Stimulating Engagement Through Negative Emotional Sentiment on Twitter

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Abstract:

While it has become increasingly apparent that criticizing Donald Trump for his choice of words when posting on Twitter has become a part of American culture, using negative emotional sentiment can be shown to have positive effects on his average user engagement on the platform. In this project I will examine the emotional sentiment of 'tweets' sent by the president's personal account and asses how using both negative and positive emotional sentiment affects his engagement with users.

Hypothesis: Donald Trump's Twitter posts that are written with negative emotional sentiment evoke higher levels of engagement from public Twitter users compared to those that are written with positive emotional sentiment.

Data Sets:

Historical Data: Twitter posts from @realDonaldTrump over the course of last ~3.5 years. Size of data set is 16,943 unique posts (excluding retweets). Split into three groups for organization: Pre-Campaign, Campaign, President.

Streaming Data: Twitter posts from @realDonaldTrump over the course of 24 days [Feb 1 – Feb 24], as well as all pubiic replies to Trump's tweets & public tweets mentioning Trump by name. Size of data set is ~6.5 million unique posts.

Historical Data:

Extractable Information:
Favorite Count, Retweet Count

June 16, 2014 - June 16, 2015		June 17, 2015 - Nov 07, 2016		Nov 08, 2016 - Nov 01, 2017	
Pre-Campaign:		**Campaign**:		**President**:	
Average tweets per day:	21.3	Average tweets per day:	13.0	Average tweets per day:	6.8
Average 'favorites' per tweet:	4,702	Average 'favorites' per tweet:	8,706	Average 'favorites' per tweet:	85,603
Average 'retweets' per tweet:	1,583	Average 'retweets' per tweet:	3,105	Average 'retweets' per tweet:	19,709

Streaming Data:

Extractable Information:
Reply Count, Followers Gained, Public Mention Count

Figure 1. Data sets overview and extractable information

Emotional Sentiment Analysis:

Using the MPQA Subjectivity Lexicon [1], tweets are scored by inspecting each word individually and checking if the word has negative or positive correlation stated in the lexicon. Figure 2 & Figure 3 illustrate the scoring of tweets with many negative words, marked with _____, and many positive words, marked with _____, respectively.

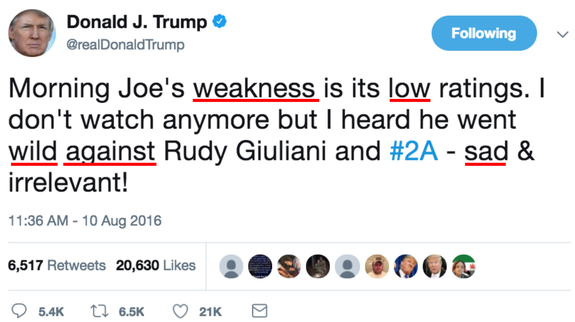
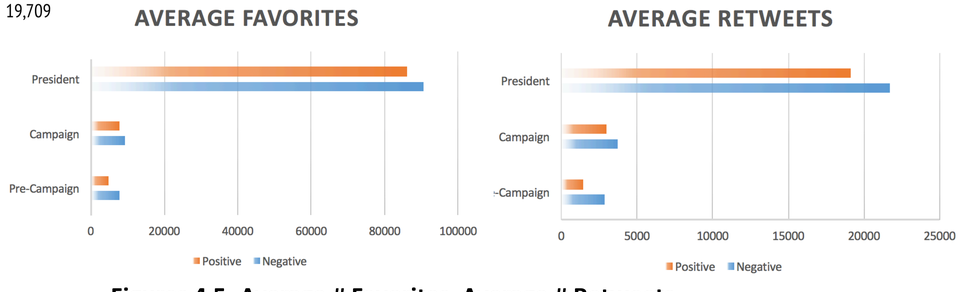


Figure 2. Example of a Negative Sentiment Tweet [Score = -5]

Figure 3. Example of a Positive Sentiment Tweet [Score = +1]

Favorites, Retweets:

Visualized in figures 4 & 5 we can observe an average additional 3,035 favorites and average additional 2,520 retweets when tweeting with negative emotional sentiment compared to positive sentiment.



Figures 4,5. Average # Favorites, Average # Retweets

Reply Count:

An average of 12,181 additional replies received in 24-hour period after tweeting with negative emotional sentiment compared to those of positive sentiment.

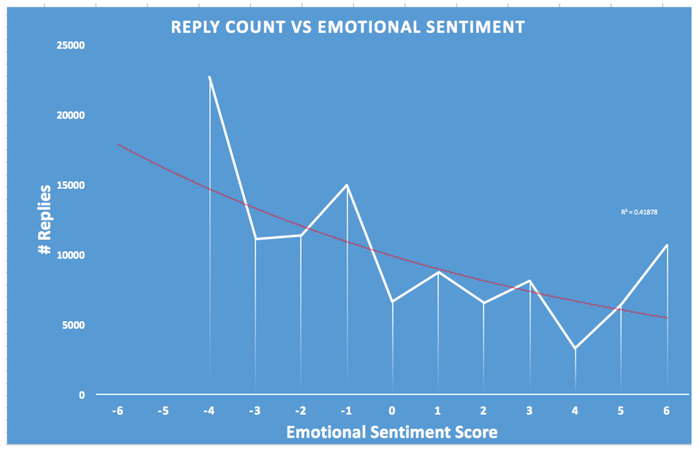


Figure 6. Average Reply Count vs Emotional Sentiment Score

Followers Gained:

An average of 11,345 additional followers gained in 24-hour period after Trump has tweeted with negative sentiment compared to those of positive sentiment.

Average followers gained 24-hours after tweeting negatively: 48,948 (sentiment score < 0)

vs.

Average followers gained 24-hours after tweeting non-negatively: 37,603 (sentiment score >= 0)

Public Mentions:

An average of 55,565 additional public mentions during a day where Trump tweeted negatively (sentiment score < 0) at least once compared to days tweeting exclusively non-negatively (sentiment score >= 0).

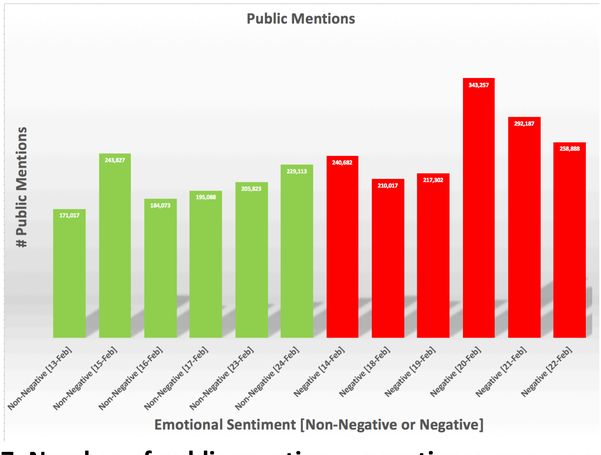


Figure 7. Number of public mentions - negative vs non-negative)