



Explaining Donald Trump via communication style: Grandiosity, informality, and dynamism



Sara Ahmadian, Sara Azarshahi, Delroy L. Paulhus*

University of British Columbia, Canada

ARTICLE INFO

Article history:

Received 5 November 2016

Accepted 8 November 2016

Available online xxx

Keywords:

Communication style

Nonverbal

Political

Grandiosity

ABSTRACT

How did Donald Trump dominate his more experienced competitors in the primaries? We suspected the answer might lie in his communication style rather than his platform details. Hence, we analyzed the announcement speeches of the top nine Republican contenders as of October, 2015. We transcribed 27 speech segments each and applied Pennebaker's Linguistic Inquiry and Word Count (LIWC), a computerized text analysis software. We also conducted acoustic analyses of the speech recordings and had them coded for grandiosity by trained (but blind) raters. Trump scored highest on (a) grandiosity ratings, (b) use of first person pronouns, (c) greater pitch dynamics, and (d) informal communication (including Twitter usage of all 17 candidates). With number of primaries won as the criterion, our results suggest that Trump benefited from all these aspects of campaign communication style. It remains to be seen whether this same communication profile will help or hinder success in a general election.

© 2016 Elsevier Ltd. All rights reserved.

Empirical comparisons of the relative contributions of content and style to political influence have a long history in psychology (Hovland, Lumsdaine, & Sheffield, 1949). Both verbal and non-verbal aspects of style have been linked directly to social dominance (e.g., Ellyson & Dovidio, 1985; Gifford, 1991; Hall, Coats, & LeBeau, 2005). Rather than a unique platform, such stylistic factors may explain the surprising success of Donald Trump in winning his party's nomination for the presidency. The present research investigated what stylistic factors led Trump to stand out and how they ultimately led to him to win the Republican nomination.

Campaign speeches provide voters with key information about both content and communication style. Relevant stylistic information can be gleaned from word usage (Slatcher, Chung, Pennebaker, & Stone, 2007), vocal style (Tigue, Borak, O'Connor, Schandl, & Feinberg, 2012), and social media (O'Connor, Balasubramanian, Routledge, & Smith, 2010). To document such information, we tracked down actual campaign speeches of nine Republican candidates including Donald Trump. The speeches were transcribed and evaluated for grandiosity, informal word usage, and vocal style. We also indexed candidate Twitter use statistics for all 17 candidates. Campaign success was indexed by number of primaries won and drop-out date.

1. Grandiosity

Although generally viewed as maladaptive, narcissism has been linked to success in areas such as leadership (Brunell et al., 2008; Harms, Spain, & Hannah, 2011), job interviews (Paulhus, Westlake, Calvez, & Harms, 2013), show business (Young & Pinsky, 2006), and initial interactions with others (Paulhus, 1998). However, the construct of narcissism has proved to be multidimensional, with both adaptive and maladaptive elements (e.g., Back et al., 2013). Foremost among these is the distinction between grandiose and vulnerable narcissism (Pincus & Roche, 2011).

Among current politicians, few would dispute that Donald Trump is a paragon of grandiosity. His self-promotional style has built a high profile in both show business (the television show, *The Apprentice*) and the financial world. However, the question remains whether grandiosity helps or hinders political success. Previous research has shown that historian-rated narcissism is associated with charismatic leadership, overall performance and creativity among U.S. presidents (Deluga, 1997). However, a recent study clarified that result by showing that U.S. presidents exhibit high levels of *grandiose* but not *vulnerable* narcissism (Watts et al., 2013).

Here, we evaluated the grandiosity of Republican contenders and whether this disposition was associated with success in the 2016 primaries. Whereas the research by Watts and colleagues utilized global historical ratings of U.S. presidents, our study used ratings of campaign speeches of current candidates to look for linguistic markers of grandiose style.

Previous research has shown that traces of grandiosity can be found in an individual's word usage (Craig & Amernic, 2011). One potential

* Corresponding author at: Department of Psychology, University of British Columbia, Vancouver V6T 1Z4, Canada.

E-mail address: dpaulhus@psych.ubc.ca (D.L. Paulhus).

indicator is the tendency to use first person pronouns (also known as I-talk). As a concrete index, I-talk provides a linguistic marker of self-focus (Chung & Pennebaker, 2007; deWall, Buffardi, Bonser, & Campbell, 2011; Raskin & Shaw, 1988). However, a recent review by Carey et al. (2015) concluded that the link between I-talk and scores on the Narcissistic Personality Inventory (NPI) appears weak and/or complex. Even if not associated with the NPI, I-talk may be interpreted by observers as reflecting an arrogant but insecure personality (Chung & Pennebaker, 2007). Therefore, we collected observer ratings of grandiosity as well as first-person pronoun counts. We hypothesized that (a) Donald Trump would show higher levels of both indicators than the other candidates and (b) overall primary success would be associated with both indicators of grandiosity.

2. Informality

The classic example of excessive rhetorical sophistication is Adlai Stevenson, who lost two presidential elections in landslides despite being acknowledged as intellectually superior to his opponents.¹ Most successful politicians seem to be aware that voters favor simple over sophisticated rhetoric (Thoemmes & Conway, 2007). However, only a handful of empirical studies have examined language complexity in presidential candidate success. In one example, candidates tended to reduce their complexity during election season (Thoemmes & Conway, 2007). Furthermore, this reduction in complexity seems to be a quality attributed to successful leaders. Similarly, Suedfeld and Rank (1976) showed that successful leaders exhibit lower complexity while seeking power but higher complexity after gaining power. On the other hand, research by Conway et al. (2012) indicated that the relation between complexity and candidate success is not that straightforward. Whatever the case, both baseline levels and change in complexity seem to play a role.

2.1. LIWC informality

LIWC permits the scoring of several variable related to formality level (e.g., word length, analytical words). Based on the predominance of prior evidence, we hypothesized that (a) there would be a positive association of informality with candidate success and (b) Trump would score highest on informality.

2.2. Twitter usage

Social media such as Twitter have opened up more informal methods of communicating with voters and the media. Whereas Facebook is socially-oriented, Twitter tends to be topic-oriented (Hughes, Rowe, Batey, & Lee, 2012). Without constraint, one can comment immediately, as often as wanted, any time of day or night. Hence use of Twitter has become a prominent medium for political communication (Gaurav, Srivastava, Kumar, & Miller, 2013; Verweij, 2012).

Moreover, a candidate's tweet count is readily available for research. Studies on the link between Twitter use and election outcomes has been met with both success (Gaurav et al., 2013; Sang & Bos, 2012; O'Connor et al., 2010; Soler, Cuartero, & Roblizo, 2012) and failure (Chung & Mustafaraj, 2011; Jungherr, 2016; Mejova, Srinivasan, & Boynton, 2013). Based on news reports, we predicted that actual usage statistics would confirm Trump's extensive Twitter use. Based on the preponderance of previous research, we predicted an overall association of Twitter use with primary success across the 17 Republican nominees.

3. Vocal qualities

3.1. Mean pitch

Finally, we conducted an analysis of the candidate's voice qualities – in particular, mean pitch and pitch variability. Previous research has shown that politicians with more attractive voices are seen as more favorable than those with less attractive voices (Surawski & Ossoff, 2006). Specifically, lower pitch voices in men are judged to be more attractive (Feinberg, DeBruine, Jones, & Little, 2008) and dominant (Jones, Feinberg, DeBruine, Little, & Vukovic, 2010; Puts, Gaulin, & Verdolini, 2006; Puts, Hodges, Cárdenas, & Gaulin, 2007). Indeed, Tigue et al. (2012) found that listeners voted for politicians with lower-pitched voices more often than those with higher-pitched voices. In short, likeability, dominance and subsequent political preference have been linked to a lower-pitched voice. Because of his dominant demeanor, we hypothesized that Trump would show a lower mean pitch than his competitors.

3.2. Pitch variability

Potentially more influential are differences in speech dynamics. Previous research has found that pitch variability is associated with a dynamic and extraverted personality (Scherer, 1979). According to Brown, Strong, and Rencher (1973), those who vary their voice are viewed as more charismatic and are rated more favorably. Similarly, DeGroot and Gooty (2009) found that interviewees who vary their pitch are more likely to be perceived positively. The link with actual interviewee success is inconclusive: Most, but not all research indicates a positive association of pitch variability with interview success (Oksenberg, Coleman, & Cannell, 1986; Sharf & Lehman, 1984). The bulk of the evidence led us to predict that Donald Trump would show stronger pitch dynamics than the other Republican candidates and that primary success would be associated with pitch dynamics.

4. Method

4.1. Candidates and speeches

We analyzed early campaign speeches of the top nine Republican presidential candidates: Donald Trump, Ted Cruz, John Kasich, Ben Carson, Jeb Bush, Marco Rubio, Rick Perry, Lindsey Graham and Mike Huckabee. The speech videos were downloaded off YouTube. To minimize the effects of raucous campaign dynamics, we selected each candidate's initial announcement speech and two other early speeches. The criteria for choosing the two extra speeches were as follows: (a) they had to be available online for download and (b) include a minimum of 30-minutes of continuous speech not prompted by a question. If a video did include an interview in addition to the 30-minute speech, the interview sections were omitted. These 27 speeches were then transcribed by two trained research assistants.

The speeches averaged 37 min and 38 s. To keep them at a feasible length for coding, each speech was cut into two equal segments. Thus each candidate had six speech segments leading to a total of 54 segments. Two variables were coded from the speeches: grandiosity, and informality – see below.

4.2. Grandiosity

4.2.1. Observer ratings

Transcripts of all 27 speeches were coded for grandiosity by three blind coders. Several steps were taken to avoid any biases and preconceptions regarding political party and individual candidates. Effectively, coders were blind to both the hypothesis and the candidates. To this end, all personal information was removed from the speeches: For example, instances where candidates referred to themselves or included

¹ https://en.wikipedia.org/wiki/Adlai_Stevenson_II

their family's name. Additionally, any references to Democratic political party was changed to "opposition party" and any references to the candidate's own party (Republican Party) was changed to "candidate's own party". Similarly, any references to the competing candidates from each party was changed to either "opposition party candidate" or own party competing candidate".

Nonetheless, we were aware that the U.S. presidential race receives blanket coverage in the media. Hence, there was a potential for the blind coder to be able to deduce the names of the candidates (especially, Trump) from their speeches. Therefore, the coders were told that the transcribed speeches were from candidates competing to become prime minister of the United Kingdom. Accordingly, we replaced any American related information (such as names of cities, companies or news networks) with their British equivalent. Given the minimal coverage of British party elections in North America, coders believed they were rating politicians unknown to them. Afterward, when coders were pressed to guess, one rater reported that one target 'talked like Donald Trump'. This coder's ratings were not used; the other two ratings were standardized and combined.

We instructed coders to code a passage as grandiose if it involved 'boasting'. An act of boasting was defined as "talking with excessive pride and self-satisfaction about one's achievement, possessions or abilities." For example, "I am really rich" would count as a single boast while "I am really rich and I have a very nice gold-coated car" would count as two acts of boasting. The number of such acts were accumulated and the total number was recorded for each speech segment.

4.2.2. LIWC grandiosity

To index linguistic markers of grandiosity, all 54 speech transcripts were run through the text analysis program called Linguistic Inquiry and Word Count (LIWC) (Pennebaker, Francis, & Booth, 2001). As noted earlier, the LIWC variable most relevant to grandiosity was use of first person singular pronouns (I-talk): That is, 'I', 'me' or 'mine' (Raskin & Shaw, 1988).

4.3. Informality

4.3.1. LIWC markers

The LIWC program also provided linguistic markers of formal speech and grandiosity. The four variables chosen to capture informality (vs. sophistication) were analytical thinking, formality, words per sentence and words >6 letters. The informal category includes subcategories such as swear words, net-speak (btw, lol or thx), assents (agree, ok or yes), non-fluencies (er, hm, or umm) or fillers (I mean or you know). The analytical thinking variable is derived through an algorithm that captures how much an individual uses words that reflect formal, logical and hierarchical thinking patterns. Those who score high on this variable tend to use language that focuses on the present and personal experiences (Pennebaker, Chung, Frazee, Lavergne, & Beaver, 2014). Each of these four variables were standardized and combined to form an informality composite.

4.3.2. Twitter use

Recall that we considered Twitter use to indicate an informal, conversational style of communication. All candidate Twitter pages were coded for total number of tweets during the three months before announcing their presidential bid. Although other tweet-rates were available, we considered tweets-before-announcing to be most representative of natural communication style uncontaminated with campaign jousting.

Again, two types of analysis were conducted. We compared Trump's Twitter rate with that of his 16 competitors. To evaluate any association with success, Twitter counts were then correlated with number of primary contests won by each candidate.

4.4. Vocal quality

The 27 speeches were run through the PRAAT program (Boersma & van Heuven, 2001). PRAAT is capable of analyzing, synthesizing, and manipulating speech and is among the most documented and reliable programs with over 5000 users from 100 countries (Burris, Vorperian, Fourakis, Kent, & Bolt, 2014). A recent comparison of several programs indicated that PRAAT matched or outperformed the others with respect to accuracy for both synthesized and real-life vowels production (Burris et al., 2014).

To obtain mean pitch and pitch variance, each video had to be divided into 40 random segments each. To reduce the effects of audience cheering or yelling in the pitch analysis, each 7.5 segment was reviewed to ensure that it did not include any audience participation and was solely focused on the candidate speaking.

5. Results

Two types of analyses were run for each of the six predictors – two for each theme. One analysis involved differentiating Trump from his Republican candidates: To that end, we compared Trump's speeches and Twitter use with the mean of the other candidates. The second type of analysis correlated each predictor variable with primary success. Our criteria for success were (a) number of states won and (b) the order in which they dropped out of the race. We only report results for primaries won: The pattern of results for drop out order was similar but less consistent.

5.1. Grandiosity

Compared to his competitors, Donald Trump's speeches were rated highest in grandiosity and significantly higher than the mean of the other Republican candidates, $t(52) = 6.18, p < 0.001$. On use of first person pronouns, Trump also ranked highest – and significantly higher than the mean of the other eight Republican candidates, $t(52) = 3.41, p < 0.001$. Across all candidates, grandiosity was significantly correlated with success, $r = 0.83, p = 0.003$, but I-talk did not reach significance, $r = 0.57, n.s$. The two indicators of grandiosity were highly correlated, $r = 0.75, p < 0.01$.

5.2. Informality

Recall that informality was indexed with two diverse composites: The composite of four relevant LIWC variables ($\alpha = 0.78$) and Twitter use rates. As expected, the two composites were highly intercorrelated ($r = 0.70$). Compared to the other Republican candidates, Donald Trump scored significantly higher on LIWC informality, $t(52) = 7.79, p < 0.001$ and Twitter usage, $t(16) = 14.8, p < 0.01$. Furthermore, LIWC informality was positively correlated with success, $r = 0.82, p < 0.01$, as was tweet-rate, $r = 0.85, p < 0.001$.

5.3. Voice analysis

Each candidate's mean pitch was calculated by averaging the 40 segments of all 3 videos. Trump did not show a higher mean pitch compared to the other eight Republican candidates, thereby contradicting our hypothesis. To index pitch variability, we calculated the standard deviation of the average pitch across 120 segments of each candidate. Trump scored highest, in fact, showing significantly more pitch variability than the mean of other eight Republican candidates, $t(25) = 3.08, p = 0.005$. Across the candidates, pitch variability was significantly associated with success, $r = 0.78, p < 0.02$.

6. Discussion

Our results confirm that Donald Trump stood out among candidates for the Republican presidential nominee. He scored highest on five of six hypothesized predictors of success among Republican voters. To summarize, Trump's speeches reflected substantially more grandiosity, less formality, and greater dynamics. In that light, Trump's success over his more experienced competitors seems less surprising. Moreover, the impact of our five predictors appeared to generalize to the full slate of Republican candidates.

To control for the fact that campaigns can become fluid as candidates react to each other's platforms, we took a number of steps: We coded only the earliest campaign speeches and restricted Twitter use counts to those appearing during the three months before announcement of candidacy.

6.1. Grandiosity (speech ratings; I-talk)

As expected, our trained (but blind) judges rated Trump's speeches as more grandiose than those of his competitors. In addition, word counts from LIWC indicated a of first person pronouns (I-talk). Although minimal associations have been found between I-talk and the standard questionnaire measure of narcissism (NPI), we found a strong link with observer-rated grandiosity ($r = 0.46, p < 0.001$). The closer relation with observer ratings than with the NPI may not be surprising since both I-talk and observed grandiosity drew from the same verbiage. The benefits of grandiosity were suggested by significant correlations with outcome measures of primary success.

Although its link with the NPI has been questioned (Carey et al., 2015), I-talk appears to be linked to observer-perceived narcissism (at least, the grandiosity component). Future research could directly compare how linguistic markers of grandiosity are correlated with other measures of the same construct. Indeed, Carey and colleagues noted that none of their samples included informant reports. More generally, our study supports the case that traces of personality (Ireland & Mehl, 2014), and political preference (Holtzman, Kwong, & Baird, 2015) can be gleaned from word usage.

6.2. Informality (LIWC indices; T-talk)

Our word-use analyses indicated the most informality in Trump's speeches: That is, more use of non-standard and low-complexity words. And, across all candidates, informality was associated with number of primaries won. These results concur with previous research showing an association between simple campaign rhetoric and success in gaining power (Conway et al., 2012; Suedfeld & Rank, 1976).² The key lesson is to match one's complexity to that of the audience (Suedfeld, 1992). Although we combined them here, future research should tease apart the two elements of informality, that is, complexity and casualness.

Our results also support use of an alternative indicator of informality – Twitter usage – as a predictor of political success. Instead of the delay required by cautious consultation with one's campaign team, the candidate can respond immediately to news events. As predicted, Trump outdistanced his competitors on Twitter use ('T-talk'), a style associated with a successful primary outcome across candidates.

Note that the handful of previous studies on T-talk and political success have met with mixed results (see Gaurav et al., 2013 vs. Chung & Mustafaraj, 2011). The present study falls on the favorable side: That is, T-talk does predict political success. We feel justified in using the word 'predict', given that we indexed T-talk in the three months before candidacy announcements. In short, T-talk captures a trait-like informal style, rather than a reaction to political success.

² Note that complexity is not consistently associated with either liberal or conservative viewpoints (Conway et al., 2015).

7. Conclusions

From the beginning of the current campaign, political pundits of all stripes seem to have underestimated Donald Trump's chances of success in politics. To some extent, this misread was based on Trump's outrageous threats (e.g., building a wall along the southern border; preventing Muslim immigration; renegeing on trade treaties). The present study reveals that a populist communication style – grandiose, dynamic, and informal – may have 'trumped' a carefully-reasoned platform. In our data, a combination of all these factors showed an adjusted R^2 of 0.71 in predicting success.

Our study also has some general implications for research on person perception. Supporting a large body of previous research (e.g., Gifford, 1991; Hall et al., 2005), we found that person evaluations appear to be strongly associated with indirect non-verbal information such as voice quality and word usage. Stylistic factors may have the most impact because processing them requires less effort than the taxing analysis of complicated political platforms (Petty & Cacioppo, 1986). Whether these behaviors are conscious strategies or automatized habits cannot be answered here (see Carney, Colvin, & Hall, 2007).

7.1. Limitations

Our study, although timely, is not without limitations. First, our conclusions are limited by the fact that we addressed only the Republican Party primaries. It is possible that Republican voters are especially responsive to grandiosity and informality. In this election year, the Democratic candidates were limited to three and the dynamics were radically different. Similar research must await an election year with more Democratic candidates. Future studies should also look at both the general election and the primaries. It is possible that, to win primaries, one must adopt a more grandiose and informal persona; the opposite might be required in the general election.

Undoubtedly, statistical power was limited by the pool of nine serious contenders – the top nine as of October 2015. But none of the other candidates won any state primaries. On the other hand, our power was enhanced by a large estimated effect size: That is, the expectation of a stark difference between Trump and the other Republican candidates. Although other limiting factors would be introduced, a future study could boost power somewhat by including candidates from previous elections to increase power and generalizability (see Watts et al., 2013).

In retrospect, some observers may argue that our characterization of Trump's communication style seems self-evident. However, we have now confirmed those intuitions empirically and have shown how they were associated with candidate success in the Republican primaries. Before those primaries unrolled, one might have predicted that qualities such as grandiosity, simplistic language, and excessive Twitter activity would impair success. In that light, it is troubling to note that questionable strategies may portend problematic political leaders (ten Brinke, Liu, Keltner, & Srivastava, 2015).

Acknowledgements

We thank Ilze Pretorius, Matt Wilkins, Ashley Raposo, and Yesim Ozuer for assistance with transcribing and coding.

Funding was provided by Social Science and Humanities Research Council of Canada (SSHRC grant 435-2015-0417).

References

- Back, M. D., Küfner, A. C. P., Dufner, M., Gerlach, T. M., Rauthmann, J. F., & Denissen, J. J. A. (2013). Narcissistic admiration and rivalry: Disentangling the bright and dark sides of narcissism. *Journal of Personality and Social Psychology, 105*, 1013–1037.
- Boersma, P., & van Heuven, V. (2001). Speak and unSpeak with PRAAT. *Glott International, 5*, 341–347.
- Brown, B. L., Strong, W. J., & Rencher, A. C. (1973). Perceptions of personality from speech: Effects of manipulations of acoustical parameters. *The Journal of the Acoustical Society of America, 54*, 29–35.

- Brunell, A. B., Gentry, W. A., Campbell, W. K., Hoffman, B. J., Kuhnert, K. W., & Demarree, K. G. (2008). Leader emergence: The case of the narcissistic leader. *Personality and Social Psychology Bulletin*, 34, 1663–1676.
- Burris, C., Vorperian, H. K., Fourakis, M., Kent, R. D., & Bolt, D. M. (2014). Quantitative and descriptive comparison of four acoustic analysis systems: Vowel measurements. *Journal of Speech, Language, and Hearing Research*, 57, 26–45.
- Carey, A. L., Brucks, M. S., Küfner, A. C. P., Holtzman, N. S., Große Deters, F., Back, M. D., & Mehl, M. R. (2015). Narcissism and the use of personal pronouns revisited. *Journal of Personality and Social Psychology*, 109, e1–e15. <http://dx.doi.org/10.1037/pspp0000029>.
- Carney, D. R., Colvin, C. R., & Hall, J. A. (2007). A thin slice perspective on the accuracy of first impressions. *Journal of Research in Personality*, 41, 1054–1072.
- Chung, J. E., & Mustafaraj, E. (2011). Can collective sentiment expressed on Twitter predict political elections? *AAAI*, 11, 1770–1771.
- Chung, C., & Pennebaker, J. (2007). The psychological functions of function words. In K. Fiedler (Ed.), *Social communication* (pp. 343–359). New York: Psychology Press.
- Conway, L. G., Gornick, L. J., Burfeind, C., Mandella, P., Kuenzli, A., Houck, S. C., & Fullerton, D. T. (2012). Does complex or simple rhetoric win elections? An integrative complexity analysis of U.S. presidential campaigns. *Political Psychology*, 33, 599–618.
- Conway, L. G., Gornick, L. J., Houck, S. C., Anderson, C., Stockert, J., Sessoms, D., & McCue, K. (2015). Are conservatives really more simple-minded than liberals? The domain specificity of complex thinking. *Political Psychology*. <http://dx.doi.org/10.1111/pops.12304>.
- Craig, R., & Amernic, J. (2011). Detecting linguistic traces of destructive narcissism at-a-distance in a CEO's letter to shareholders. *Journal of Business Ethics*, 101, 563–575.
- DeGroot, T., & Gooty, J. (2009). Can nonverbal cues be used to make meaningful personality attributions in employment interviews? *Journal of Business and Psychology*, 24, 179–192.
- Deluga, R. J. (1997). Relationship among American presidential charismatic leadership, narcissism, and rated performance. *The Leadership Quarterly*, 8, 49–65.
- deWall, N., Buffardi, L., Bonser, I., & Campbell, W. K. (2011). Narcissism and implicit attention-seeking: Evidence from linguistic analysis of social networking and online presentation. *Personality and Individual Differences*, 51, 57–62.
- Ellyson, S. L., & Dovidio, J. F. (1985). *Power, dominance, and nonverbal behavior*. New York: Springer-Verlag.
- Feinberg, D. R., DeBruine, L. M., Jones, B. C., & Little, A. C. (2008). Correlated preferences for men's facial and vocal masculinity. *Evolution and Human Behavior*, 29, 233–241.
- Gaurav, M., Srivastava, A., Kumar, A., & Miller, S. (2013). *Leveraging candidate popularity on Twitter to predict election outcome* Proceedings of the 7th Workshop on Social Network Mining and Analysis7. (pp. 7–14).
- Gifford, R. (1991). Mapping nonverbal behavior on the interpersonal circle. *Journal of Personality and Social Psychology*, 61, 279–288.
- Hall, J. A., Coats, E. J., & LeBeau, L. S. (2005). Nonverbal behavior and the vertical dimension of social relations: A meta-analysis. *Psychological Bulletin*, 131, 898–924.
- Harms, P. D., Spain, S. M., & Hannah, S. T. (2011). Leader development and the dark side of personality. *The Leadership Quarterly*, 22, 495–509.
- Holtzman, N. S., Kwong, S., & Baird, K. L. (2015). Exploring political ideologies of senators with semantic analysis tools: Further validation of CASS. *Journal of Language and Social Psychology*, 34, 200–212.
- Hovland, C. I., Lumsdaine, A. A., & Sheffield, F. D. (1949). *Experiments in mass communication*. Princeton: Princeton University Press.
- Hughes, D. J., Rowe, M., Batey, M., & Lee, A. (2012). A tale of two sites: Twitter vs. Facebook and the personality predictors of social media usage. *Computers in Human Behavior*, 28, 561–569.
- Ireland, M. E., & Mehl, M. R. (2014). Natural language use as a marker of personality. In T. Holtgraves (Ed.), *The Oxford handbook of language and social psychology* (pp. 201–218). New York, NY: Oxford University Press.
- Jones, B. C., Feinberg, D. R., DeBruine, L. M., Little, A. C., & Vukovic, J. (2010). A domain-specific opposite-sex bias in human preferences for manipulated voice pitch. *Animal Behaviour*, 79, 57–62.
- Jungherr, A. (2016). Twitter use in election campaigns: A systematic literature review. *Journal of Information Technology & Politics*, 13, 72–91.
- Mejova, Y., Srinivasan, P., & Boynton, B. (2013). *GOP primary season on Twitter: popular political sentiment in social media* Proceedings of the sixth ACM international conference on Web search and data mining6. (pp. 517–526).
- O'Connor, B., Balasubramanyan, R., Routledge, B. R., & Smith, N. A. (2010). *From tweets to polls: Linking text sentiment to public opinion time series* Proceedings of the fourth international AAAI conference on weblogs and social media11. (pp. 122–129).
- Oksenberg, L., Coleman, L., & Cannell, C. F. (1986). Interviewers' voices and refusal rates in telephone surveys. *Public Opinion Quarterly*, 50, 97–111.
- Paulhus, D. L. (1998). Interpersonal and intrapsychic adaptiveness of trait self-enhancement: A mixed blessing? *Journal of Personality and Social Psychology*, 74, 1197–1208.
- Paulhus, D. L., Westlake, B. G., Calvez, S. S., & Harms, P. D. (2013). Self-presentation style in job interviews: The role of personality and culture. *Journal of Applied Social Psychology*, 43, 2042–2059.
- Pennebaker, J. W., Francis, M. E., & Booth, R. J. (2001). *Linguistic inquiry and word count: LIWC 2001*. Hillsdale, NJ: Erlbaum.
- Pennebaker, J. W., Chung, C. K., Frazee, J., Laverge, G. M., & Beaver, D. I. (2014). When small words foretell academic success: The case of college admissions essays: E115844. *PLoS One*, 9(12). <http://dx.doi.org/10.1371/journal.pone.0115844>.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer-Verlag.
- Pincus, A. L., & Roche, M. J. (2011). Narcissistic grandiosity and narcissistic vulnerability. *Handbook of narcissism and narcissistic personality disorder* (pp. 31–40).
- Puts, D. A., Gaulin, S. J. C., & Verdolini, K. (2006). Dominance and the evolution of sexual dimorphism in human voice pitch. *Evolution and Human Behavior*, 27, 283–296.
- Puts, D. A., Hodges, C. R., Cárdenas, R. A., & Gaulin, S. J. C. (2007). Men's voices as dominance signals: Vocal fundamental and formant frequencies influence dominance attributions among men. *Evolution and Human Behavior*, 28, 340–344.
- Raskin, R., & Shaw, R. (1988). Narcissism and the use of personal pronouns. *Journal of Personality*, 56, 393–404.
- Sang, E. T. K., & Bos, J. (2012). *Predicting the 2011 Dutch senate election results with Twitter* Proceedings of the workshop on semantic analysis in social media13. (pp. 53–60).
- Scherer, K. R. (1979). *Personality markers in speech*. Cambridge University Press.
- Sharf, D. J., & Lehman, M. E. (1984). Relationship between the speech characteristics and effectiveness of telephone interviewers. *Journal of Phonetics*, 12, 219–228.
- Slatcher, R. B., Chung, C. K., Pennebaker, J. W., & Stone, L. D. (2007). Winning words: Individual differences in linguistic style among U.S. presidential and vice presidential candidates. *Journal of Research in Personality*, 41, 63–75.
- Soler, J. M., Cuartero, F., & Roblizo, M. (2012). *Twitter as a tool for predicting elections results* (pp. 1194–1200) Proceedings of the 2012 international conference on advances in social networks analysis and mining.
- Suedfeld, P. (1992). Cognitive managers and their critics. *Political Psychology*, 13, 435–453.
- Suedfeld, P., & Rank, A. D. (1976). Revolutionary leaders: Long-term success as a function of changes in conceptual complexity. *Journal of Personality and Social Psychology*, 34, 169–178.
- Surawski, M. K., & Ossoff, E. P. (2006). The effects of physical and vocal attractiveness on impression formation of politicians. *Current Psychology*, 25, 15–27.
- ten Brinke, L., Liu, C., Keltner, D., & Srivastava, S. (2015). Virtues, vices, and political influence in the U.S. senate. *Psychological Science*, 27, 85–93.
- Thoemmes, F. J., & Conway, L. G. (2007). Integrative complexity of 41 U.S. presidents. *Political Psychology*, 28, 193–226.
- Tigue, C. C., Borak, D. J., O'Connor, J. J. M., Schandl, C., & Feinberg, D. R. (2012). Voice pitch influences voting behavior. *Evolution and Human Behavior*, 33, 210–216.
- Verweij, P. (2012). Twitter links between politicians and journalists. *Journalism Practice*, 6, 680–691.
- Watts, A. L., Lilienfeld, S. O., Smith, S. F., Miller, J. D., Campbell, W. K., Waldman, I. D., ... Faschingbauer, T. J. (2013). The double-edged sword of grandiose narcissism: Implications for successful and unsuccessful leadership among U.S. presidents. *Psychological Science*, 24, 2379–2389.
- Young, S. M., & Pinsky, D. (2006). Narcissism and celebrity. *Journal of Research in Personality*, 40, 463–471.