or twibate. Other tweets that may or may not have contained mentions to other usernames other than at the beginning of the tweet (again with the exception of those identified as candidates, personal, retweets, or twibate) but appeared to be addressing a single person were also coded as conversation.

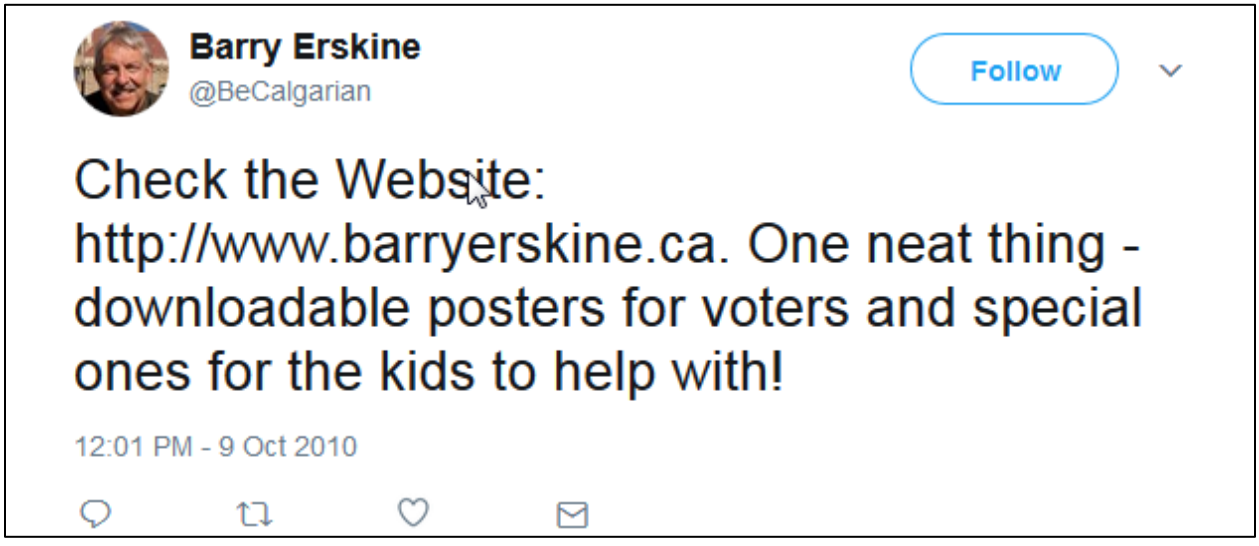
- Data Validation Description: Conversation - Tweet is a reply to another post. It will sound like one-side of a conversation and will frequently begin with @.
- Examples: Most of the conversations were direct replies to other tweets such as:



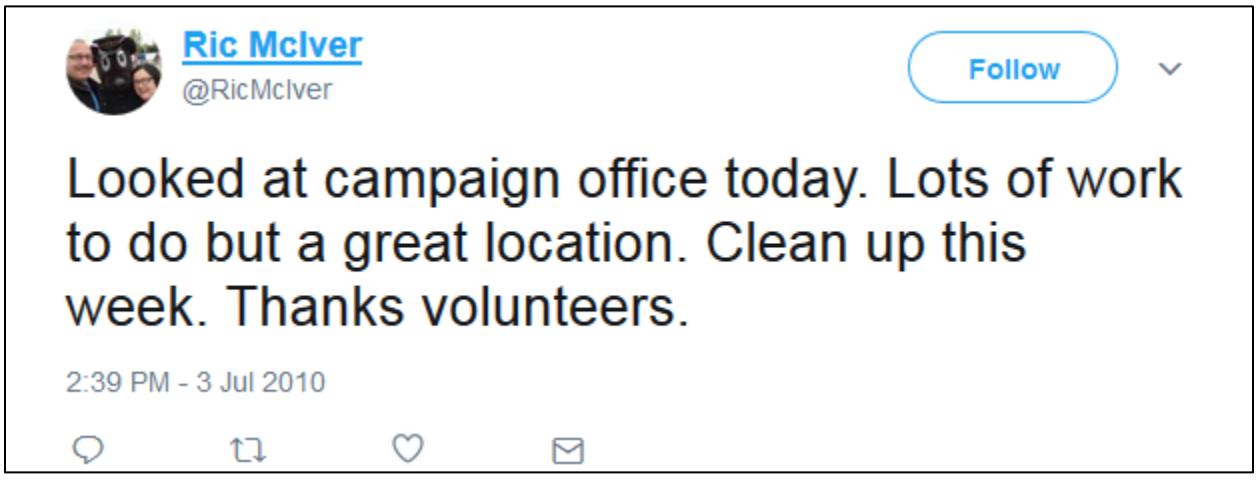

A few tweets did not include and mentions but did seem to be one side of a conversation, such as hearing a person talking to someone else on a telephone. Although these may not actually reach the intended recipient, they did seem to be meant to be attempts to reach out to a specific person and so were coded as conversation. An example of this is:



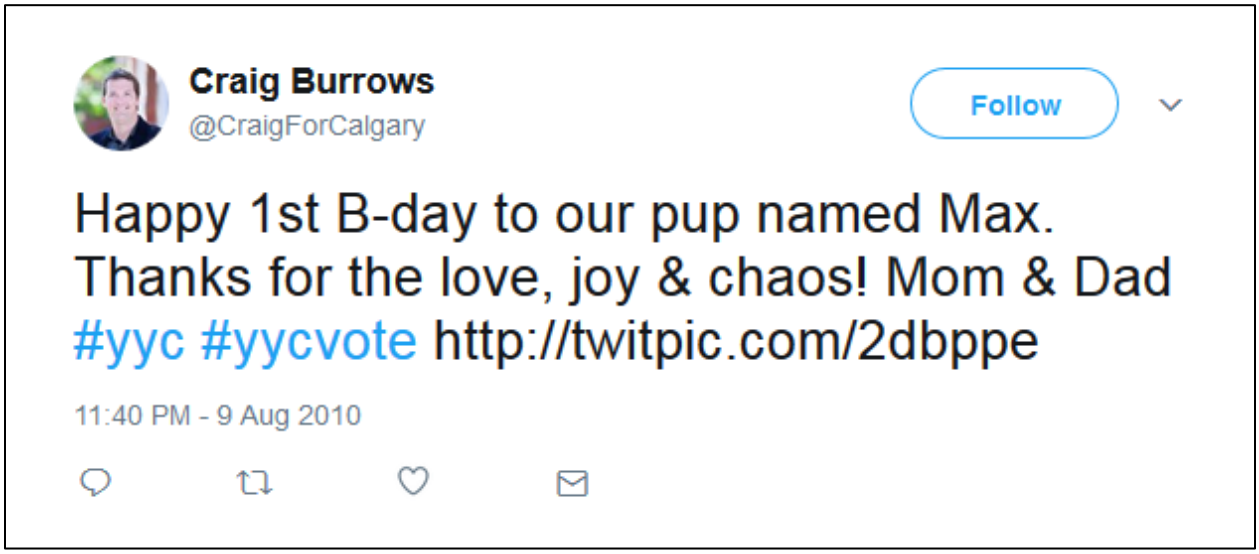
- Link Only
    - Description: The main purpose of the tweet is to provide a link to another web page. The tweet may contain just the link or may include a heading or brief description of the information to be found at the link location.
    - Justification: One of the main purposes in providing links in tweets is to provide information while still keeping within the 140 character limit. The links may be to websites such as an online news article, the candidate's own website, or social media sites such as Facebook or YouTube (for videos). Although some of these only contained the link, others provided a bit of text to let those who read the tweet know what is found on the non-Twitter website. Tweets were coded into this category if they contained a link to an external website and were not able to be coded as activity, candidates, conversation, personal, retweet, or twibate.
    - Data Validation Description: Link Only - Tweet contains only a link to another site (beginning with www or http) with minimal context (e.g. Visit my Facebook page http:...).
    - Examples: Many of the tweets coded in this category looked something like:



- Other
    - Description: The content of the tweet does not fit into any other category. It may have general campaign-related content, including content related to the then-current council business (using the #yyccc hashtag) or content that seems personal but uses the #yycvote, or similar, hashtag.
    - Justification: Although this is essentially the category for tweets that cannot be coded under any others, because there is a specific category for personal tweets, this category is for tweets that still relate to the campaign in some way or another. Because anyone can search for tweets based on the hashtag, personal tweets that used a campaign related hashtag (such as #yycvote) were included in this category.
    - Data Validation Description: Other - Tweet is basically general campaigning. May include reference to business by the current council, often with the hashtag #yyccc. This will also include anything that doesn't fit into other campaign-related categories but has the hashtag #yycvote (or similar).
    - Examples: Many of the tweets in this category were related to the campaign but did not fit into any other category, such as:

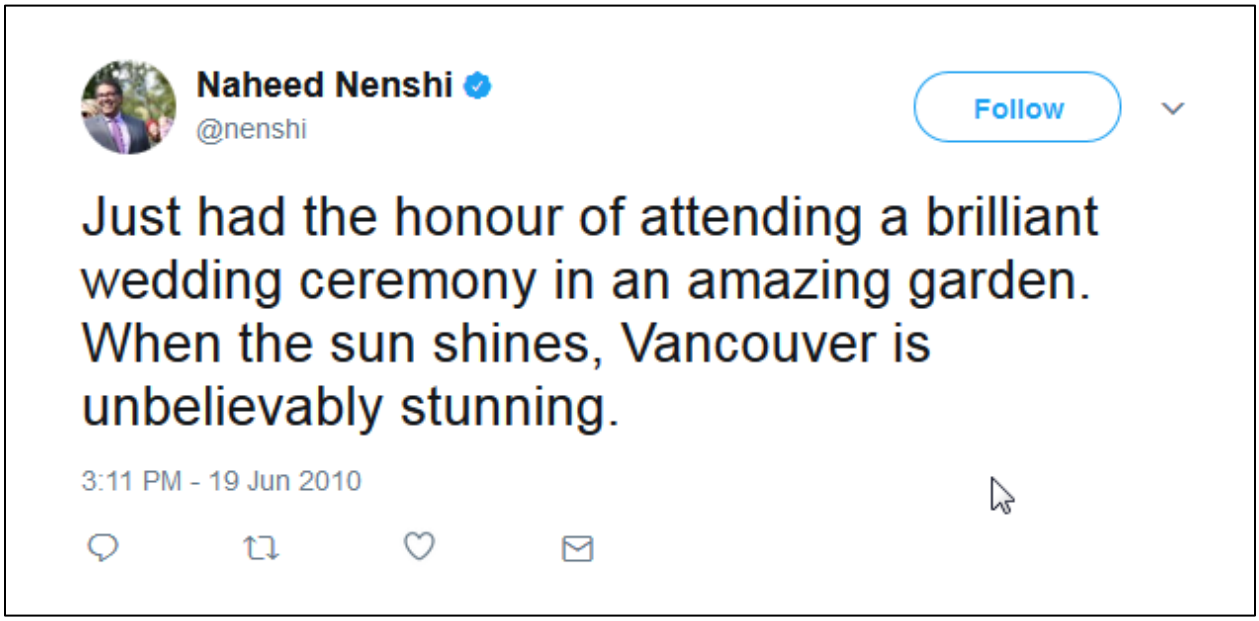


An example of a personal tweet that was turned political with the addition of the #yycvote hashtag is:



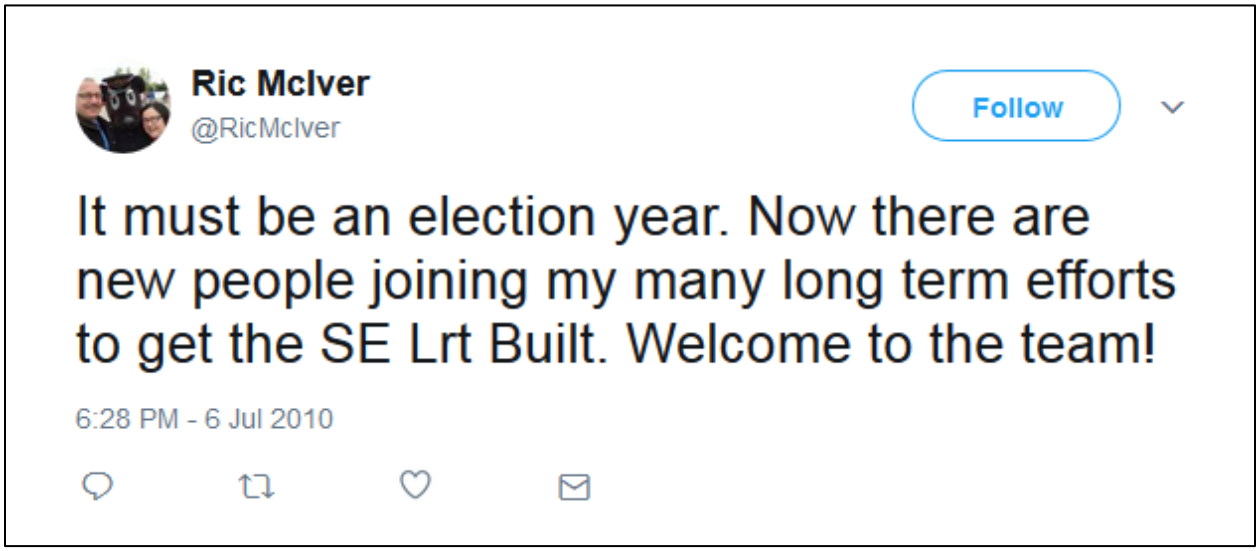

- Personal
    - Description: The content of the tweet is personal in nature. It may be something the candidate may have tweeted whether or not the person was involved in the campaign or council business.
    - Justification: The candidates may have tweeted posts that were not related to the campaign. Although it could be argued that some of these tweets may make the candidate seem more authentic to the voter, that is not necessarily the case. The content of these tweets (including lack of political hashtags) is related to topics such as personal activities or opinions and can stand outside of the context of the election or other council business.
    - Data Validation Description: Personal - Tweet is not obviously related to the campaign, or obviously personal in nature. May be something that would have been tweeted whether or not the person was campaigning.

- Examples: A tweet that is about a personal activity is:




An example of a tweet that does not relate directly to a candidate's personal life but also does not relate at all to the campaign is:

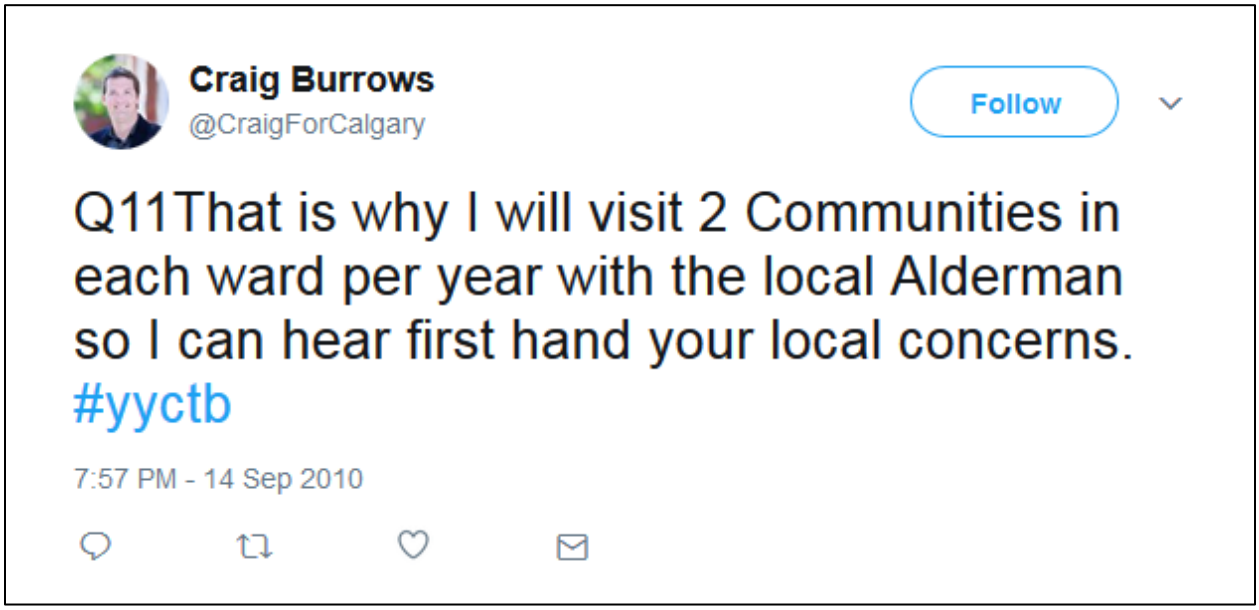
- Policy
    - Description: The content of the tweet relates to the candidate's view on campaign issues but does not fall under the Link Only or Conversation categories.
    - Justification: Despite the 140 character limit, candidates would sometimes try to post their opinions on issues facing the council at the time or coming up in the progress of the campaign without linking to external websites. These were determined based on the context of the full range of tweets in order to glean what were campaign issues at the time.
    - Data Validation Description: Policy - Tweet relates to the candidate's view on campaign issues. This includes reference to the candidate's platform or policy statement.
    - Examples: An example of a tweet that highlights an election issue is:



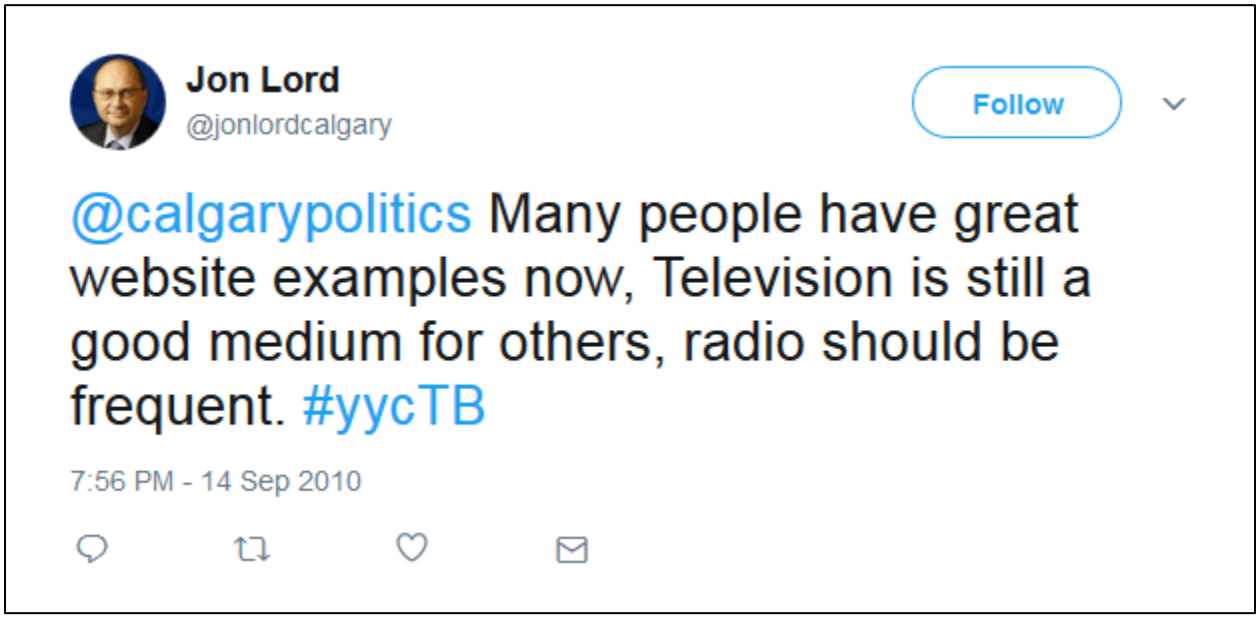
- Retweet
    - Description: The tweet is a straight forwarding of another's tweet with no content added by the candidate. These tweets were removed from certain analyses, such as numbers of retweets and likes, so as not to skew the results.
    - Justification: Because retweets will appear on the candidates' Twitter followers' home timelines and the candidates' own profile page, it is worth including these as they may have affected voters' overall opinion of the candidates. It is to be noted, however that the number of replies, retweets, and likes shown are for the original post and not a response to the retweet. Thus these were removed from the analysis for these parameters.
    - Data Validation Description: Not validated. These tweets were removed before the data validation stage and were not added back to the data until after.
    - Examples: An example of a retweet (this post was retweeted by @wayneforcalgary) that was not amended by the candidate in any way is:

- Twibate
    - Description: The tweet contains the hashtag #yyctb. The tweet is directly connected to the Twitter debate that occurred on September 14, 2010.
    - Justification: Some of the candidates participated in a debate via Twitter that was referred to as a twibate. Because it is likely that voters who were interested in this twibate would follow it (either in real time or after the fact) via searching for the hashtag #yyctb, these tweets were separated. This debate was organized by the now defunct blog website calgarypolitics.com but an image of the site was found via the wayback machine (Internet Archive, n.d.). The website presented a series of questions for the candidates and allowed voters to see the interactions even without using Twitter. According to the blog regarding the usefulness of this debate, "However, it actually did help some individuals make decisions, and it helped some candidates get messages out." (Schmidt, 2010). These tweets were removed from the analysis of daily and average number of tweets because it was a specific organized event over a short period of time and the high volume of tweets would skew the results of this analysis for those candidates who chose to participate in the twibate.
    - Data Validation Description: Twibate - Any tweet with the hashtag #yyctb. These are tweets made during the Twitter debate.

- Examples: Some candidates tweeted using the question numbers provided ahead of time such as with:




There was also some conversation back and forth both between the candidates and with other Twitter usernames, for example:



# Chapter 4: Findings and Discussion

## General Election Results

Before examining the effects of the media of interest (newspapers and Twitter), I wanted to see what the results of the election were in terms of total number of votes for each candidate and to ensure that some of the other factors, such as campaign spending and incumbency, could indeed be disregarded in this case. The results of the election (City of Calgary, The., 2004[sic]), the disclosures of campaign finances (City of Calgary, The., n.d.), and the incumbency status of the candidates if and when they previous to this election held political office at either the municipal or provincial level (City Clerk's Office, Past Mayors, 2017 and Legislative Assembly of Alberta, n.d.) are shown in Table 3. None of the mayoral candidates had held office at the federal level (Library of Parliament, 2017).

In looking at these results, it is clear that many of the factors identified by the literature as having an effect on elections did not, in this case, ultimately determine the outcome. In terms of election finances, both McIver and Higgins (who finished second and third) spent more funds than the winner, Nenshi, with McIver spending more than double the amount that Nenshi did. In looking at name recognition that may accompany incumbency, there were several candidates who had previously held office at either the municipal or provincial level (notably Connelly, Hawkesworth, and McIver, who all held seats as Aldermen during the campaign). Higgins can also be included in this category. Although she had not held political office, she was a well-known media personality, being an anchor for a local broadcast television news program. Nenshi was not entirely unknown as he was a regular contributor to local newspapers and wrote a political blog, but he did not have the same name recognition as some of the other candidates.

**Table 3: City of Calgary 2010 Mayoral Election Results**

| Candidate Name | Total Votes | Disclosure of Campaign Finances (Campaign Period Expenses) | Incumbency (City of Calgary Alderman) | Incumbency (MLA) |
|---|---|---|---|---|
| Burrows, Craig | 994 | $215,418 | 2001-2007 | n/a |
| Connelly, Joe | 2,484 | $156,460 | 2007-2010 | n/a |
| Devine, Bonnie | 329 | $1,647 | n/a | n/a |
| Erskine, Barry | 672 | Under $10,000 | 1992-2007 | n/a |
| Fech, Oscar | 207 | Under $10,000 | n/a | n/a |
| Hawkesworth, Bob | 1,513 | $8,992 | 1980-1986<br>1993-2010 | 1986-1993 |
| Higgins, Barb | 91,359 | $666,617 | n/a | n/a |
| Hunter, Sandra | 284 | $0 | n/a | n/a |
| Johnston, Gary F. | 180 | Under $10,000 | n/a | n/a |
| Knight, Dan | 262 | Under $10,000 | n/a | n/a |
| Liu, Amanda | 336 | No disclosure provided | n/a | n/a |
| Lord, Jon | 1,461 | $45,583 | 1995-2001 | 2001-2004 |
| McIver, Ric | 112,386 | $1,084,020 | 2001-2010 | 2012-present |
| Nenshi, Naheed K. | 140,263 | $404,229 | n/a | n/a |
| Stewart, Wayne | 1,360 | $326,928 | n/a | n/a |

Since some of the expected factors that have been seen to affect election results in other situations such as campaign funding, incumbency, or ethnicity were not clearly evident in this case, it is reasonable to consider other factors including media coverage and aspects of the candidate's campaign strategies. It is to be noted, however, that the lack of an incumbent may have contributed to the at least the heightened interest in this election if not to the results, as

shown in the higher than usual voter turnout rate as can be seen in Table 4 (City Clerk's Office, Trends in voter turnout, 2017).

**Table 4: City of Calgary Trends in Voter Turnout in Municipal Elections**

| Year | Voter turnout (%) | Elected Mayor |
|---|---|---|
| 1995 | 23.4 | Duerr, Alfred (since Oct 23, 1989) |
| 1998 | 45.8 | Duerr, Alfred |
| 2001 | 38.1 | Bronconnier, David |
| 2004 | 19.8 | Bronconnier, David |
| 2007 | 32.9 | Bronconnier, David |
| 2010 | 53.39 | Nenshi, Naheed |
| 2013 | 39.43 | Nenshi, Naheed |

**Newspaper Analysis**

I reviewed 221 items from the Calgary Herald newspaper published between February 24, 2010 and October 18, 2010. This date range represents the period from the first time the newspaper mentioned that the incumbent mayor, David Broconnier, would not run for re-election, until the date of the election. As described previously, in examining these items I looked for which candidates were mentioned, any indication of a forecast of the election results (such as perceived frontrunner status or opinion poll results), any editorial bias towards or away from any particular candidate, and any mention of the candidates' social media activity.

As Table 5 shows, the three candidates with the most votes also were mentioned in the largest number of newspaper items. McIver was named the largest number of times, but he was considered a front-runner for this election right from the time Broconnier announced he would not run, and before McIver publicly declared his intention to run on April 21, 2010. Higgins, on

the other hand, did not declare her intentions to run until July 28, 2010 and was only considered a possible contender once prior to this date. Nenshi publically declared his intention to run on May 27, 2010 and was mentioned as a potential candidate only 6 times prior to this date.

**Table 5: Newspaper Mentions of Candidates**

| Candidate | Total number of newspaper items naming candidate | Number of times candidate described as "front-runner" | Total Votes |
|---|---|---|---|
| Burrows, Craig | 63 | 0 | 994 |
| Connelly, Joe | 65 | 0 | 2,484 |
| Devine, Bonnie | 6 | 0 | 329 |
| Erskine, Barry | 7 | 0 | 672 |
| Fech, Oscar | 9 | 0 | 207 |
| Hawkesworth, Bob | 95 | 0 | 1,513 |
| Higgins, Barb | 110 | 12 | 91,359 |
| Hunter, Sandra | 2 | 0 | 284 |
| Johnston, Gary | 7 | 0 | 180 |
| Knight, Dan | 3 | 0 | 262 |
| Liu, Amanda | 4 | 0 | 336 |
| Lord, Jon | 47 | 0 | 1,461 |
| McIver, Ric | 161 | 24 | 112,386 |
| Nenshi, Naheed | 104 | 8 | 140,263 |
| Stewart, Wayne | 53 | 0 | 1,360 |

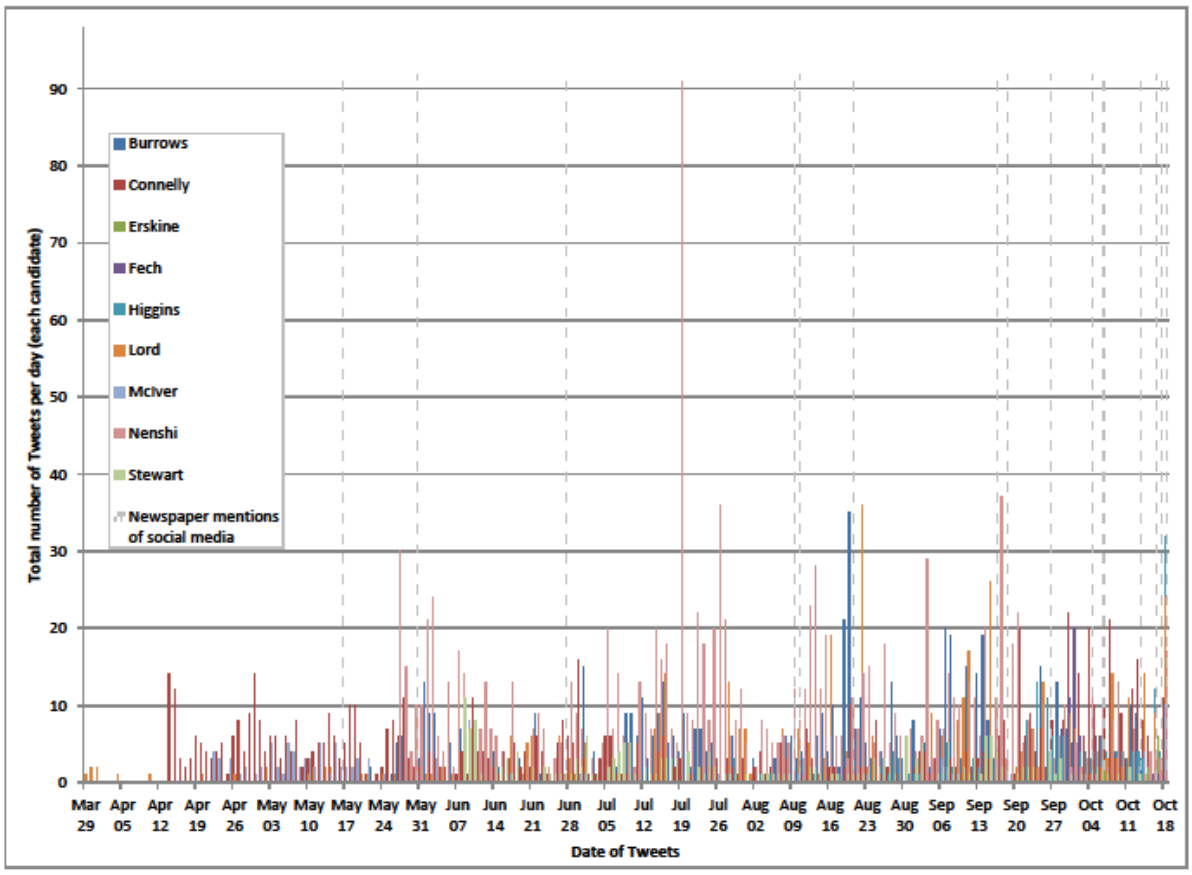
In all of the newspaper items prior to Higgins joining the race, McIver was described as the perceived front-runner if any mayoral candidates were mentioned at all. By July 30, 2010, a poll put Higgins slightly ahead of McIver with the rest of the candidates far behind but with a

majority of respondents indicating that they were undecided (Braid, 2010). From this point on, Higgins was considered one of the front-runners. In 4 of the items that mention Nenshi as one of the front-runners, they all still put Nenshi firmly in third place behind McIver and Higgins, and the others called it a three-way dead heat. As well as these comments in the items regarding the perceived front-runners, there was also an editorial bias noted in the Calgary Herald in support of McIver. In particular, in some of the editorials, McIver is suggested as the preferred candidate. For example, the "Editorial: Ric McIver for mayor" (2010) indicates that the Calgary Herald editorial board supported McIver.

The newspaper items tracked changes in public opinion during the campaign. A poll released on October 12, 2010 indicated "...that there is a statistical tie between frontrunners Barb Higgins (37%) and Ric McIver (34%) among decided voters. Naheed Nenshi is the only other contender in the race [with] 21%." (Ipsos Reid, 2010). This poll, along with the other more informal polls in the Calgary Herald, all indicate similar results with Higgins and McIver very close to each other and Nenshi trailing somewhat behind (although ahead of any other candidate).

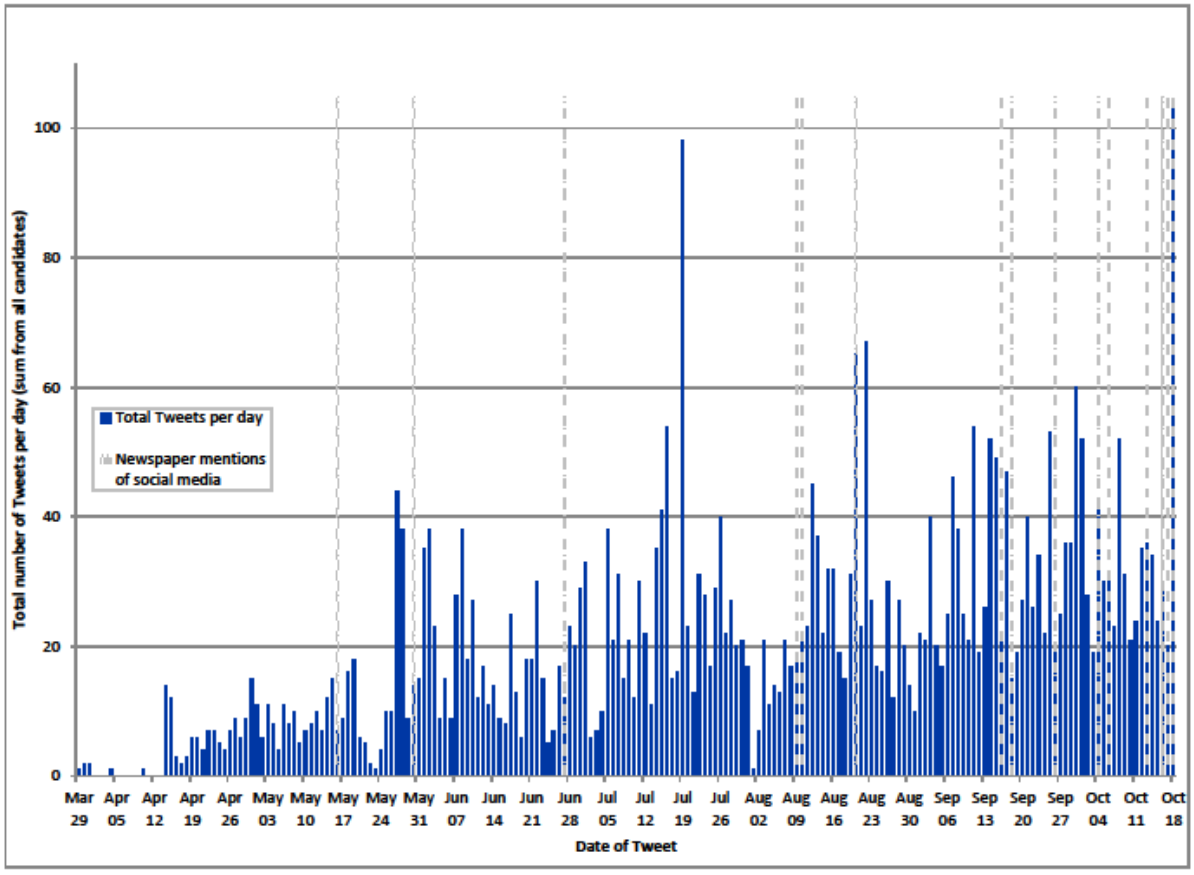
On occasion a newspaper item directly referenced the candidates' online presence, particularly their use of social media, including Twitter. Seskus (2010) compares the potential for online impact with the "Obamamania" seen in the 2008 US presidential election. I looked at whether such mentions in the newspaper might spur candidates to increase their online presence, in particular their Twitter activity. In Chart 1, it can be seen that there is no clear pattern to the daily tweet numbers, and no noticeable spike in number of tweets immediately following a mention in the newspaper of social media use by the candidates (grey lines).

**Chart 1: Twitter Activity for Each Candidate**




In looking at the total number of tweets per day by all candidates combined, as shown in Chart 2, the view is somewhat cleaner but still shows no apparent pattern and no apparent correlation between mentions in the newspaper and the number of tweets. Note that the raw data used and larger versions of these charts, as well as charts for each candidate separately, are presented together in Appendix B and that the tweets directly related Twitter debate (twibate) were removed from these charts to remove the skew that the twibate would introduce.

**Chart 2: Twitter Activity for All Candidates Combined**




This lack of apparent correlation can also be seen in Table 6 where the total number of tweets from all candidates combined the day before and the day after a mention of social media in the Calgary Herald are compared. Of the 14 mentions (excluding the one that occurred on the election day of October 18, 2010), 6 were followed by an increase in Twitter activity and 8 were followed by a decrease. These data indicate that there is no direct immediate correlation between the newspaper mentioning social media and the candidates increasing their use of social media.

**Table 6: Number of Tweets Following Newspaper Mention of Social Media**

| Dates social media mentioned in newspaper | Total number of tweets the day before | Total number of tweets the day after | Increase (decrease) in number of tweets |
|---|---|---|---|
| 16-May-10 | 15 | 9 | (6) |
| 30-May-10 | 9 | 15 | 6 |
| 27-Jun-10 | 17 | 23 | 6 |
| 09-Aug-10 | 17 | 21 | 4 |
| 10-Aug-10 | 18 | 23 | 5 |
| 20-Aug-10 | 31 | 23 | (8) |
| 16-Sep-10 | 49 | 47 | (2) |
| 18-Sep-10 | 47 | 19 | (28) |
| 26-Sep-10 | 53 | 25 | (28) |
| 04-Oct-10 | 19 | 30 | 11 |
| 06-Oct-10 | 30 | 23 | (7) |
| 13-Oct-10 | 35 | 34 | (1) |
| 16-Oct-10 | 24 | 20 | (4) |
| 17-Oct-10 | 30 | 103 | 73 |
| 18-Oct-10 | 20 | n/a | n/a |

It seems that the number of times the candidates were mentioned in the newspaper, the pre-election polls indicating that either McIver or Higgins would win, or the bias that the Calgary Herald had in this election did not significantly sway the results. As well, any discussions of social media in the newspaper did not significantly affect how much social media was used. Based on these findings, I would suggest that the Calgary Herald's reportage had no discernable effect on the outcome of this election or the tweeting behaviour of the candidates.

**Twitter Analysis**

In analyzing the tweets of the individual candidates, I began by looking at the total number of tweets during the campaign period as shown in Table 7. In order to simplify the analysis, although the data was collected for all candidates who had active Twitter usernames and appeared on the final ballot and general analysis was done for all, the more in depth analysis was limited to the three top candidates: Higgins, McIver, and Nenshi.

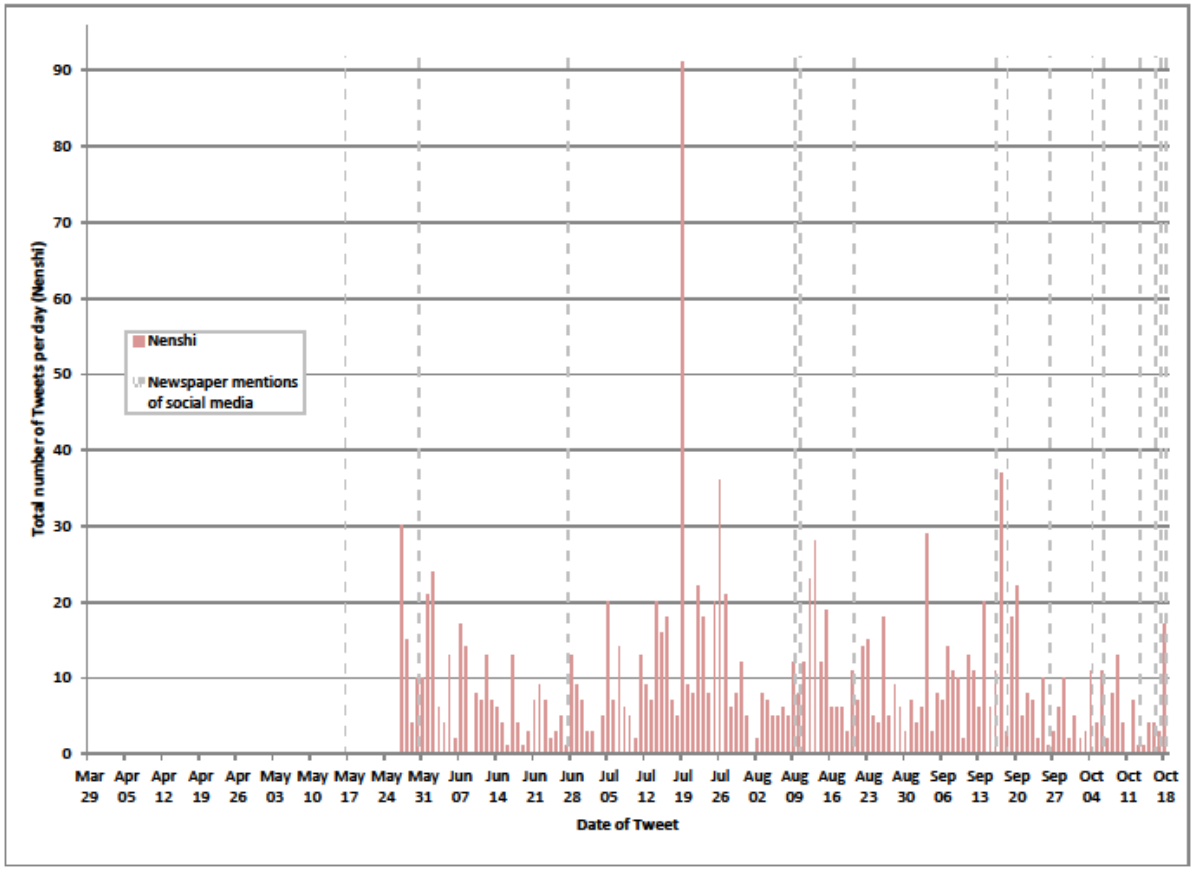
**Table 7: Number of Tweets by Candidates**

| Candidate | Campaigning start date | Campaigning end date | Campaign length (days) | Total number of tweets over campaign | Average number of tweets per day |
|---|---|---|---|---|---|
| Burrows, Craig | May 16, 2010 | Oct 18, 2010 | 155 | 766 | 5 |
| Connelly, Joe | Apr 14, 2010 | Oct 18, 2010 | 187 | 800 | 4 |
| Erskine, Barry | Oct 7, 2010 | Oct 17, 2010 | 10 | 16 | 2 |
| Fech, Oscar | Sep 30, 2010 | Oct 18, 2010 | 18 | 52 | 3 |
| Higgins, Barb | Jul 28, 2010 | Oct 18, 2010 | 82 | 236 | 3 |
| Lord, Jon | Mar 29, 2010 | Oct 18, 2010 | 203 | 620 | 3 |
| McIver, Ric | Apr 22, 2010 | Oct 18, 2010 | 179 | 185 | 1 |
| Nenshi, Naheed | May 27, 2010 | Oct 18, 2010 | 144 | 1440 | 10 |
| Stewart, Wayne | Jun 8, 2010 | Oct 14, 2010 | 128 | 224 | 2 |
| **Totals** | **Mar 29, 2010** | **Oct 18, 2010** | **203** | **4339** | **21** |

I took as the campaigning start date the day the candidate publically announced his or her candidacy for mayor in this election. This was determined either by a tweet making the announcement or a notice in the Calgary Herald. In most cases I took as the campaigning end date the election day, except in cases where the candidate publically announced that he or she

was dropping out of the race and supporting one of the other candidates. In the cases where the candidates dropped out, they still appeared on the ballot as this occurred after the official nomination date, but their campaigning activities effectively ended. The total number of tweets over the campaign period includes retweets and tweets directly related to the twibate. It was noted that some candidates, in particular Nenshi, were regular Twitter users before their campaigning start date but these tweets were disregarded for this analysis.

**Chart 3: Twitter Activity for Nenshi**



In looking at this preliminary data, it can be seen that Nenshi was by far the most prolific user of Twitter, with nearly double the total number of tweets and at least double the daily average number of tweets as compared to any other candidate. Nenshi was a very regular user of Twitter, with very few days with no tweets, as can be seen in Chart 3. By comparison, all other of the candidates who used Twitter had more days with no tweets and all others had some gaps of two or more days. For example the Twitter history of the two other candidates that were considered front-runners, Higgins and McIver, shows that they had far fewer tweets and several days with no tweets at all. These results are shown in Charts 4 and 5.

**Chart 4: Twitter Activity for Higgins**

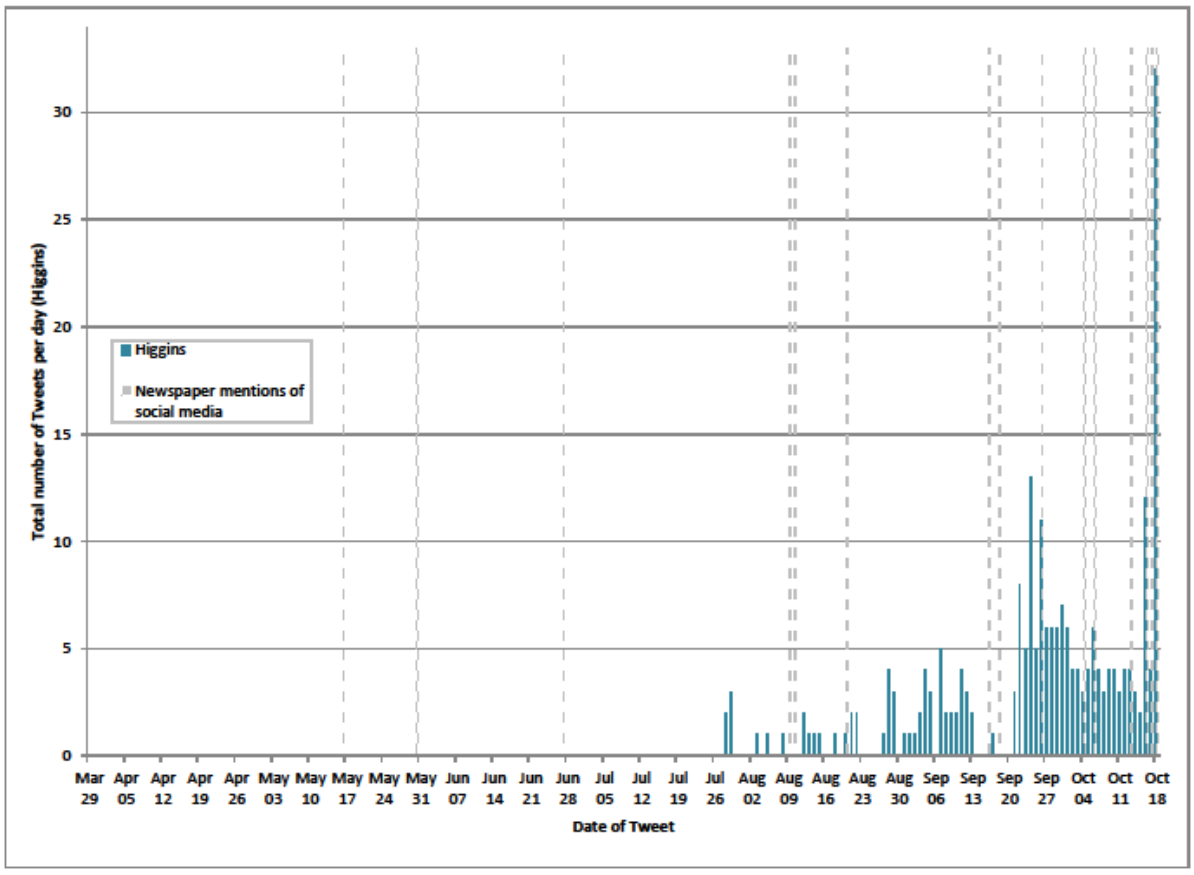
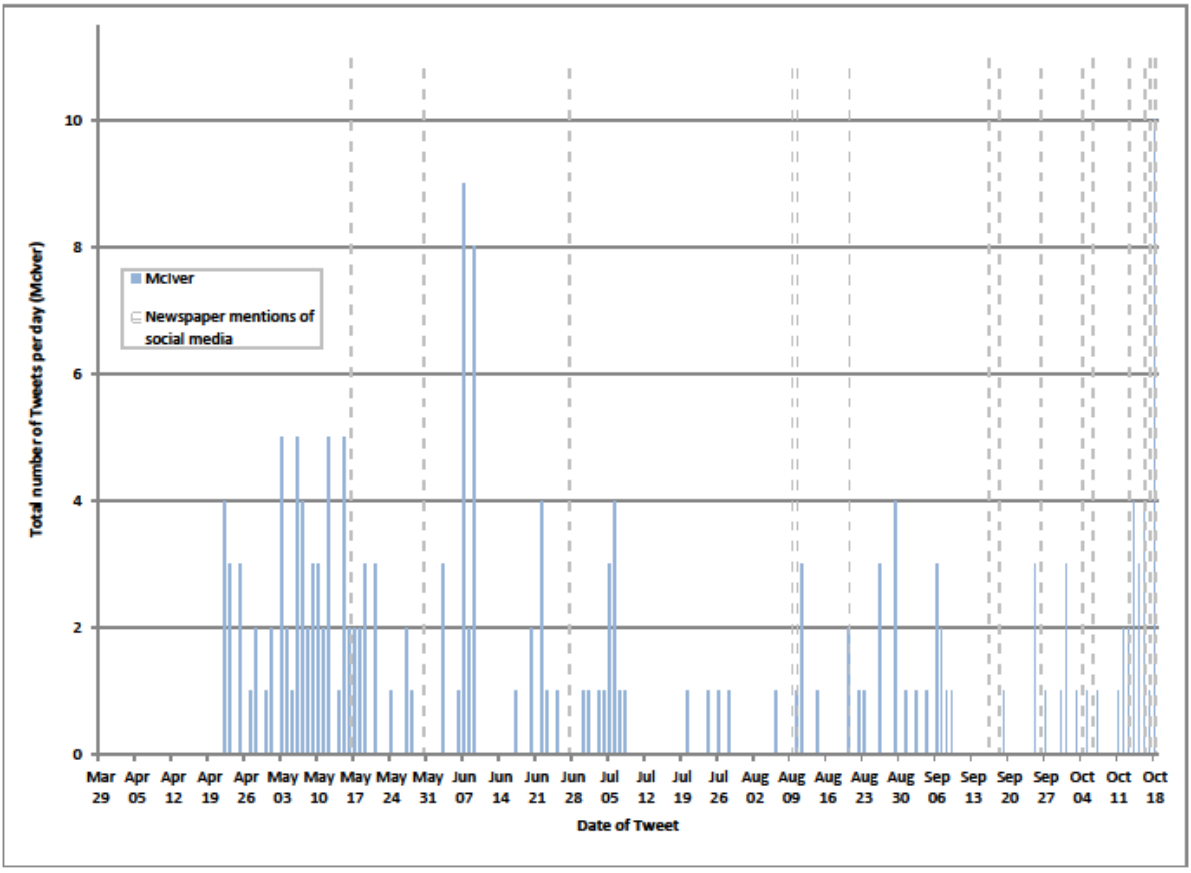


**Chart 5: Twitter Activity for McIver**




**Data Verification.** After analyzing the preliminary data, I examined the actual content of the tweets according to the coding scheme previously described. The data obtained was verified by two independent coders. Each independent coder was only provided with the descriptions listed in Appendix B and a list of 41 randomly selected tweets, not the decision tree or any additional information on the campaign. This was done in part to determine if the interpretation of the tweets would be consistent across members of the general public in Alberta. After the first round with the independent coders I found that 59% of the samples where all three agreed. Of

these sample tweets, there was only one where the two independent coders agreed with each other but differed from my analysis. This tweet was:


As this tweet mentions one of the other candidates (Bob Hawkesworth), I coded it as "candidates" but the two independent coders called this "activity". There was also only one tweet where none of the coders agreed:

For this tweet, one of the independent coders called this "link only" (despite there being no link present), the other called it "personal", but I coded it as "other" as I had some knowledge that transportation to the airport was one of the main campaign issues in this election. It was also noted that both of the independent coders commented (and apologized) that they did their coding very quickly and that they had not received university training in research techniques in social sciences so they were not quite sure if they were doing the analysis correctly. In order to improve the intercoder reliability, I then recruited a third coder to examine the tweets where the other two disagreed. Including this tie-breaker coding, the reliability increased to 85%, well over the 70% rule of thumb, thus I believe that based on the level of agreement and the lack of in-depth training of the coders that my content analysis is reliable and valid.

**Content Analysis of Tweets.** Once I determined that my coding scheme was reliable and valid, I was able to continue with coding the entire dataset.

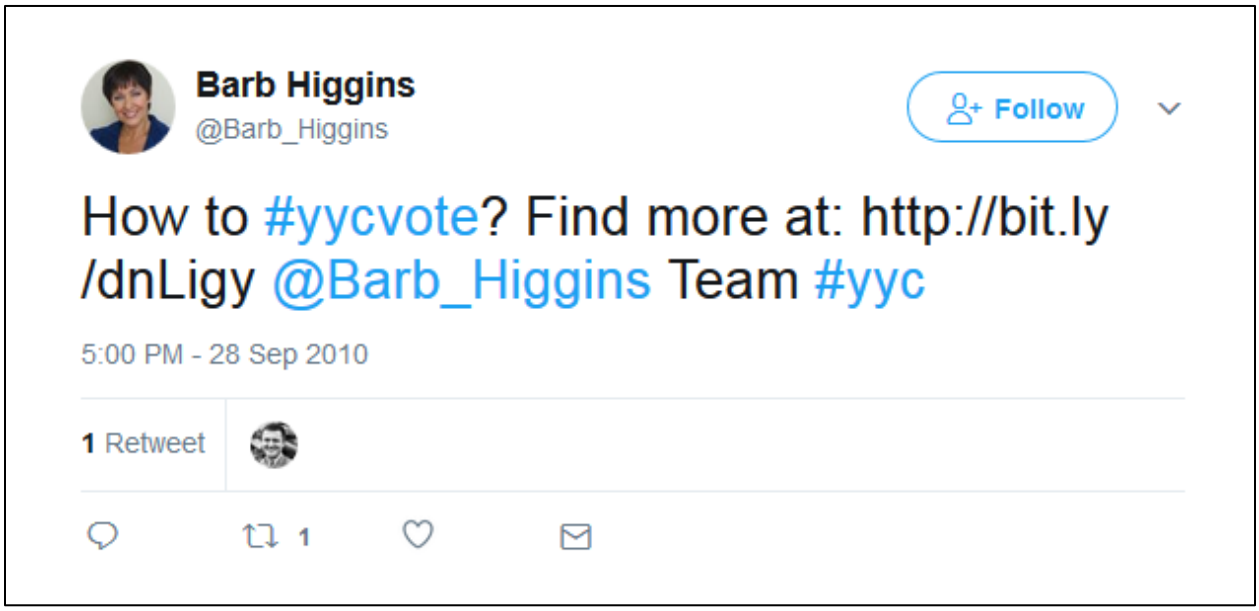
A summary of the findings for Higgins, McIver, and Nenshi is given in Table 8 with the full summary for all candidates given in Appendix B. These tables list the coding categories, the number of tweets each candidate made in each category, and the proportion (given in percentages) in relation to the total number of tweets that in each category by candidate. In looking at this data (and the actual related tweets) a few points stand out. As might be expected, all of the candidates to a greater or lesser degree took advantage of the immediacy of Twitter and posted about activities. Nenshi used conversations more than any other category and more than any other candidate; 58% of his tweets were coded as conversation, including some that were retweets with content added to continue a conversation while adding context. He also continued to post personal tweets and used quite a casual tone even to many of his campaigning tweets, including using emojis (which neither Higgins nor McIver used).

**Table 8: Content Analysis Data for Higgins, McIver, Nenshi**

| | Higgins | McIver | Nenshi |
|---|---|---|---|
| Activity | 64 (27%) | 69 (37%) | 185 (13%) |
| Candidates | 3 (1%) | 1 (1%) | 28 (2%) |
| Conversation | 20 (8%) | 25 (14%) | 831 (58%) |
| Link Only | 121 (51%) | 35 (19%) | 72 (5%) |
| Other | 16 (7%) | 28 (15%) | 144 (10%) |
| Personal | 1 (0%) | 16 (9%) | 121 (8%) |
| Policy | 5 (2%) | 6 (3%) | 6 (0%) |
| Retweet | 5 (2%) | 5 (3%) | 9 (1%) |
| Twibate | 1 (0%) | 0 (0%) | 44 (3%) |

An example of how Nenshi engaged in conversation while keeping the tone casual (including using an emoji) can be seen in the following tweet:

By comparison, Higgins had a large number of tweets that were coded as link only as well as the largest number of repeated tweets than any other candidate (where the identical tweet was posted more than once). Some of her tweets also appear to have been posted by a member of her campaign team rather than directly by her. For example the following tweet that was coded as link only was posted 9 times and includes the phrase "@Barb_Higgins Team" which :




McIver predominantly posted activity related tweets. In terms of hashtags and mentions, he only used the #yycvote himself (excluding retweets) once and used other hashtags only sparingly as well (only 3% of his tweets contained hashtags) and also did not use @username mentions very often, even when apparently replying to other tweets. He also had a much more formal tone to his tweets (for example avoiding abbreviations, writing full sentences including punctuation, etc.) and many of his tweets did not use emojis or abbreviations.


All three of the leading candidates posted very few straight retweets, very few tweets that directly named other candidates, and very few that could be coded as policy. The way that Higgins and McIver used Twitter is very similar to the social media use Small (2010, 2012) found was common among other Canadian politicians. This use is similar to more traditional campaigning methods such as handing out fliers, posting information on static websites, or publishing newsletters or newspaper advertisements. Nenshi, on the other hand, was far more likely to use Twitter as a truly social medium far more in line with traditional door-knocking campaigning. This relates directly to media theory as Higgins and McIver were using Twitter merely as substitutes for print-based media whereas Nenshi was taking advantage of the potential of the communication technology inherent in Web 2.0 to alter the message inherent in the medium from a linear, visual basis to the more simultaneous, acoustic basis possible in the global village view of electronic communication.

**Discussion**

This election was one of several where the results seemed to come as a surprise to both the political pundits and general public alike. The results did not correspond to the predictions from pre-election opinion polls and did not follow patterns that had been shown in the past to

predict election results. One area in which the usual pattern was not seen was in election spending; in the past election spending was shown to be a reasonable predictor of results but in this campaign the candidates with the largest war chests did not achieve success. Incumbency has also been shown to be a predictor of success, attributed to name recognition. In this case, the previous mayor did not run so there was no incumbent. However there were several candidates who had served public office previously, including at the municipal level as a City of Calgary Alderman and at the provincial level as an Alberta Member of Legislative Assembly (MLA). As well, there was one candidate who was a local celebrity and whose situation was compared with a previous case where a television news personality, Ralph Klein, was elected as a popular mayor in Calgary. Again the candidates with the greater name recognition were not successful in this election.

With regards to the influence of traditional mass media, this project looked at a specific example – the Calgary Herald newspaper – to determine the level of influence. I found that the amount of coverage that each candidate received, including both implied and official editorial support of a candidate, did not necessarily translate to success in the election. As this election occurred only four years after the formation of Twitter as a social media platform and due to the relatively low Twitter usage by Canadians at the time, I anticipated that attention paid to social media by the traditional press might influence the use of Twitter, but that seems to also not be the case. These results seem to suggest that people are starting to look elsewhere for information than just traditional mass media.

The most surprising results in this study are in how the different candidates used the social media platform Twitter. Some candidates did not use it at all, or employed it only sparingly. Others, including Higgins, used it more as a website banner advertisement that directs

readers to a standard static web site. Still others such as McIver used it more like a formal notice in a newspaper or newsletter, announcing activities but using very few of the tools to help with searches in Twitter such as hashtags or mentions. Of the top three candidates, only Nenshi came closest to using Twitter as a social communication tool by frequently attempting to directly engage other Twitter users and by having a more casual, conversational tone. Although these results cannot show whether this difference in tweeting behaviour had an influence on the election results, it may point to differences in how the candidates engaged the voters in this are well as other areas of the campaign and may also show how the shift towards electronic communications in general have affected how individuals in society seek information, engage with others, and react to situations. If this is the case, it seems that people can no longer ignore these forms of communication or assume that they are merely extensions of previous media. These media have their own characteristics, potentials for communication, and drawbacks that may inhibit communication.

# Chapter 5: Conclusion

## Limitation

There are several limitations inherent in this study. It is unclear whether the results from this study can be applied to other cases and whether they are indicative of a trend. It does seem however that other elections, including the 2008 and 2016 United States presidential elections, show similar trends. The reliance of this study on what was published in a single newspaper as determined by a database search (rather than the actual print versions of the newspaper) and not including other media such as television and radio broadcasts is also a limitation to this study. Other relevant data were not available, including the demographic profile of the people who voted in the election. It has been suggested that the increase in voter turnout was due to an increase in younger voters who then had a preference for Nenshi, but specific data for this could not be found.

As for Twitter mobilization, in this project the level of engagement between the candidates and voters was based on what could be considered conversations. Without the other side of the conversation, however, it is not absolutely clear how many of the tweets coded as conversation were actually engagement with the voters. As well, some of the Twitter data were not available, such as the number of followers for each candidate, which might be used to give an indication of voter engagement with the candidates. Finally, due to constraints in time and scope of this project, not all of the data available from Twitter was used in the analysis, for example the number of unique individuals that the candidates included as mentions in their tweets or the profiles of these people (for example, how many of the mentions were to journalists or friends and colleagues rather than to member of the general voting public). Despite these limitations, I have confidence in the validity of the results of this study to this particular case.

## Opportunities for Future Research

For future research, it might be useful to follow an election in real time rather than several years after the event. This strategy would allow other broadcast media to be examined, including radio and television news programs and political advertisements broadcast via these media. This would give a broader view of the influence of these traditional media. By having a real time view, the fluctuating number of followers for the candidates could also be tracked and it would be easier to extract full conversations, although getting full conversations would still present a challenge. A real time study could also include surveys or other mechanisms to determine the demographics of the voters.

Another area for investigation would be to look at other platforms within the social media realm, such as Facebook or YouTube. As each of these platforms have different general purposes and different profiles of the typical user, a broader view of the scope of social media use in election campaigns could be obtained.

A final area that would be a potential for future study would be to examine other cases of rhetoric using social media. Debates regarding specific issues rather that multiple issues within a limited time scale could be examined. Examples could be studying social media debates of climate change or childhood vaccinations.

## Conclusions

This project looked into the factors that may have been in play during the 2010 Calgary mayoral election. This election was one of the first in Canada to have its results attributed at least in part to social media. This project has shown that the newspaper the Calgary Herald, as a representative of traditional mass media, did not have an overwhelming impact on the results of the election. But what role did social media play? In taking a Medium Theory perspective, the

specific content of the media can be disregarded. As McLuhan stated, the content of one medium is another medium (McLuhan & Lapham, 1994). In this case, Twitter is the specific platform in electronic communication that was studied. Within the tweets, it was indeed found that the candidates used this platform differently which led to variances in the readers' interpretations of the messages even when the text content was similar. The primary content of the tweets posted by Higgins (or her campaign team) was static web pages. The primary content of the tweets posted by McIver was closest to print pamphlets. The primary content of the tweets posted by Nenshi was oral conversations. From this point of view, Nenshi was the closest to using Twitter in the oral tradition of the global village that McLuhan suggested was the direction in which electronic communication is heading. This would indicate that in order to most effectively use the tools that can be found in the electronic communication media such as with social media, it may be best to eliminate the linear way of thinking that writing has emphasized and to think in the more simultaneous, holistic way inherent in oral traditions.

## References

Ahmad, K., & Sheikh, K. S. (2013). Social media and youth participatory politics: A study of university students. *South Asian Studies (1026-678X), 28*(2), 353-360.

Anonymous. (2010, February 24). Calgary mayor won't run again. *Edmonton Journal*. p. B6.

Anonymous. (2010, February 24). Editorial: A hard act to follow; The right mayor at the right time, Bronco got things done. [Editorial]. *Calgary Herald.* p. A14.

Anonymous. (2010, October 16). Editorial: Ric McIver for mayor. [Editorial]. *Calgary Herald*. p. A14.

Bahrainian, S. A., & Dengel, A. (2015). Sentiment analysis of texts by capturing underlying sentiment patterns. *Web Intelligence (2405-6456), 13*(1), 53-68. doi:10.3233/WEB-150309

Baxter, G., & Marcella, R. (2012). Does Scotland 'like' this? social media use by political parties and candidates in Scotland during the 2010 UK general election campaign. *Libri: International Journal of Libraries & Information Services, 62*(2), 109-124. doi:10.1515/libri-2012-0008

Baxter, G., & Marcella, R. (2013). Do online election campaigns sway the vote? A study of the 2011 Scottish parliamentary election. *Libri: International Journal of Libraries & Information Services, 63*(3), 190-205. doi:10.1515/libri-2013-0015

Bekafigo, M. A., Cohen, D. T., Gainous, J., & Wagner, K. M. (2013). State parties 2.0: Facebook, campaigns, and elections. *International Journal of Technology, Knowledge & Society, 9*(1), 99-112.

Bennett, S. (2013). On twitter, what's the difference between a reply and a mention? *Adweek.* Retrieved from http://www.adweek.com/digital/reply-mention/

Boyle, T. P. (2013). 2008 presidential campaign media predictors: Interest, issue knowledge and candidate likeability. *Atlantic Journal of Communication, 21*(2), 95-107. doi:10.1080/15456870.2013.773481

Braid, D. (2010, July 30). Higgins running fast in slow race. *Calgary Herald*. p. B1.

Bronconnier, D. (2010, February 24). Moving forward to private life. *Calgary Herald.* p. A15.

Bruns, A., & Stieglitz, S. (2013). Towards more systematic twitter analysis: Metrics for tweeting activities. *International Journal of Social Research Methodology, 16*(2), 91-108. doi:10.1080/13645579.2012.756095

Buente, W. (2015). Relating digital citizenship to informed citizenship online in the 2008 U.S. presidential election. *Information Polity: The International Journal of Government & Democracy in the Information Age, 20*(4), 269-285. doi:10.3233/IP-150375

Calgary Democracy. (2010). *Calgary, 2010 municipal election*. Retrieved from http://2010.calgarydemocracy.ca/levels/calgary/elections/2010/ballots/mayor/

Calgary mayor Dave Bronconnier says he won't seek re-election this fall. [Wire Feed]. (2010, February 23). *The Canadian Press; Toronto*

Carlson, T., Djupsund, G., & Strandberg, K. (2014). Taking risks in social media campaigning: The early adoption of blogging by candidates. *Scandinavian Political Studies, 37*(1), 21-40. doi:10.1111/1467-9477.12011

Charles, C. A. D. (2012). Newspaper representation of the debates in the 2007 Jamaican general election campaign. *Bulletin of Latin American Research, 31*(3), 285-301. doi:10.1111/j.1470-9856.2012.00733.x

City Clerk's Office. (2017). *Past mayors and aldermen*. Retrieved from http://www.calgary.ca/CA/city-clerks/Pages/Corporate-records/Archives/Historical-information/Past-Mayors-and-Aldermen.aspx

City Clerk's Office. (2017). *Trends in voter turnout (attachment 1)*. Retrieved from http://agendaminutes.calgary.ca/sirepub/cache/2/lwyay21fdctoncca3chlc0nb/565897071220 1702541945.PDF

City of Calgary, The. (2004[sic]). *2010 general election official results*. Retrieved from http://www.calgary.ca/CA/city-clerks/Documents/election2013/2010-General-Election-Results.pdf

City of Calgary, The. (n.d.). *2010 disclosure of campaign finances*. Retrieved from http://www.calgary.ca/CA/city-clerks/Pages/Election-and-information-services/2017-General-election/Information-for-Candidates/2010-Disclosure-of-Campaign-Finances.aspx

Corbella, L. (2010, February 24). Bronco says, just say 'no' to those who only know 'no'. *Calgary Herald*. p. A14.

Craig, R. T., & Muller, H. L. (2007). Theorizing communication: Readings across traditions. Los Angeles: Sage Publications.

Cutler, F., & Matthews, J. S. (2005). The challenge of municipal voting: Vancouver 2002. *Canadian Journal of Political Science, 38*(2), 359-382.

Diaz, F., Gamon, M., Hofman, J. M., Kiciman, E., & Rothschild, D. (2016). Online and social media data as an imperfect continuous panel survey. *PLoS ONE, 11*(1), 1-21. doi:10.1371/journal.pone.0145406

DiGrazia, J., McKelvey, K., Bollen, J., & Rojas, F. (2013). More tweets, more votes: Social media as a quantitative indicator of political behavior. *PLoS ONE, 8*(11), 1-5. doi:10.1371/journal.pone.0079449

Dumitrica, D. (2014). Politics as "customer relations": Social media and political authenticity in the 2010 municipal elections in Calgary, Canada. *Javnost-the Public*, *21*(1), 53-102.

Dwyer-Joyce, G. (2001, October 1). W5: Calgary Mayor Nenshi turning heads across Canada. *CTV News*. Retrieved from http://www.ctvnews.ca/w5-calgary-mayor-nenshi-turning-heads-across-canada-1.705434

Edwards, C., Spence, P. R., Gentile, C. J., Edwards, A., & Edwards, A. (2013). How much Klout do you have … A test of system generated cues on source credibility. *Computers in Human Behavior, 29*(5), A16. doi://dx.doi.org/10.1016/j.chb.2012.12.034

Eom, Y., Puliga, M., Smailovic, J., Mozetic, I., & Caldarelli, G. (2015). Twitter-based analysis of the dynamics of collective attention to political parties. *PLoS ONE, 10*(7), 1-17. doi:10.1371/journal.pone.0131184

Followthehashtag. (n.d.) *Hidden twitter search operators. Extra power to followthehashtag*. Retrieved from http://www.followthehashtag.com/help/hidden-twitter-search-operators-extra-power-followthehashtag/

Gibson, R. K., & McAllister, I. (2015). Normalising or equalising party competition? Assessing the impact of the web on election campaigning. *Political Studies, 63*(3), 529-547. doi:10.1111/1467-9248.12107

Graham, C., Thompson, C., Wolcott, M., Pollack, J., & Tran, M. (2015). A guide to social media emergency management analytics: Understanding its place through typhoon Haiyan tweets. *Statistical Journal of the IAOS, 31*(2), 227-236. doi:10.3233/SJI-150893

Groshek, J., & Dimitrova, D. (2013). A cross-section of political involvement, partisanship and online media in Middle America during the 2008 presidential campaign. *Atlantic Journal of Communication, 21*(2), 108-124. doi:10.1080/15456870.2013.773484

Guttormson, K. (2010, February 24). End of an era; After nine years at the helm, mayor Dave Bronconnier decides not to run again. *Calgary Herald*. p. A1.

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

Hajar, Z., Clauson, K. A., & Jacobs, R. J. (2014). Analysis of pharmacists' use of twitter. *American Journal of Health-System Pharmacy, 71*(8), 615-619. doi:10.2146/ajhp130307

Hargittai, E., & Shaw, A. (2013). Digitally savvy citizenship: The role of internet skills and engagement in young adults' political participation around the 2008 presidential election. *Journal of Broadcasting & Electronic Media, 57*(2), 115-134. doi:10.1080/08838151.2013.787079

Innis, H. A. (2008). *The bias of communication, 2nd ed*. Toronto Ont. University of Toronto Press, Scholarly Publishing Division.

Innis, H. A., & Watson, A. J. (2007). *Empire and communications*. Toronto Ont.: Dundurn Press.

Internet Archive. (n.d.). *Wayback machine*. Retrieved from https://archive.org/

Ipsos Reid. (2009). *What's all that twitter about - A lot about nothing?*. Retrieved from https://www.ipsos.com/en-ca/whats-all-twitter-about-lot-about-nothing

Ipsos Reid. (2010). *Calgary mayoral race too close to call*. Retrieved from https://www.ipsos.com/en-ca/calgary-mayoral-race-too-close-call

Jackson, K. M., Dorton, H., & Heindl, B. (2010). A celebration that defined a generation: Grant Park, new media, and Barack Obama's historic victory of the US presidency. *Journal of American Culture, 33*(1), 40-51. doi:10.1111/j.1542-734X.2010.00729.x

Karimi, S., Yin, J., & Baum, J. (2015). Evaluation methods for statistically dependent text. *Computational Linguistics, 41*(3), 539-548. doi:10.1162/COLI_a_00230

Karlsen, R. (2010). Does new media technology drive election campaign change? *Information Polity: The International Journal of Government & Democracy in the Information Age, 15*(3), 215-225. doi:10.3233/IP-2010-0208

Kaye, B. K. (2013). I can choose clearly now: The influence of online source reliance on candidate preference during the 2008 presidential election. *Atlantic Journal of Communication, 21*(5), 294-311. doi:10.1080/15456870.2013.842572

Kim, T., Atkin, D. J., & Lin, C. A. (2016). The influence of social networking sites on political behavior: Modeling political involvement via online and offline activity. *Journal of Broadcasting & Electronic Media, 60*(1), 23-39. doi:10.1080/08838151.2015.1127242

Krippendorff, K. (2013). *Content analysis: An introduction to its methodology*. Los Angeles; London: Sage.

Kushner, J., Siegel, D., & Stanwick, H. (1997). Ontario municipal elections: Voting trends and determinants of electoral success in a Canadian province. *Canadian Journal of Political Science, 30*(3), 539-553.

Lacombe, D. (2010, October 23). Election of fresh mayor ushers in new media. *Star – Phoenix*.

Legislative Assembly of Alberta. (n.d.) *MLA profiles*. Retrieved from https://www.assembly.ab.ca/net/index.aspx?p=memberprofile_home

Lengauer, G., & Höller, I. (2012). Contest framing and its effects on voter (de)mobilisation. *Javnost-the Public, 19*(4), 73-113.

Lewis, S. C., Zamith, R., & Hermida, A. (2013). Content analysis in an era of big data: A hybrid approach to computational and manual methods. *Journal of Broadcasting & Electronic Media 57*(1), 2013, 34–52. doi:10.1080/08838151.2012.761702

Library of Parliament. (2017). Members of the House of Commons. *Parliament of Canada*. Retrieved from https://lop.parl.ca/parlinfo/Lists/Members

Lin, M., Haridakis, P. M., & Hanson, G. (2016). The role of political identity and media selection on perceptions of hostile media bias during the 2012 presidential campaign. *Journal of Broadcasting & Electronic Media, 60*(3), 425-447. doi:10.1080/08838151.2016.1203316

Lin, Y., Keegan, B., Margolin, D., & Lazer, D. (2014). Rising tides or rising stars?: Dynamics of shared attention on twitter during media events. *PLoS ONE, 9*(5), 1-12. doi:10.1371/journal.pone.0094093

López García, G. (2007). Polls, public demonstrations, election results, and the media: The events of March 11 in Spain. *Zer: Revista De Estudios De Comunicacion, 12*(23), 89-118.

López-Cantos, F. (2015). Communication research using BigData methodology. *Revista Latina De Comunicación Social,* (70), 878-890. doi:10.4185/RLCS-2015-1076en

López-García, G. (2016). 'New' vs 'old' leaderships: The campaign of Spanish general elections 2015 on Twitter. *Communication & Society, 29*(3), 149-168. doi:10.15581/003.29.3.149-168

Markusoff, J. (2010, February 24). Time to plot election strategy; No shortage of candidates for mayor's chair. *Calgary Herald.* p. A4.

McGregor, R. M., Moore, A. A., & Stephenson, L. B. (2016). Political attitudes and behaviour in a non-partisan environment: Toronto 2014. *Canadian Journal of Political Science, 49*(2), 311-333. doi://dx.doi.org/10.1017/S0008423916000573

McLuhan, M. (1978). Brain and the media: The western hemisphere. *Journal of Communication, 28*, 54-60. doi:10.1111/j.1460-2466.1978.tb01656.x

McLuhan, M., & Lapham, L. (1994). Understanding media: The extensions of man (MIT Press ed.). Cambridge, Mass.: MIT Press.

Merrigan, G., Johnston, R. T., & Huston, C. L. (2012). *Communication research methods* (Canadian ed.). Don Mills, ON: Oxford University Press.

Mohd Sani, M. A. (2014). The social media election in Malaysia: The 13th general election in 2013. *Kajian Malaysia: Journal of Malaysian Studies, 32*, 123-147.

Orkibi, E. (2015). New politics, new media new political language? A rhetorical perspective on candidates' self-presentation in electronic campaigns in the 2013 Israeli elections. *Israel Affairs, 21*(2), 277-292. doi:10.1080/13537121.2015.1008242

Parr, B. (2009, May 21). The evolution of the social media API. *Mashable*. Retrieved from http://mashable.com/2009/05/21/social-media-api/#4ue5nSOzTiqK

Procter, R., Vis, F., & Voss, A. (2013). Reading the riots on twitter: Methodological innovation for the analysis of big data. *International Journal of Social Research Methodology, 16*(3), 197-214. doi:10.1080/13645579.2013.774172

Schmidt, K. (2010). yyc twibates part I: Intro and mayoral. *Calgary politics*. Retrieved from https://web.archive.org/web/20130619190821/http://calgarypolitics.com/2010/10/17/yyc-twibates-part-i-intro-and-mayoral/

Segaard, S. B., & Nielsen, J. A. (2013). Local election blogs: Networking among the political elite. *Information Polity: The International Journal of Government & Democracy in the Information Age, 18*(4), 299-313. doi:10.3233/IP-130314

Seskus, T. (2010, June 27). Can mayoral hopefuls emulate Obamamania? *Calgary Herald.* p. A2.

Small, T. A. (2010). Canadian politics in 140 characters: Party politics in the twitterverse. *Canadian Parliamentary Review*, Fall (3), 39-45.

Small, T. A. (2011). WHAT THE HASHTAG? A content analysis of Canadian politics on twitter. *Information Communication & Society*, *14*(6), 872-895.

Small, T. A. (2012). Are we friends yet? Online relationship marketing by political parties. In J. Lees-Marshment, T. Giasson & A. J. Marland (Eds.), *Political marketing in Canada* (pp. 193-208). Vancouver: UBC Press.

Spierings, N., & Jacobs, K. (2014). Getting personal? The impact of social media on preferential voting. *Political Behavior, 36*(1), 215-234. doi:10.1007/s11109-013-9228-2

Spurlock, J. (2013). Loose lips: Broadcast and socially mediated political rhetoric and the sinking of the 2012 senatorial campaigns of Todd Akin and Richard Mourdock. *ETC: A Review of General Semantics, 70*(3), 273-281.

Štětka, V., & Mazák, J. (2014). Whither slacktivism? Political engagement and social media use in the 2013 Czech parliamentary elections. *Cyberpsychology, 8*(3), 85-105. doi:10.5817/CP2014-3-7

Tolley, E. (2015). Racial mediation in the coverage of candidates' political viability: A comparison of approaches. *Journal of Ethnic & Migration Studies, 41*(6), 963-984. doi:10.1080/1369183X.2014.1002201

Twitter. (n.d.). GET statuses/user_timeline. *Twitter developer documentation*. Retrieved from https://dev.twitter.com/rest/reference/get/statuses/user_timeline

Twitter. (n.d.). The Twitter glossary. *Twitter help center*. Retrieved from https://support.twitter.com/articles/166337#

Walchuk, B. (2012). A whole new ballgame: The rise of Canada's fifth party system. *American Review of Canadian Studies, 42*(3), 418-434. doi:10.1080/02722011.2012.705867

Weeks, B. E., Ksiazek, T. B., & Holbert, R. L. (2016). Partisan enclaves or shared media experiences? A network approach to understanding citizens' political news environments. *Journal of Broadcasting & Electronic Media, 60*(2), 248-268. doi:10.1080/08838151.2016.1164170

White, M. D., & Marsh, E. E. (2006). Content analysis: A flexible methodology. *Library Trends, 55*(1), 22-45.

Yıldırım, A., Üsküdarlı, S., & Özgür, A. (2016). Identifying topics in microblogs using Wikipedia. *PLoS ONE, 11*(3), 1-20. doi:10.1371/journal.pone.0151885

Zamaria, C. & Fletcher, F. J. (2008). *Canada online! : The internet, media and emerging technologies : Uses, attitudes, trends and international comparisons, year two highlights, 2007* (First ed.). Toronto, Ontario: Canadian Internet Project.

Zamora Medina, R., & Zurutuza Muñoz, C. (2014). Campaigning on twitter: Towards the "personal style" campaign to activate the political engagement during the 2011 Spanish general elections. *Comunicación Y Sociedad, 27*(1), 83-106.

# Appendices

## Appendix A: Glossary of Twitter and other Social Media Terms

*App* – A (usually) small application software program. Frequently apps are specialized for a specific purpose, for example a clock app is a small program that might only displays the date and time. A handheld app is one that is used on portable devices such as smart phones or tablets. The Twitter app allows users to access the Twitter website via their portable devices without opening a web browser and with a format specifically designed for the portable device for ease of readability and use.

*API* - Application Programming Interface – External programs that can access data from an app, "The API, or application programming interface, is a way for outside parties to build a product or app off of an existing service." (Parr, 2009).

*Blog/blogger/blogging* – Blog is a term that describes a web log, which is a user-generated diary or other content posted online. A blog may be on the users own website or may be hosted on a website that consists of a collection of blogs. A blogger is a person who regularly writes a blog, and blogging is the act of writing a blog.

*Direct Message* – A means to communicate directly and privately between Twitter accounts. ("The Twitter glossary", Twitter, n.d.).

*Emoji* – Also known as an emoticon or smiley, this is a way to use text characters to represent emotional expressions, for example using :-) to represent a smiling face or :-( to represent a frowning face.

*Follow* – "Subscribing to a Twitter account is called 'following.' To start following, click or tap the Follow icon next to the account name on their profile to see their tweets as soon as they post something new." ("The Twitter glossary", Twitter, n.d.).

*Followers* – The accounts that follow a user.

*Following* – The accounts a user follows.

*Hashtag* – A keyword in Twitter which is prefixed by the # symbol (i.e. #hashtag). This can allow people to search for topics more easily.

*Likes* – A means for a user to indicate appreciation of another's tweet. ("The Twitter glossary", Twitter, n.d.).

*Mention* – Referencing another user by including their @username in a tweet. Generally a mention is considered different than a reply only due to the placement of the @username. "Put literally *anything* ahead of the @ symbol on a tweet and it isn't a reply. This is why you see some users placing a full stop before the @username (i.e., .@username), often when they've been asked to respond to a given question multiple times by different people, as this allows them to mass-broadcast a "reply" to everybody while also (seemingly) responding directly to the last person who made the enquiry." (Bennett, 2013).

*Microblog* – A microblog is a blog where the amount of content is limited by the hosting blog website. Twitter is an example of a microblog as all posts are limited to 140 characters.

*Notifications* – "The Notifications timeline displays your interactions with other Twitter accounts, like mentions, likes, Retweets and who has recently followed you." ("The Twitter glossary", Twitter, n.d.).

*Reply* – This is a mention where the @username is at the beginning of the tweet. A reply goes only to the timeline of the person mentioned or anyone who follows both the sender and receiver. Replies, however, are not direct messages and can be searched and viewed by others.

*Retweet* – Forwarding a tweet posted by someone else so that it appears in the retweeter's and his or her followers' timelines.

*SMS (short message service)* – The service that allows text messages to be sent from one cell phone to another via the cellular networks. Tweets can be sent and received via SMS rather than the Twitter website or apps.

*Timeline* – The list of the tweets posted by the user and by those people the user follows.

*Trending* – Searches (either hashtags or usernames) that are the most popular worldwide are considered trending.

*Tweet* – A microblog post on Twitter, limited to a maximum of 140 characters.

*Twitter* – In the context of this research, Twitter is the website twitter.com (and portable app) that allows users who have signed up for an account to post their own microblog content, to read microblog postings of the users they follow, and to have private online communications with the users they follow via direct messages. Anyone (whether or not they have a Twitter account) is able to search for and read any tweets, but only those with a Twitter username can use direct messages.

*Username* – The screen name a Twitter user signs up with, it is prefixed by the @ symbol (i.e. @username).

*Web 2.0* – The internet technology that allows for easy user-generated content.

## Appendix B: Additional Tables and Charts

This appendix provides additional data, including the table of the total number of tweets per day of the campaign for each candidate as well as the charts illustrating this data. Note that the empty spaces in the table are for dates that are out of the campaign range of the particular candidate. For days during the campaign that the candidate did not tweet, a zero (0) is used. All of the charts use the same date range, but the scale of total number of tweets is different for each chart. As was indicated in the body of this paper, the grey lines indicate dates on which social media was mentioned in the Calgary Herald.

### Table 9: Content Analysis Data for All Candidates

| | Burrows | Connelly | Erskine | Fech | Higgins | Lord | McIver | Nenshi | Stewart |
|---|---|---|---|---|---|---|---|---|---|
| Activity | 166 (22%) | 289 (36%) | 8 (50%) | 1 (2%) | **64 (27%)** | 68 (11%) | **69 (37%)** | **185 (13%)** | 35 (16%) |
| Candidates | 30 (4%) | 15 (2%) | 0 (0%) | 7 (13%) | **3 (1%)** | 13 (2%) | **1 (1%)** | **28 (2%)** | 6 (3%) |
| Conversation | 312 (41%) | 113 (14%) | 0 (0%) | 15 (29%) | **20 (8%)** | 171 (28%) | **25 (14%)** | **831 (58%)** | 34 (15%) |
| Link Only | 51 (7%) | 176 (22%) | 2 (13%) | 1 (2%) | **121 (51%)** | 64 (10%) | **35 (19%)** | **72 (5%)** | 129 (58%) |
| Other | 73 (10%) | 144 (18%) | 5 (31%) | 18 (35%) | **16 (7%)** | 107 (17%) | **28 (15%)** | **144 (10%)** | 10 (4%) |
| Personal | 26 (3%) | 8 (1%) | 0 (0%) | 0 (0%) | **1 (0%)** | 25 (4%) | **16 (9%)** | **121 (8%)** | 0 (0%) |
| Policy | 30 (4%) | 39 (5%) | 1 (6%) | 1 (2%) | **5 (2%)** | 17 (3%) | **6 (3%)** | **6 (0%)** | 7 (3%) |
| Retweet | 10 (1%) | 16 (2%) | 0 (0%) | 9 (17%) | **5 (2%)** | 67 (11%) | **5 (3%)** | **9 (1%)** | 3 (1%) |
| Twibate | 68 (9%) | 0 (0%) | 0 (0%) | 0 (0%) | **1 (0%)** | 88 (14%) | **0 (0%)** | **44 (3%)** | 0 (0%) |

**Table 10: Daily Number of Tweets**

| Date | Daily number of Tweets for each candidate (adjusted for Twibate) | | | | | | | | | Total Tweets per day for all candidates combined |
|---|---|---|---|---|---|---|---|---|---|---|
| | Burrows | Connelly | Erskine | Fech | Higgins | Lord | McIver | Nenshi | Stewart | |
| Mar 29 | | | | | | 1 | | | | 1 |
| Mar 30 | | | | | | 2 | | | | 2 |
| Mar 31 | | | | | | 2 | | | | 2 |
| Apr 01 | | | | | | 0 | | | | 0 |
| Apr 02 | | | | | | 0 | | | | 0 |
| Apr 03 | | | | | | 0 | | | | 0 |
| Apr 04 | | | | | | 1 | | | | 1 |
| Apr 05 | | | | | | 0 | | | | 0 |
| Apr 06 | | | | | | 0 | | | | 0 |
| Apr 07 | | | | | | 0 | | | | 0 |
| Apr 08 | | | | | | 0 | | | | 0 |
| Apr 09 | | | | | | 0 | | | | 0 |
| Apr 10 | | | | | | 1 | | | | 1 |
| Apr 11 | | | | | | 0 | | | | 0 |
| Apr 12 | | | | | | 0 | | | | 0 |
| Apr 13 | | | | | | 0 | | | | 0 |
| Apr 14 | | 14 | | | | 0 | | | | 14 |
| Apr 15 | | 12 | | | | 0 | | | | 12 |
| Apr 16 | | 3 | | | | 0 | | | | 3 |
| Apr 17 | | 2 | | | | 0 | | | | 2 |
| Apr 18 | | 3 | | | | 0 | | | | 3 |
| Apr 19 | | 6 | | | | 0 | | | | 6 |
| Apr 20 | | 5 | | | | 1 | | | | 6 |
| Apr 21 | | 4 | | | | 0 | 0 | | | 4 |
| Apr 22 | | 3 | | | | 0 | 4 | | | 7 |
| Apr 23 | | 4 | | | | 0 | 3 | | | 7 |
| Apr 24 | | 5 | | | | 0 | 0 | | | 5 |
| Apr 25 | | 1 | | | | 0 | 3 | | | 4 |
| Apr 26 | | 6 | | | | 1 | 0 | | | 7 |
| Apr 27 | | 8 | | | | 0 | 1 | | | 9 |
| Apr 28 | | 4 | | | | 0 | 2 | | | 6 |
| Apr 29 | | 9 | | | | 0 | 0 | | | 9 |
| Apr 30 | | 14 | | | | 0 | 1 | | | 15 |
| May 01 | | 8 | | | | 1 | 2 | | | 11 |
| May 02 | | 4 | | | | 2 | 0 | | | 6 |
| May 03 | | 6 | | | | 0 | 5 | | | 11 |
| May 04 | | 6 | | | | 0 | 2 | | | 8 |
| May 05 | | 3 | | | | 0 | 1 | | | 4 |
| May 06 | | 6 | | | | 0 | 5 | | | 11 |
| May 07 | | 4 | | | | 0 | 4 | | | 8 |
| May 08 | | 8 | | | | 0 | 2 | | | 10 |
| May 09 | | 2 | | | | 0 | 3 | | | 5 |
| May 10 | | 3 | | | | 1 | 3 | | | 7 |
| May 11 | | 4 | | | | 2 | 2 | | | 8 |
| May 12 | | 5 | | | | 0 | 5 | | | 10 |
| May 13 | | 5 | | | | 2 | 0 | | | 7 |
| May 14 | | 9 | | | | 2 | 1 | | | 12 |
| May 15 | | 6 | | | | 4 | 5 | | | 15 |
| May 16 | 1 | 3 | | | | 1 | 2 | | | 7 |

**Table 10: Daily Number of Tweets (cont.)**

| Date | Daily number of Tweets for each candidate (adjusted for Twibate) | | | | | | | | | Total Tweets per day for all candidates combined |
|---|---|---|---|---|---|---|---|---|---|---|
| | Burrows | Connelly | Erskine | Fech | Higgins | Lord | McIver | Nenshi | Stewart | |
| May 17 | 2 | 5 | | | | 0 | 2 | | | 9 |
| May 18 | 4 | 10 | | | | 0 | 2 | | | 16 |
| May 19 | 5 | 10 | | | | 0 | 3 | | | 18 |
| May 20 | 0 | 5 | | | | 1 | 0 | | | 6 |
| May 21 | 0 | 1 | | | | 1 | 3 | | | 5 |
| May 22 | 2 | 0 | | | | 0 | 0 | | | 2 |
| May 23 | 0 | 1 | | | | 0 | 0 | | | 1 |
| May 24 | 0 | 2 | | | | 1 | 1 | | | 4 |
| May 25 | 3 | 7 | | | | 0 | 0 | | | 10 |
| May 26 | 1 | 8 | | | | 1 | 0 | | | 10 |
| May 27 | 5 | 6 | | | | 1 | 2 | 30 | | 44 |
| May 28 | 6 | 11 | | | | 5 | 1 | 15 | | 38 |
| May 29 | 2 | 3 | | | | 0 | 0 | 4 | | 9 |
| May 30 | 2 | 2 | | | | 0 | 0 | 10 | | 14 |
| May 31 | 3 | 2 | | | | 0 | 0 | 10 | | 15 |
| Jun 01 | 13 | 0 | | | | 1 | 0 | 21 | | 35 |
| Jun 02 | 9 | 4 | | | | 1 | 0 | 24 | | 38 |
| Jun 03 | 9 | 3 | | | | 2 | 3 | 6 | | 23 |
| Jun 04 | 1 | 2 | | | | 2 | 0 | 4 | | 9 |
| Jun 05 | 0 | 2 | | | | 0 | 0 | 13 | | 15 |
| Jun 06 | 5 | 0 | | | | 1 | 1 | 2 | | 9 |
| Jun 07 | 1 | 1 | | | | 0 | 9 | 17 | | 28 |
| Jun 08 | 7 | 4 | | | | 0 | 2 | 14 | 11 | 38 |
| Jun 09 | 2 | 1 | | | | 0 | 8 | 0 | 7 | 18 |
| Jun 10 | 0 | 11 | | | | 0 | 0 | 8 | 8 | 27 |
| Jun 11 | 0 | 4 | | | | 0 | 0 | 7 | 1 | 12 |
| Jun 12 | 0 | 4 | | | | 0 | 0 | 13 | 0 | 17 |
| Jun 13 | 0 | 3 | | | | 1 | 0 | 7 | 0 | 11 |
| Jun 14 | 4 | 2 | | | | 0 | 0 | 6 | 2 | 14 |
| Jun 15 | 2 | 1 | | | | 0 | 0 | 4 | 2 | 9 |
| Jun 16 | 0 | 4 | | | | 0 | 0 | 1 | 3 | 8 |
| Jun 17 | 1 | 3 | | | | 6 | 1 | 13 | 1 | 25 |
| Jun 18 | 0 | 5 | | | | 0 | 0 | 4 | 4 | 13 |
| Jun 19 | 3 | 2 | | | | 0 | 0 | 1 | 0 | 6 |
| Jun 20 | 4 | 4 | | | | 5 | 2 | 3 | 0 | 18 |
| Jun 21 | 1 | 2 | | | | 6 | 0 | 7 | 2 | 18 |
| Jun 22 | 9 | 6 | | | | 2 | 4 | 9 | 0 | 30 |
| Jun 23 | 1 | 4 | | | | 0 | 1 | 7 | 2 | 15 |
| Jun 24 | 1 | 1 | | | | 0 | 0 | 2 | 1 | 5 |
| Jun 25 | 0 | 0 | | | | 2 | 1 | 3 | 1 | 7 |
| Jun 26 | 0 | 5 | | | | 6 | 0 | 5 | 1 | 17 |
| Jun 27 | 2 | 8 | | | | 0 | 0 | 1 | 1 | 12 |
| Jun 28 | 0 | 6 | | | | 3 | 0 | 13 | 1 | 23 |
| Jun 29 | 2 | 5 | | | | 1 | 0 | 9 | 3 | 20 |
| Jun 30 | 3 | 16 | | | | 0 | 1 | 7 | 2 | 29 |
| Jul 01 | 15 | 3 | | | | 5 | 1 | 3 | 6 | 33 |
| Jul 02 | 1 | 1 | | | | 0 | 0 | 3 | 1 | 6 |
| Jul 03 | 4 | 1 | | | | 0 | 1 | 0 | 1 | 7 |
| Jul 04 | 1 | 3 | | | | 0 | 1 | 5 | 0 | 10 |

**Table 10: Daily Number of Tweets (cont.)**

| Date | Daily number of Tweets for each candidate (adjusted for Twibate) | | | | | | | | | Total Tweets per day for all candidates combined |
|---|---|---|---|---|---|---|---|---|---|---|
| | Burrows | Connelly | Erskine | Fech | Higgins | Lord | McIver | Nenshi | Stewart | |
| Jul 05 | 2 | 6 | | | | 5 | 3 | 20 | 2 | 38 |
| Jul 06 | 1 | 6 | | | | 0 | 4 | 7 | 3 | 21 |
| Jul 07 | 2 | 1 | | | | 9 | 1 | 14 | 4 | 31 |
| Jul 08 | 0 | 1 | | | | 2 | 1 | 6 | 5 | 15 |
| Jul 09 | 9 | 1 | | | | 1 | 0 | 5 | 5 | 21 |
| Jul 10 | 9 | 0 | | | | 0 | 0 | 2 | 1 | 12 |
| Jul 11 | 6 | 5 | | | | 6 | 0 | 13 | 0 | 30 |
| Jul 12 | 11 | 0 | | | | 0 | 0 | 9 | 2 | 22 |
| Jul 13 | 3 | 0 | | | | 0 | 0 | 7 | 1 | 11 |
| Jul 14 | 6 | 1 | | | | 7 | 0 | 20 | 1 | 35 |
| Jul 15 | 9 | 4 | | | | 9 | 0 | 16 | 3 | 41 |
| Jul 16 | 13 | 6 | | | | 14 | 0 | 18 | 3 | 54 |
| Jul 17 | 5 | 0 | | | | 0 | 0 | 7 | 3 | 15 |
| Jul 18 | 6 | 2 | | | | 0 | 0 | 5 | 3 | 16 |
| Jul 19 | 4 | 3 | | | | 0 | 0 | 91 | 0 | 98 |
| Jul 20 | 9 | 0 | | | | 0 | 1 | 9 | 4 | 23 |
| Jul 21 | 2 | 1 | | | | 2 | 0 | 8 | 0 | 13 |
| Jul 22 | 7 | 0 | | | | 0 | 0 | 22 | 2 | 31 |
| Jul 23 | 7 | 2 | | | | 0 | 0 | 18 | 1 | 28 |
| Jul 24 | 4 | 0 | | | | 0 | 1 | 8 | 4 | 17 |
| Jul 25 | 5 | 2 | | | | 0 | 0 | 20 | 2 | 29 |
| Jul 26 | 0 | 3 | | | | 0 | 1 | 36 | 0 | 40 |
| Jul 27 | 0 | 0 | | | | 0 | 0 | 21 | 1 | 22 |
| Jul 28 | 1 | 3 | | | 2 | 13 | 1 | 6 | 1 | 27 |
| Jul 29 | 6 | 2 | | | 3 | 0 | 0 | 8 | 1 | 20 |
| Jul 30 | 1 | 1 | | | 0 | 7 | 0 | 12 | 0 | 21 |
| Jul 31 | 1 | 3 | | | 0 | 7 | 0 | 5 | 1 | 17 |
| Aug 01 | 0 | 0 | | | 0 | 1 | 0 | 0 | 0 | 1 |
| Aug 02 | 3 | 2 | | | 0 | 0 | 0 | 2 | 0 | 7 |
| Aug 03 | 0 | 4 | | | 1 | 7 | 0 | 8 | 1 | 21 |
| Aug 04 | 0 | 1 | | | 0 | 2 | 0 | 7 | 1 | 11 |
| Aug 05 | 0 | 2 | | | 1 | 5 | 0 | 5 | 1 | 14 |
| Aug 06 | 3 | 0 | | | 0 | 3 | 1 | 5 | 1 | 13 |
| Aug 07 | 2 | 5 | | | 0 | 7 | 0 | 6 | 1 | 21 |
| Aug 08 | 6 | 3 | | | 1 | 1 | 0 | 5 | 1 | 17 |
| Aug 09 | 6 | 0 | | | 0 | 0 | 0 | 12 | 0 | 18 |
| Aug 10 | 3 | 0 | | | 0 | 7 | 1 | 8 | 2 | 21 |
| Aug 11 | 4 | 1 | | | 0 | 3 | 3 | 12 | 0 | 23 |
| Aug 12 | 6 | 7 | | | 2 | 5 | 0 | 23 | 2 | 45 |
| Aug 13 | 3 | 3 | | | 1 | 0 | 0 | 28 | 2 | 37 |
| Aug 14 | 6 | 0 | | | 1 | 1 | 1 | 12 | 1 | 22 |
| Aug 15 | 9 | 0 | | | 1 | 3 | 0 | 19 | 0 | 32 |
| Aug 16 | 4 | 2 | | | 0 | 19 | 0 | 6 | 1 | 32 |
| Aug 17 | 10 | 2 | | | 0 | 0 | 0 | 6 | 1 | 19 |
| Aug 18 | 2 | 1 | | | 1 | 5 | 0 | 6 | 0 | 15 |
| Aug 19 | 21 | 2 | | | 0 | 4 | 0 | 3 | 1 | 31 |
| Aug 20 | 35 | 10 | | | 1 | 5 | 2 | 11 | 1 | 65 |
| Aug 21 | 7 | 1 | | | 2 | 5 | 0 | 7 | 1 | 23 |
| Aug 22 | 11 | 2 | | | 2 | 36 | 1 | 14 | 1 | 67 |

**Table 10: Daily Number of Tweets (cont.)**

| Date | Daily number of Tweets for each candidate (adjusted for Twibate) | | | | | | | | | Total Tweets per day for all candidates combined |
|---|---|---|---|---|---|---|---|---|---|---|
| | Burrows | Connelly | Erskine | Fech | Higgins | Lord | McIver | Nenshi | Stewart | |
| Aug 23 | 5 | 2 | | | 0 | 2 | 1 | 15 | 2 | 27 |
| Aug 24 | 3 | 0 | | | 0 | 6 | 0 | 5 | 3 | 17 |
| Aug 25 | 2 | 8 | | | 0 | 0 | 0 | 4 | 2 | 16 |
| Aug 26 | 4 | 1 | | | 0 | 1 | 3 | 18 | 3 | 30 |
| Aug 27 | 2 | 2 | | | 1 | 0 | 0 | 5 | 2 | 12 |
| Aug 28 | 13 | 0 | | | 4 | 0 | 0 | 9 | 1 | 27 |
| Aug 29 | 6 | 1 | | | 3 | 0 | 4 | 6 | 0 | 20 |
| Aug 30 | 3 | 0 | | | 0 | 2 | 0 | 3 | 6 | 14 |
| Aug 31 | 1 | 0 | | | 1 | 0 | 1 | 7 | 0 | 10 |
| Sep 01 | 8 | 2 | | | 1 | 4 | 0 | 4 | 3 | 22 |
| Sep 02 | 0 | 4 | | | 1 | 4 | 1 | 6 | 5 | 21 |
| Sep 03 | 5 | 4 | | | 2 | 0 | 0 | 29 | 0 | 40 |
| Sep 04 | 2 | 1 | | | 4 | 9 | 1 | 3 | 0 | 20 |
| Sep 05 | 0 | 3 | | | 3 | 2 | 0 | 8 | 1 | 17 |
| Sep 06 | 7 | 0 | | | 0 | 6 | 3 | 7 | 2 | 25 |
| Sep 07 | 20 | 0 | | | 5 | 0 | 2 | 14 | 5 | 46 |
| Sep 08 | 19 | 3 | | | 2 | 0 | 1 | 11 | 2 | 38 |
| Sep 09 | 1 | 2 | | | 2 | 8 | 1 | 10 | 1 | 25 |
| Sep 10 | 3 | 1 | | | 2 | 11 | 0 | 2 | 2 | 21 |
| Sep 11 | 15 | 4 | | | 4 | 17 | 0 | 13 | 1 | 54 |
| Sep 12 | 0 | 2 | | | 3 | 0 | 0 | 11 | 3 | 19 |
| Sep 13 | 14 | 3 | | | 2 | 0 | 0 | 6 | 1 | 26 |
| Sep 14 | 19 | 4 | | | 0 | 3 | 0 | 20 | 6 | 52 |
| Sep 15 | 8 | 3 | | | 0 | 26 | 0 | 6 | 6 | 49 |
| Sep 16 | 3 | 0 | | | 0 | 4 | 0 | 11 | 4 | 22 |
| Sep 17 | 1 | 6 | | | 1 | 0 | 0 | 37 | 2 | 47 |
| Sep 18 | 0 | 8 | | | 0 | 3 | 0 | 3 | 1 | 15 |
| Sep 19 | 0 | 0 | | 0 | 0 | 0 | 1 | 18 | 0 | 19 |
| Sep 20 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 22 | 1 | 27 |
| Sep 21 | 6 | 20 | 0 | 0 | 3 | 4 | 0 | 5 | 2 | 40 |
| Sep 22 | 2 | 6 | 0 | 0 | 8 | 0 | 0 | 8 | 2 | 26 |
| Sep 23 | 4 | 9 | 0 | 0 | 5 | 7 | 0 | 7 | 2 | 34 |
| Sep 24 | 1 | 4 | 0 | 0 | 13 | 2 | 0 | 2 | 0 | 22 |
| Sep 25 | 15 | 7 | 0 | 0 | 5 | 13 | 3 | 10 | 0 | 53 |
| Sep 26 | 2 | 2 | 0 | 0 | 11 | 0 | 0 | 1 | 4 | 20 |
| Sep 27 | 6 | 8 | 0 | 0 | 6 | 0 | 1 | 3 | 1 | 25 |
| Sep 28 | 13 | 3 | 0 | 0 | 6 | 5 | 0 | 6 | 3 | 36 |
| Sep 29 | 7 | 8 | 0 | 0 | 6 | 5 | 0 | 10 | 0 | 36 |
| Sep 30 | 7 | 22 | 0 | 11 | 7 | 9 | 1 | 2 | 1 | 60 |
| Oct 01 | 5 | 6 | 0 | 20 | 6 | 7 | 3 | 5 | 0 | 52 |
| Oct 02 | 1 | 14 | 0 | 6 | 4 | 0 | 0 | 2 | 1 | 28 |
| Oct 03 | 4 | 6 | 0 | 0 | 4 | 1 | 1 | 3 | 0 | 19 |
| Oct 04 | 6 | 20 | 0 | 0 | 3 | 1 | 0 | 11 | 0 | 41 |
| Oct 05 | 2 | 10 | 0 | 6 | 4 | 1 | 1 | 4 | 2 | 30 |
| Oct 06 | 3 | 6 | 0 | 1 | 6 | 2 | 0 | 11 | 2 | 31 |
| Oct 07 | 0 | 10 | 2 | 0 | 4 | 3 | 1 | 2 | 1 | 23 |
| Oct 08 | 4 | 21 | 2 | 0 | 3 | 14 | 0 | 8 | 0 | 52 |
| Oct 09 | 4 | 3 | 2 | 1 | 4 | 3 | 0 | 13 | 1 | 31 |
| Oct 10 | 2 | 9 | 0 | 0 | 4 | 2 | 0 | 4 | 0 | 21 |

**Table 10: Daily Number of Tweets (cont.)**

| Date | Daily number of Tweets for each candidate (adjusted for Twibate) | | | | | | | | | Total Tweets per day for all candidates combined |
|---|---|---|---|---|---|---|---|---|---|---|
| | Burrows | Connelly | Erskine | Fech | Higgins | Lord | McIver | Nenshi | Stewart | |
| Oct 11 | 3 | 3 | 1 | 0 | 3 | 11 | 1 | 0 | 2 | 24 |
| Oct 12 | 10 | 12 | 0 | 0 | 4 | 0 | 2 | 7 | 0 | 35 |
| Oct 13 | 9 | 16 | 1 | 0 | 4 | 2 | 2 | 1 | 1 | 36 |
| Oct 14 | 3 | 8 | 0 | 0 | 3 | 14 | 4 | 1 | 1 | 34 |
| Oct 15 | 3 | 6 | 2 | 0 | 2 | 4 | 3 | 4 | 0 | 24 |
| Oct 16 | 0 | 0 | 0 | 1 | 12 | 9 | 4 | 4 | 0 | 30 |
| Oct 17 | 0 | 5 | 6 | 1 | 4 | 0 | 1 | 3 | 0 | 20 |
| Oct 18 | 4 | 11 | 0 | 5 | 32 | 24 | 10 | 17 | 0 | 103 |

**Chart 6: Daily Number of Tweets for Each Candidate**

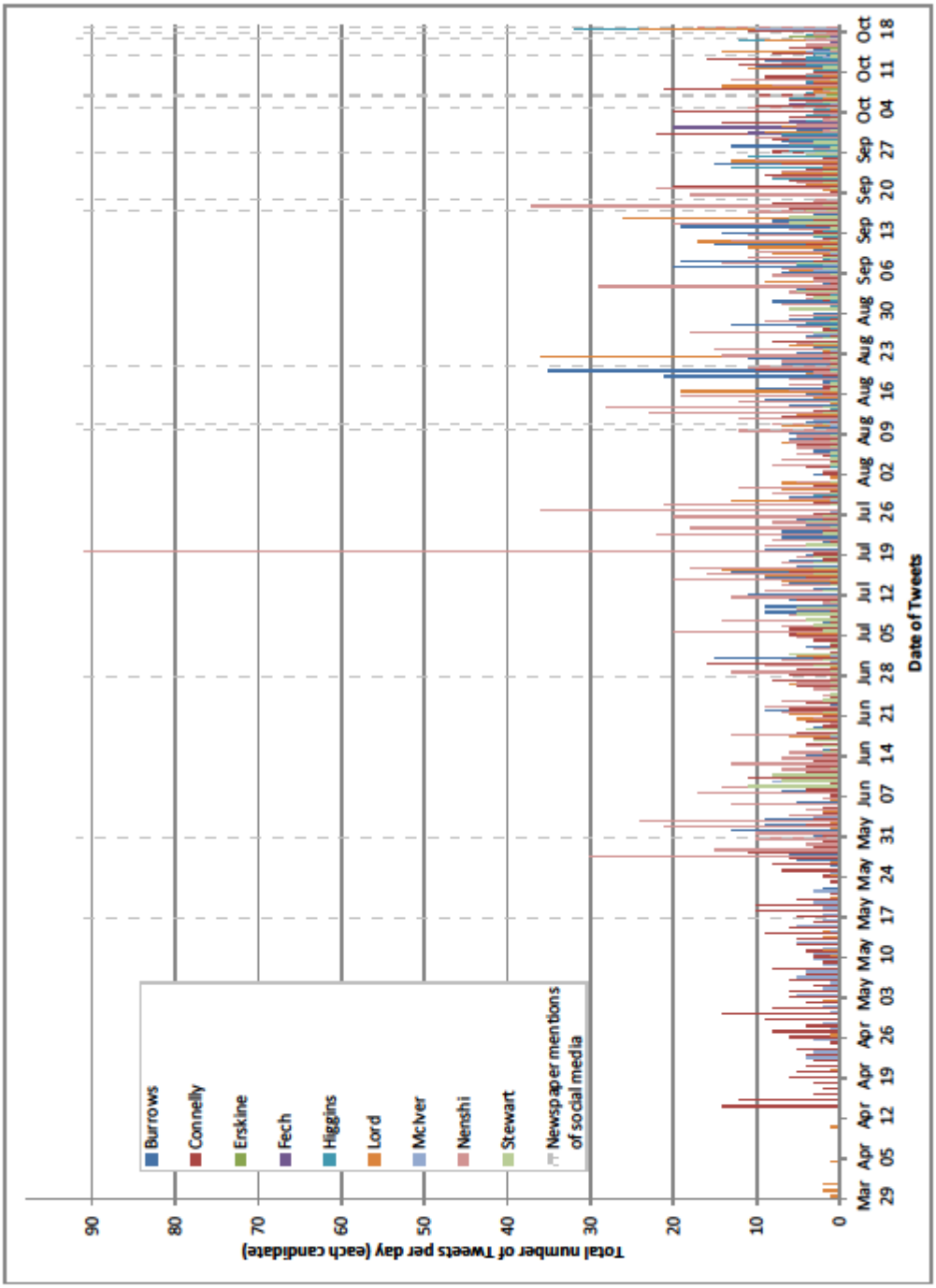


**Chart 7: Daily Number of Tweets for All Candidates Combined**

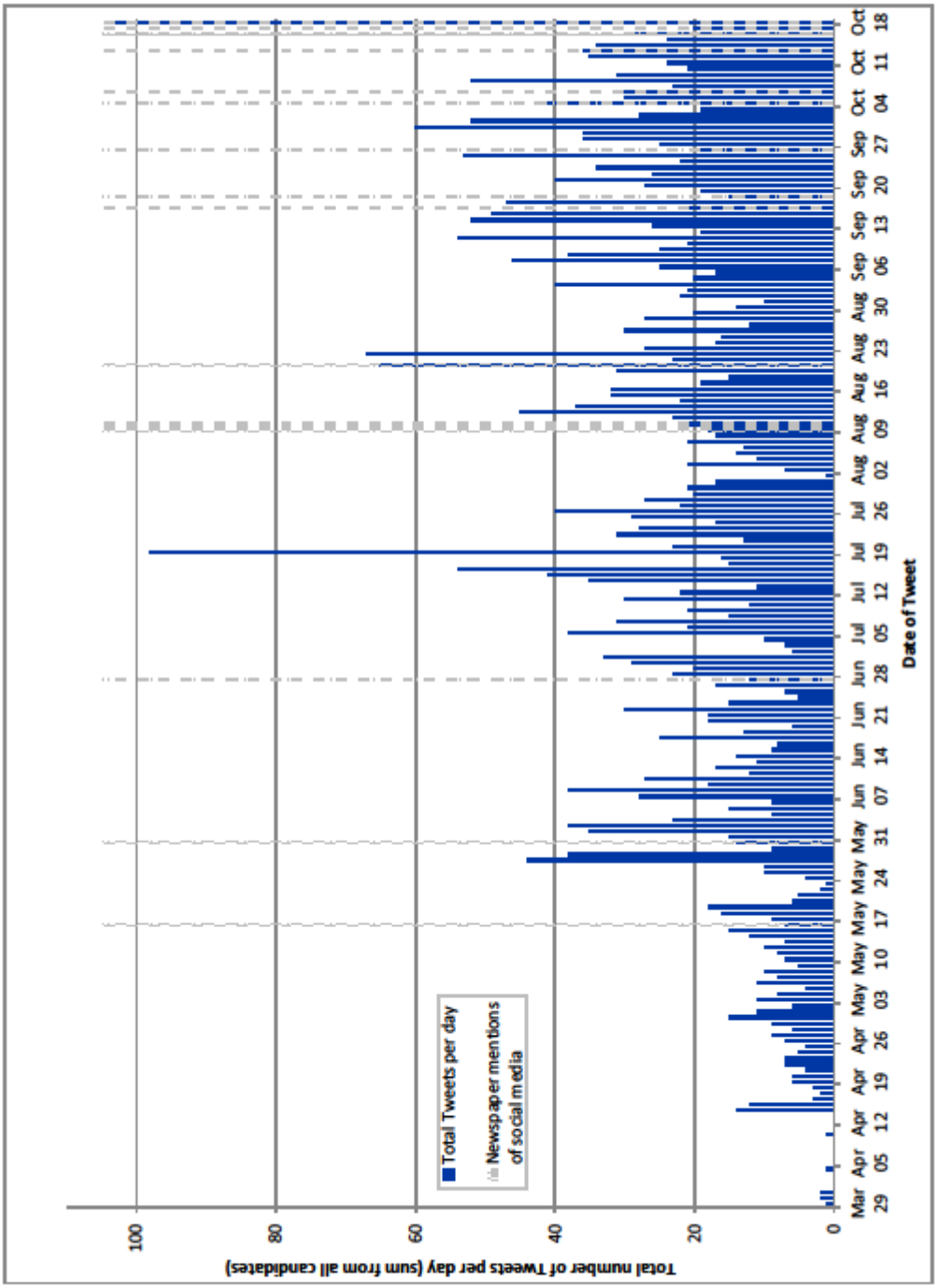


**Chart 8: Daily Number of Tweets for Burrows**

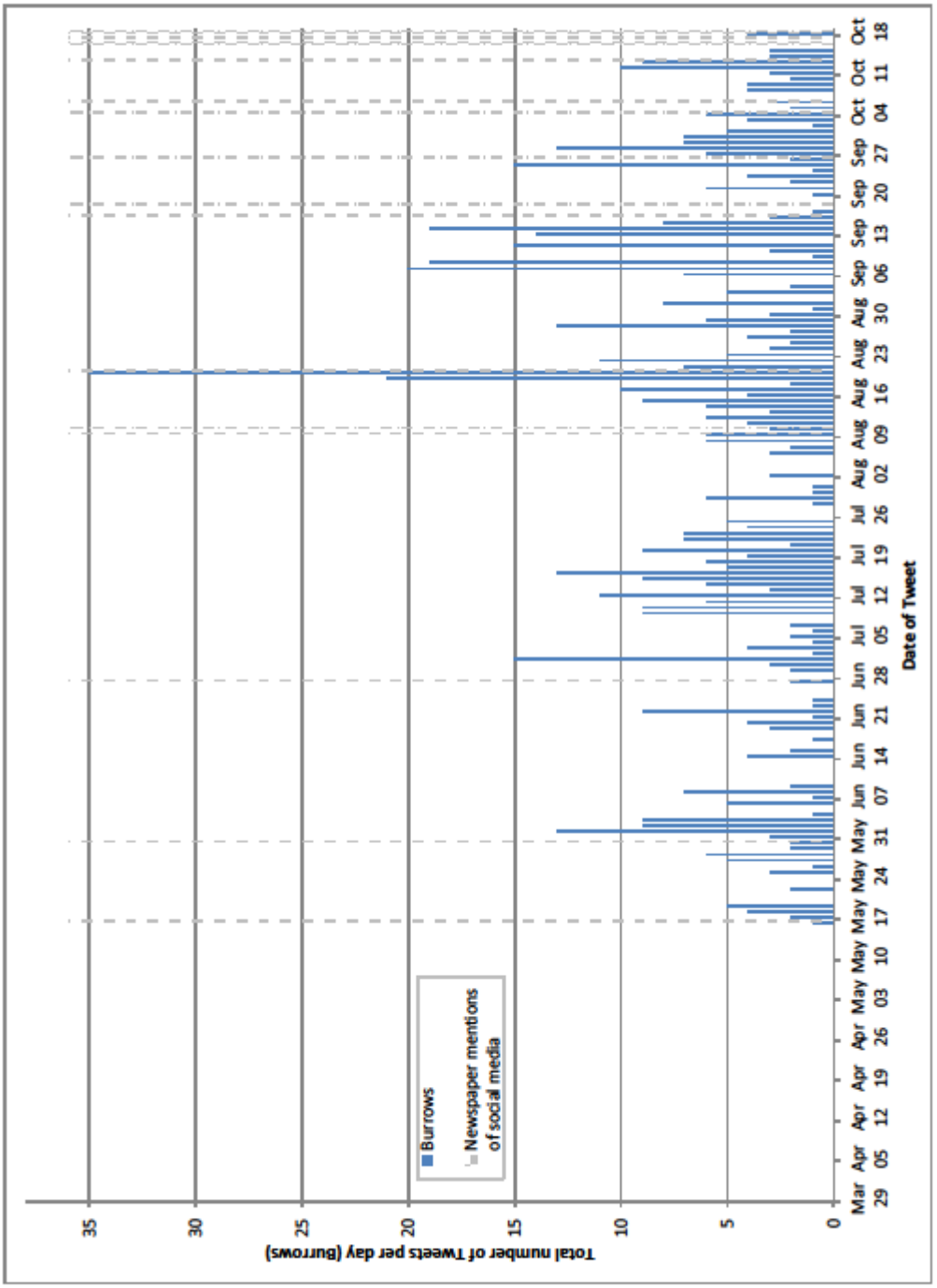


**Chart 9: Daily Number of Tweets for Connelly**

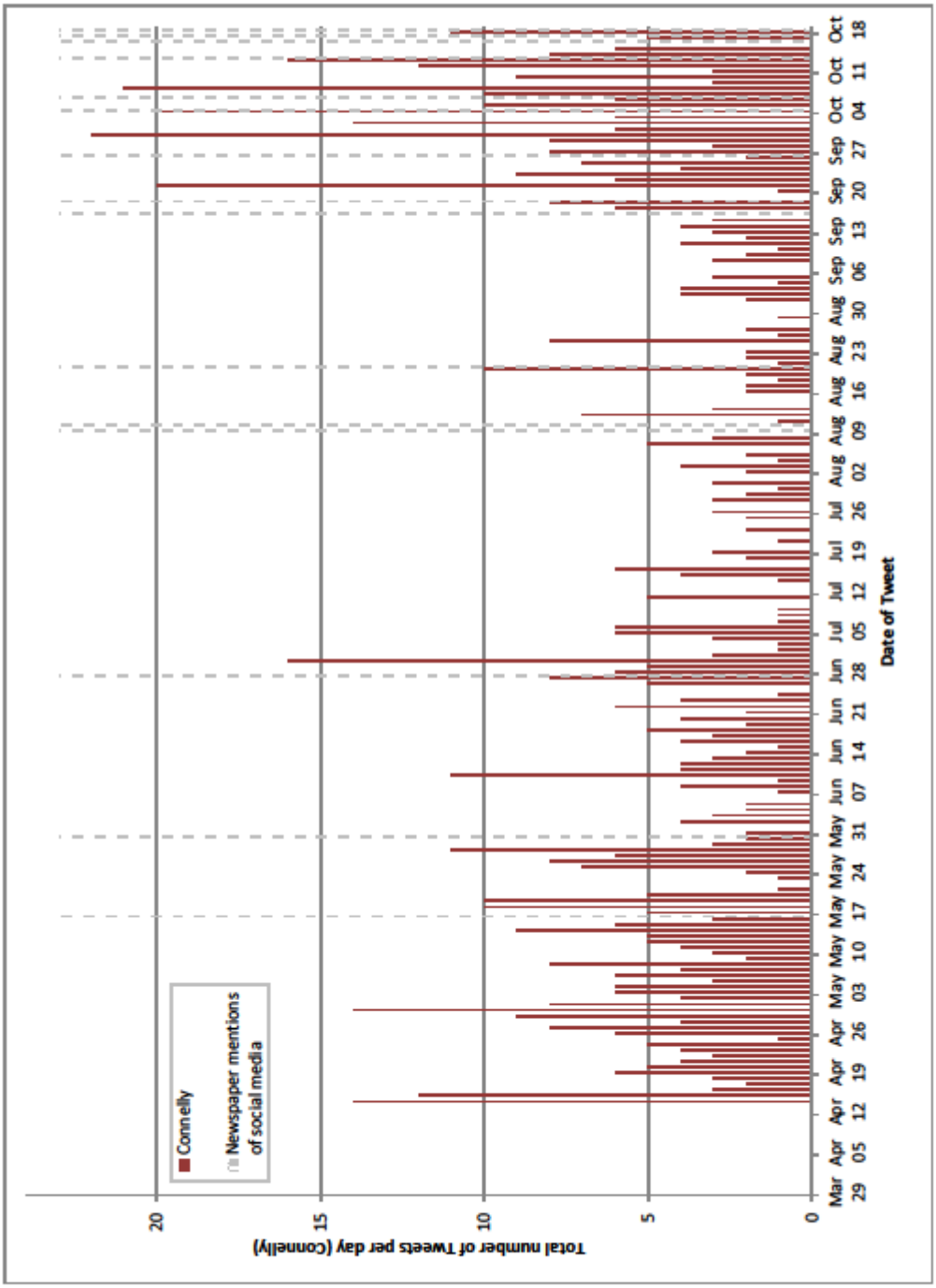


**Chart 10: Daily Number of Tweets for Erskine**

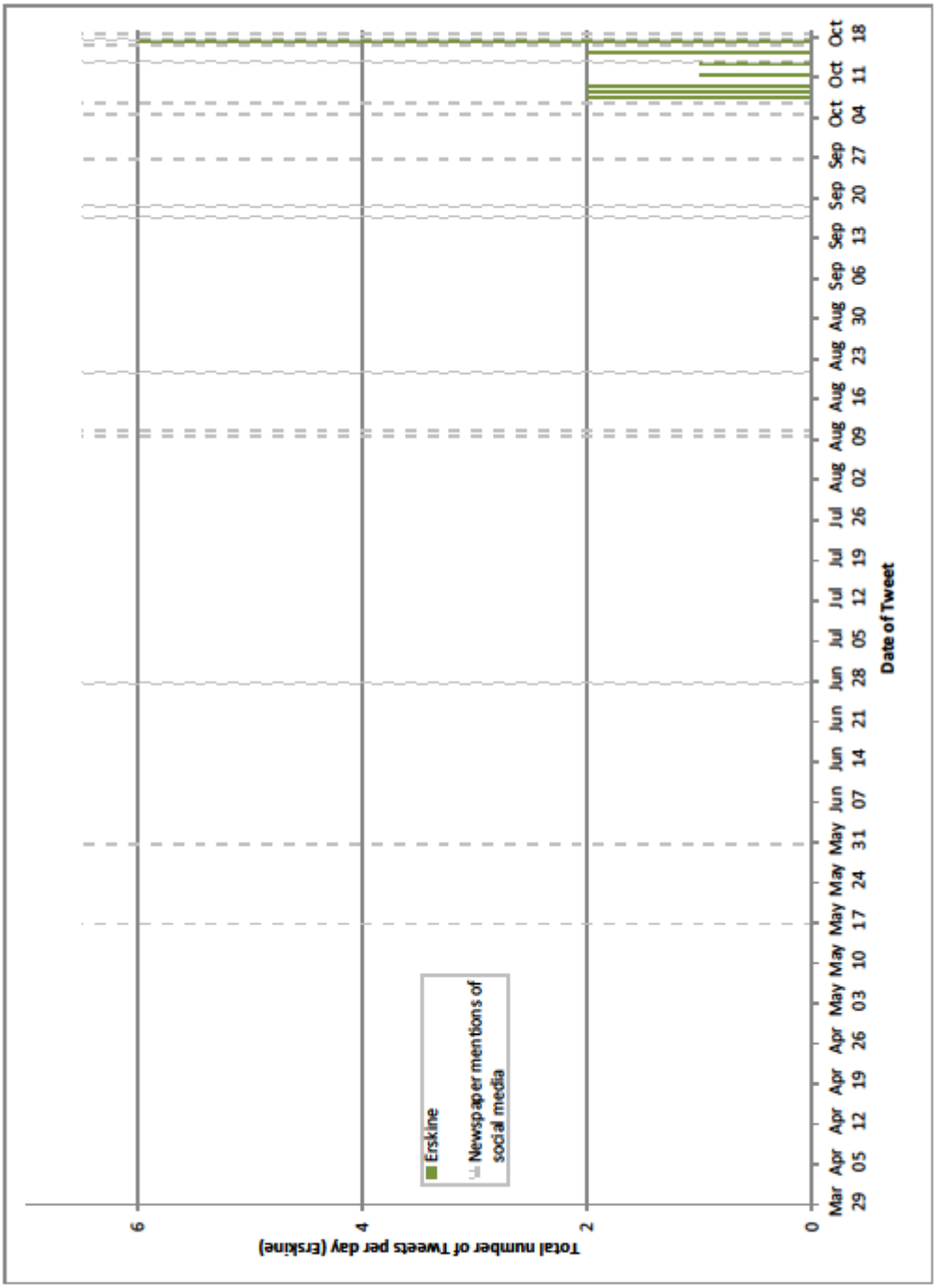


**Chart 11: Daily Number of Tweets for Fech**

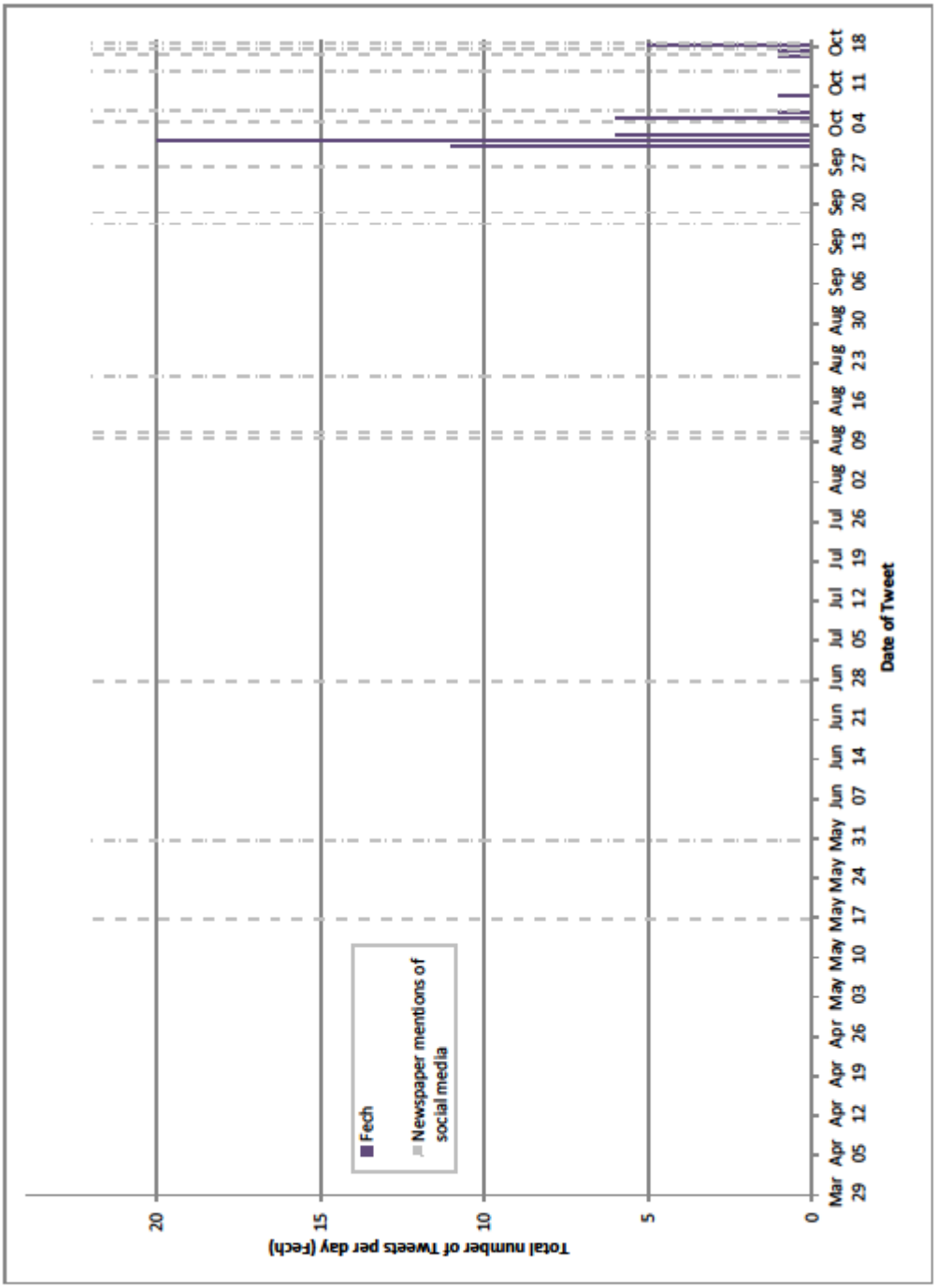


**Chart 12: Daily Number of Tweets for Higgins**

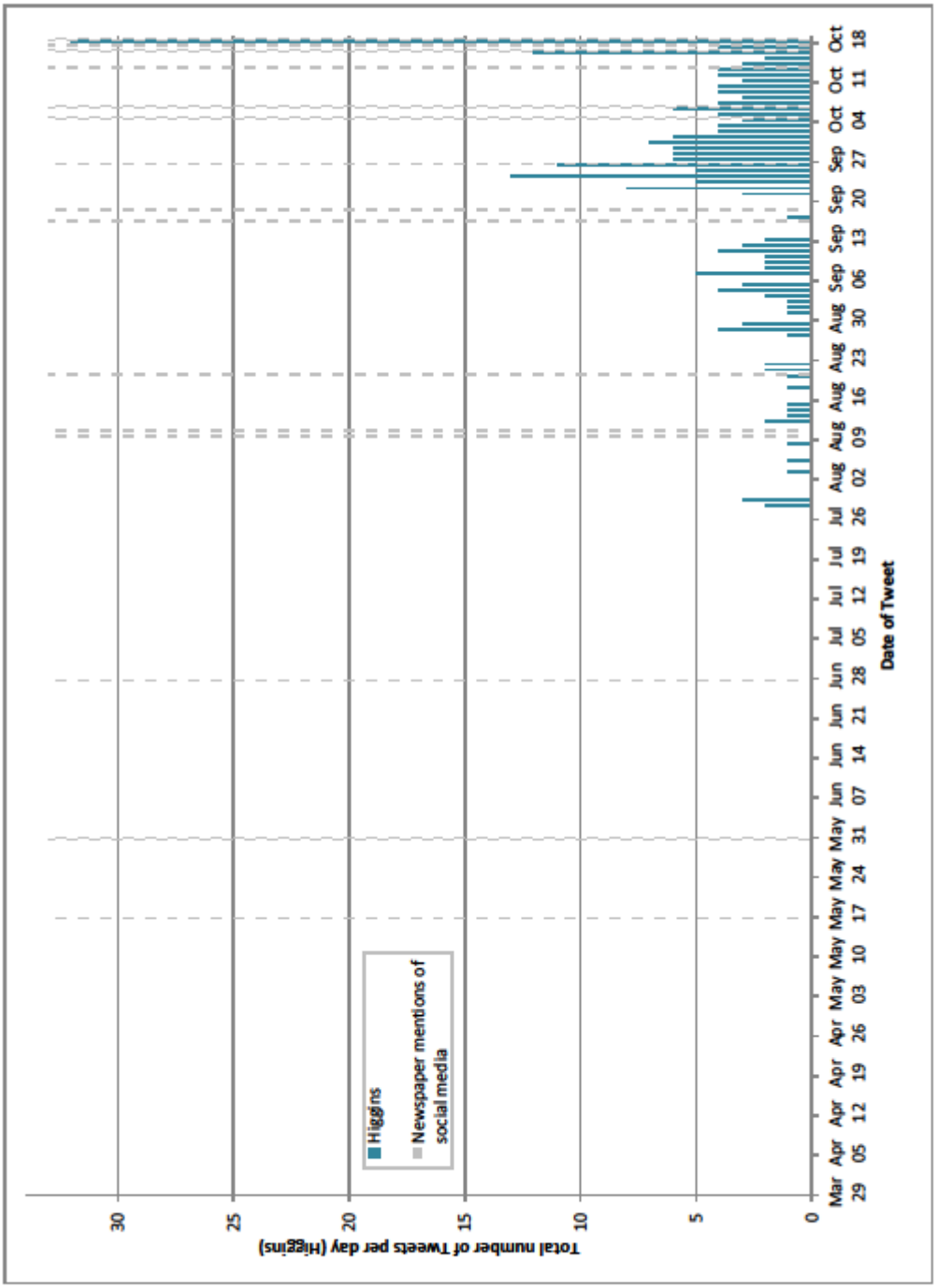


**Chart 13: Daily Number of Tweets for Lord**

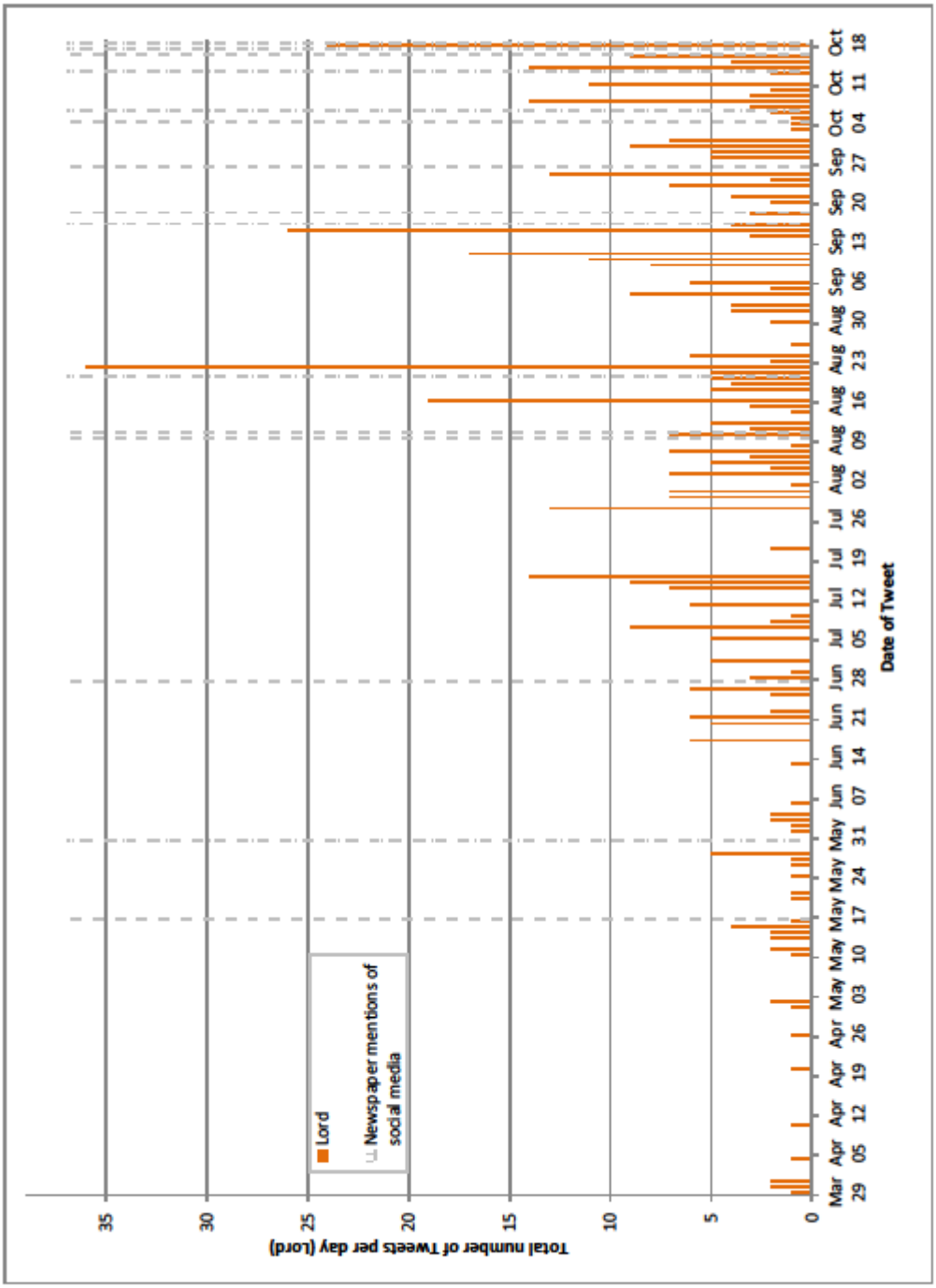


**Chart 14: Daily Number of Tweets for McIver**

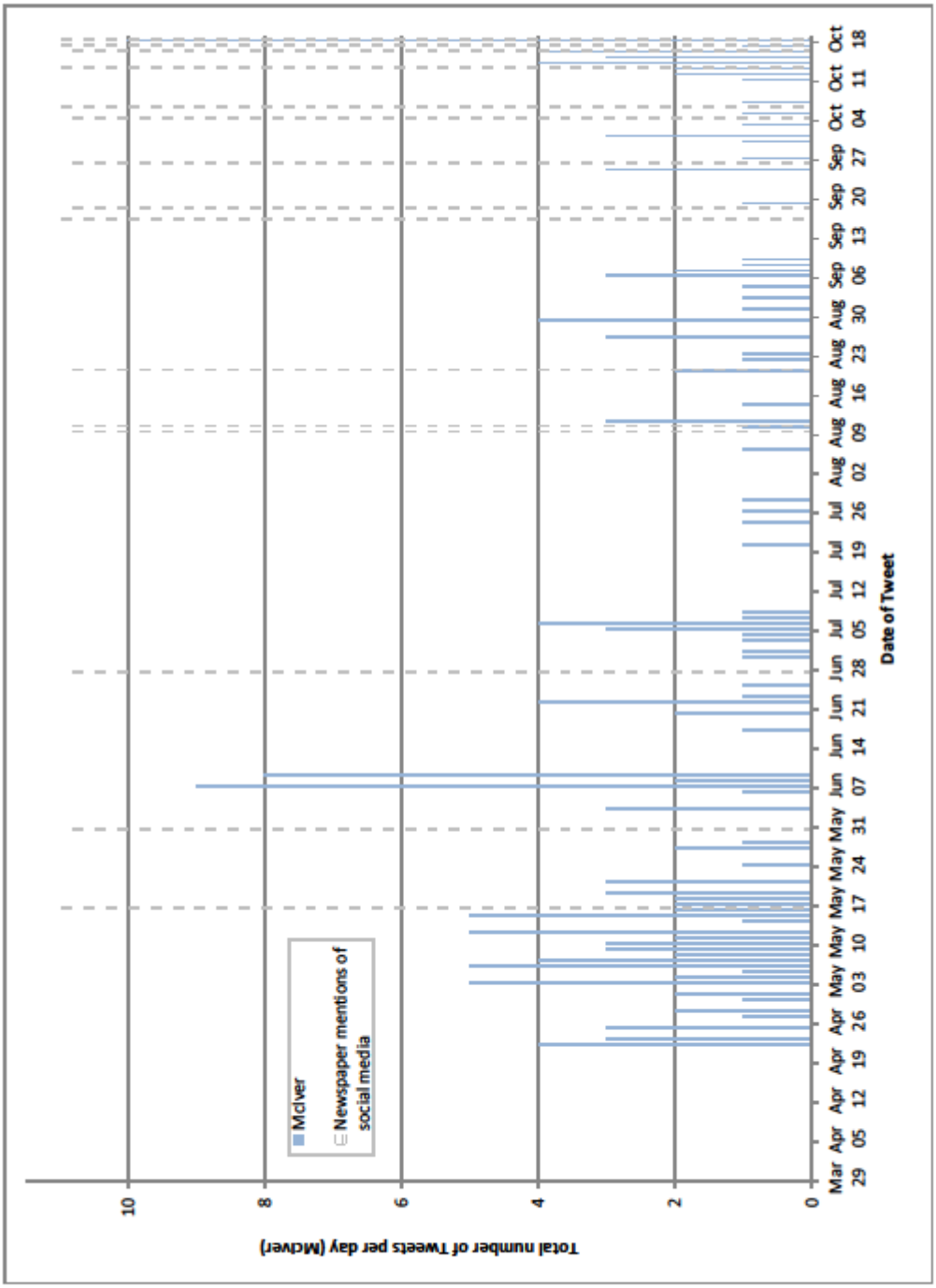


**Chart 15: Daily Number of Tweets for Nenshi**

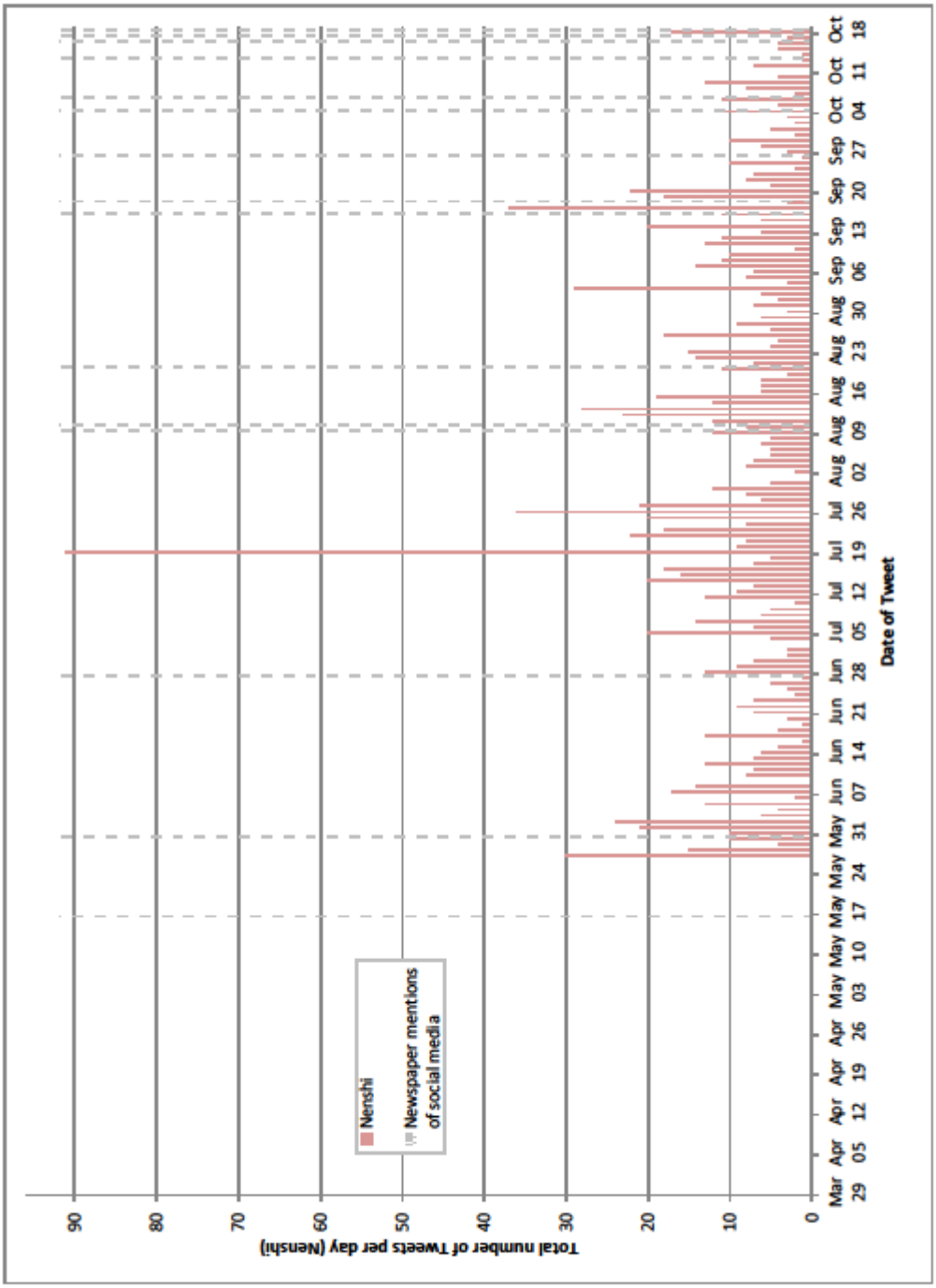


**Chart 16: Daily Number of Tweets for Stewart**