

## The Medium may be the Same but the Message is Different: Comparing the Tweets of U.S. Presidents Obama and Trump

Cynthia Whissell

Psychology Department, Laurentian University

### ABSTRACT

Monthly averages for Tweets posted by Obama in 2015-16 and Trump in 2017 were compared in terms of their frequency of occurrence, their tendency to be replies or retweets, the emotionality of their language, and their vocabulary. There were extreme differences in frequency of tweeting ( $r^2=.88$ ,  $p<.001$ ), with Trump tweeting more frequently. There were also considerable differences in Pleasantness of Tweet language, with Obama employing more Pleasant words ( $r^2=.31$ ,  $p<.001$ ). Trump retweeted proportionally more often while Obama replied proportionally more often ( $r^2=.28$ ,  $.20$ ,  $p<.05$ ). Additionally, each president employed a distinct vocabulary. Obama employed first person plural pronouns (“we”, “us”) more often ( $r^2=.43$ ,  $p<.001$ ). It was possible to predict president of origin with extremely high success (97% or better) whether frequency of tweeting was included in the predictive scheme or not. While the medium the two presidents were employing was the same, their resulting messages were very different.

US presidents have always been sensitive to different media through which their communications are distributed. Differences in inaugural addresses along a continuum ranging from Washington to Clinton (1789 to 2001) can be predicted on the basis of differences in the media through which the addresses were disseminated (Whissell & Sigelman, 2001). Addresses from the early years relied on print media and did not reach the majority of the population, while later addresses years (beginning in 1960, at Kennedy’s inauguration) were televised and reached almost everybody. The language of presidential inaugural addresses grew simpler and more emotional across time – easier to understand and more attractive to a mass audience. Political communications have relied on newspapers, radio, television, computers, and, most recently social media. Different presidents have been “masters” of different media. Franklin Delano Roosevelt was notably adept at using the medium of radio to communicate as he saw his country through some very difficult years (Ryfe, 1999). In the second half of the 20<sup>th</sup> century it was assumed that the “television presence” of presidential candidates (e.g., in Kennedy and Nixon in their candidate’s debates) played an important role in outcome of the presidential race. Computers became more widely available after 2000 and they have influenced literacy and communication at the global level (Warschauer, 2001). In the 20-teens, social media added a new dimension to presidential communication.

Schudson (1982) was focusing on the media transition from newspaper to television when he noted that it is not a medium in itself but rather the way in which it is employed that leads to changes in the political arena. This insight will be applied to the way in which the 44<sup>th</sup> and 45<sup>th</sup> presidents of the US employed Twitter. Barack Obama seemed quite delighted at the idea of having a personal Twitter account. His first Tweet (May 18, 2015) reads “Hello, Twitter! It’s Barack. Really! Six years in, they’re finally giving me my own account.” A year and a half later (December 30, 2017), Donald Trump purposefully employed Twitter to score a political point: “I use Social Media not because I like to, but because it is the only way to fight a VERY dishonest and unfair “press” now often referred to as Fake News Media. Phony and non-

existent “sources” are being used more often than ever. Many stories & reports a pure fiction!” The difference between “Hello world!” and “There are no honest media left out there, so read my Tweets!” is enormous. The two presidents were employing Twitter in very different ways to very different ends. This paper examines how Obama and Trump tweeted. It studies the language, contents, and characteristics of presidential Tweets for 17 months of the Obama presidency (2015-16) and the immediately following 12 months of the Trump presidency (2017). The overarching question of the research is “How did the two presidents differ in the way they employed Twitter?” The answer to this question goes beyond the obvious (differences in tweeting rate, which are quite extreme) and examines both president’s Tweets in depth.

### METHOD

Obama’s Tweets ( $N=321$ , May 2015 – November 2016) were obtained from a site he had set up at the White House while president.<sup>1</sup> Trump’s Tweets ( $N=2602$ , January 2017 – December 2017) were obtained from GitHub.<sup>2</sup> Although Trump was not sworn in until the latter part of January, 2017, he was already tweeting at a high rate early in that month, so all his January Tweets were included in the data. The data for analyses of Tweet characteristics (Table 1) were monthly averages for number of messages, and for Tweet length (number of words), Tweet Pleasantness, Tweet Activation, Tweet Concreteness, proportion of replies, proportion of retweets, mentions of “I” and “me”, and mentions of “we” and “us”. Monthly Pleasantness, Activation, and Concreteness were measured by matching Tweet vocabulary to the Dictionary of Affect in Language (Whissell, 2009) which contains values along these three dimensions for thousands of words. The Dictionary had a 78% word matching rate for words from Obama’s Tweets and a 77% rate for words from Trump’s. Two analyses used the Tweet language corpus rather than monthly data: repetitive language analysis compared the extent to which the two Tweeters repeated their words in two samples of equal size (close to 7,000 words) and vocabulary analysis looked at all words employed by either Tweeter and compared their frequencies to identify each president’s favorite vocabulary.

---

<sup>1</sup> <https://archive.org/details/ObamaWhiteHousePotusTwitterData>

<sup>2</sup> <http://www.trumptwitterarchive.com/about>

**Table 1 Q & A: Differences between Obama's and Trump's Tweets**

Question	Answer	Details	Just How Big is the Difference? (r <sup>2</sup> )
<i>Tweet Characteristics</i>			
Who Tweeted more frequently?	Trump	217 vs 17 messages per month	Enormous (.88)
Whose Tweets were longer?	No Difference	22 words per message	--
Who used more Pleasant language?	Obama	54 vs 51 overall	Medium (.31)
Who used more Active language?	No Difference	52 and 52	--
Who used more Concrete language?	Obama	54 vs 52	Small (.14)
Who retweeted proportionally more often?	Trump	11% vs ½% of messages are retweets	Small (.20)
Who replied proportionally more often?	Obama	21% vs 2% of messages are replies	Medium (.28)
<i>Language</i>			
Who mentioned "we" and "us" more often	Obama	Twice vs once per 1000 words	.43 (Medium Large)
Who mentioned "I" and "me" more often	No Difference	Once per 1000 words for both	--
Who used more repetitive language	Trump	3.8 reps per word vs 3.5 reps	.06 (Very Small)
Who used more different words at higher rates?	Obama	65 words vs 14 words	.21 (Small)
What were Trump's favorite words?  (Words with total frequency > 10 and Chi Squared >10 used more often by Trump)	Trump Words	Great, is, fake, will, very, news, tax, trump, U.S., media, Democrats, they, election, Russia	
What were Obama's favorite words?  (Words with total frequency > 10 and Chi Squared >10 used more often by Obama)	Obama Words	We've, let's, kids, climate, science, congrats, I'm, can, it's, health, we're, that's, gun, every, affordable, more, Americans, us, change, thanks, each, proud, care, college, violence, we, million, fun, keep, sign, step, couldn't, still, your, power, needs, agreement, family, lives, act, our, to, future, than, world, year, save, shot, lead, what, how, got, protect, free, community, judge, need, as, hope, congress, can't, leadership, American, facts, off	
<i>Discriminant Analyses- Guessing Who Tweeted What</i>			
Can we predict if a group of messages came from Obama or Trump using only frequency of Tweeting?	Yes, with 100% of cases correctly classified SCDFC 1.00*Messages /Month	A greater number of Tweets per month points to Trump as the source.	Enormous (.88)
Can we predict if a group of messages came from Obama or Trump using five message characteristics (but not Tweet frequency)?	Yes, with 97% of cases correctly classified SCDFC	Pleasant and Concrete Tweets that are replies and employ "we" or "us" point to Obama as the source	Very Large (.75)

	.71*Pleasantness+ .25*Concreteness+ .03*retweet rate+ .88*reply rate+ .69*use of first person plural (we, us)	Less Pleasant and less Concrete Tweets that are not replies and do not tend to employ “we” and “us” point to Trump as the source	
--	---	--	--

There were 31 data points representing monthly data for the two presidents. No data were available for Obama in December of 2016. Most variables (frequency, length, Pleasantness, Activation, Concreteness, retweet rate, reply rate, use of “we” and “us”, use of “I” and “me”) were compared with *t*-tests for independent groups with 29 *df* and no assumption of homogeneity of variance. Repetition rate was tested with a *z* test for type to token ratio (unique words in proportion to total words). Differences in word frequency between presidents were tested with a contingency chi squared analysis for each word: words which were used at least 10 times by the two presidents together and that had a chi squared value > 10 (1 *df*,  $p < .001$ ) are included in Table 1. Two discriminant analyses were performed on monthly data to predict “president of origin” from different sets of Tweet characteristics. Effect sizes reported in Table 1 are  $r^2$  values.

## RESULTS

Results of the comparisons made are summarized in Table 1, in the form of questions and answers (Q & A). All differences reported are significant at  $p < .05$ , two-tailed. Table 1 poses a question, and then answers it: if no significant difference was noted, this is mentioned. The details of the differences are reported in the third column and the fourth column describes the strength of the difference in terms of effect size. The strongest difference between presidents was in their rate of tweeting. Trump tweeted almost 13 times as often as Obama. The weakest significant difference noted was for repetitiveness. Trump’s vocabulary was only slightly more repetitive than Obama’s. Several more significant differences are summarized in Table 1. Obama tended to use more Pleasant words such as “community”, “agreement” and “save” while Trump tended to use fewer such words, preferring more Unpleasant words such as “sad”, “dirty” and “wrong”. Obama tended to use more Concrete words such as “college”, “world”, and “family”, while Trump used more abstract words such as “very”, “unfair”, and “fake”. It is relatively easy to form mental images of concrete words such as “college” and “family” but relatively difficult to mentally picture abstract ones such as “very” or “unfair”.

Obama tended to reply to Tweets more often, for example, when he chimed in on a discourse on the success of prisons (“America is home to 5% of the world’s population, but 25% of the world’s prisoners.” July 14, 2015). Trump, on the other hand, tended to retweet more often for example when he retweeted a message thanking him (“RT @shawgerald4: @realDonaldTrump Thank you President TRUMP!!” December 24<sup>th</sup>, 2017). When it came to vocabulary, Trump’s was marginally more repetitive, and it included many fewer words that he employed at a distinctive rate (there were 65 typical Obama-words but only 14 typical Trump-words). The words typical of each president are listed in Table 1, and are easily recognizable as part of each individual’s vocabulary. As well, Obama tended to use plural first person pronouns (“we” and “us”) more than Trump did. These pronouns are inclusive and bring the reader closer to the poster of a Tweet.

Discriminant function analyses attempt to identify the president to whom data belongs on the basis of monthly values. One such analysis was conducted to identify president of origin from the number of messages tweeted per month. This difference was so extreme that the analysis was able to identify all 31 data points correctly as belonging to Trump (frequent tweeter) or Obama (infrequent Tweeter). A second discriminant function analysis was conducted to identify president of origin from five Tweet characteristics – Pleasantness, Concreteness, retweet rate, reply rate, and use of first person plural pronouns. This analysis was also extremely successful (97% correct classification), misclassifying only one case. According to the formula in Table 1, a set of monthly set of Tweets with high Pleasantness and many replies that included many uses of first person plural pronouns and was more Concrete was deemed to originate from Obama. A set of Tweets with lower Pleasantness and fewer replies that included fewer uses of first person pronouns and was more Abstract was deemed to originate from Trump.

## DISCUSSION

The quantitative results of this research confirm widely-held qualitative impressions of Trump's tweets, but they also provide additional information. Trump is recognized to be a frequent tweeter. The media refer to his "Tweetstorms"<sup>3</sup> and they also comment on the negative emotional tone of his Tweets.<sup>4</sup> The president has been accused of attempting to govern by Tweet.<sup>5</sup> These observations are supported by results summarized in Table 1. Frequency of tweeting alone can fully discriminate among presidents and Pleasantness also plays a large role in predicting authorship. The Trump Tweet quoted in the introduction suggests that Trump was attempting to discourse directly with Americans through Twitter. In terms of vocabulary, if a "bot" wished to mimic Trump it should use words such as "great", "very", "fake news", and "Democrats". If it wished to mimic Obama it should employ words such as "we" and "us" and refer to "health" or "climate".

In a chapter entitled "The Medium is the Message" Marshall McLuhan (1964, pp. 19-20) suggested that it would be wrong to assume that a medium is neutral and that its outcomes depend entirely on how it is employed. According to McLuhan, the characteristics of the medium make the message. In this view, different media *afford* different types of communication. The term "afford" is employed here in the Gibsonian sense. Gibson (2015, p. 119) asserts that "the *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill" (author's italics). Substitute "Twitter" for "the environment" and "president" for "animal" and the resulting statement can be applied directly to the present research. "The affordances of Twitter are what it offers the president, what it provides or furnishes, either for good or ill." Twitter affords short messages, and emotion-packed messages. Not all tweeters maximize the affordances of this medium in the same way. The two successive 21<sup>st</sup> century US presidents studied here both employed the medium of Twitter, but the resulting messages were very different. Seligman & Whissell (2002) were comparing the radio communication styles of Reagan and Clinton when they noted that the two presidents were "more alike than unlike" (p. 144). The same can not be said of Obama's and Trump's Tweets. The measures employed in this research easily discriminate between presidents, which implies that there is very little "likeness" or overlap between them.

---

<sup>3</sup> <http://www.latimes.com/politics/la-pol-updates-trump-tweets-russia-tweetstorm-sessions-comey-clinton-htmlstory.html>

<sup>4</sup> <https://www.nbcnews.com/politics/donald-trump/trump-attacks-ex-fbi-director-comey-early-morning-tweetstorm-n866101>

<sup>5</sup> [https://mashable.com/2017/07/28/trumpsalert-twitter-account-trumps/#\\_BjI cvabsqA](https://mashable.com/2017/07/28/trumpsalert-twitter-account-trumps/#_BjI cvabsqA)

## References

- Gibson, J. (2015) *The ecological approach to visual perception*. NY, NY: Psychological Press, pp. 119-136.
- McLuhan, M. (1964) *Understanding Media: the Extensions of Man* (Critical Edition). Berkeley, CA: Ginko, pp. 17-36.
- Ryfe, D. (1999) Franklin Roosevelt and the fireside chats. *Journal of Communication*, pp. 80-103,
- Schudson, M. (1982) The politics of narrative form: the emergence of news conventions in print and television. *Dedalus*, 111, 97-112.
- Sigelman, L. & Whissell, C. (2002) "The great communicator" and "the great talker" on the radio: projecting presidential personas. *Presidential Studies Quarterly*, 32, 137-146.
- Warschauer, M. (2001) Millennialism and media: language, literacy, and technology in the 21<sup>st</sup> century. *AILA Review*, 14, 49-59
- Whissell, C. & Sigelman, L. (2001) The times and the man as predictors of emotion and style in inaugural addresses of U.S. presidents. *Computers and the Humanities*, 35, 255-272.