Explanation Hubris and Conspiracy Theories:
A Case of the 2016 Presidential Election

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Abstract

While explanations provide the power to understand the world around us, people are often overconfident about their own understanding. We explored how people's perceptions of their understanding of phenomena is related to endorsement of conspiracy theories. We first tested people's perceptions of their understanding of the 2016 Presidential electoral process and then measured their beliefs that the election itself was illegitimate, a form of conspiratorial belief. We found that participants who still endorsed high levels of understanding after generating an explanation for the 2016 election were also more likely to endorse the election was illegitimate. However, this finding only obtained for participants who voted for the losing candidate. These results suggest interesting avenues for exploring individual differences that may be related to the illusion of explanatory depth.

Keywords: illusion of explanatory depth; conspiracy beliefs; causal understanding; belief revision

Introduction

Explanations are power. Being able to explain the causal connections between events allows people to anticipate and control what may happen in the future (e.g., Hagmayer & Sloman, 2009; Kushnir & Gopnik, 2005; Schulz, Gopnik, & Glymour, 2007). People crave explanations (Gopnik, 2000), imposing them quickly and ubiquitously (Lombrozo, 2006). Despite a drive to explain, people often do not possess a correct understanding of how things in the world actually work (Rozenblit & Keil, 2002). Additionally, people are frequently overconfident in their own explanatory ability, perceiving that they understand the causal underpinnings of many events they actually do not (e.g., Fernbach, Rogers, Fox, & Sloman, 2013; Rozenblit & Keil, 2002; Zeveney & Marsh, 2016). In this paper, we explore the relation between confidence in the ability to explain phenomena and its relation to a notorious domain of incorrect explanations, namely political conspiracy theories.

Conspiracy theories compose a class of beliefs that highlight the inaccuracy that people can have in their explanations for events. Conspiracy theories attribute huge causal importance to an unknown group or actor as the root cause of an important world event, action, or outcome. These theories tend to be non-falsifiable and lacking in causal complexity (Graeupner & Coman, 2016; Miller, Saunders, & Farhart, 2016; Sunstein & Vermeule, 2009; Swami & Coles

2010; Uscinski & Parent, 2014). Political conspiracy theories provide a way for people to explain large-scale events that feel chaotic and threatening and are commonly endorsed by people across political ideologies (Goertzel, 1994; Hofstadter, 1965). Explaining world events through conspiracy theories has important implications because of how they can guide important elements of reasoning, like citizens' trust in the government, or people's behaviors, such as seeking out a vaccination for a child. Further, conspiracy theories are commonly endorsed and propagated by actors at the highest levels of political power (Barkun, 2017), and, as a result, are consequential for public policy (Uscinski & Parent, 2014). Investigations of the cognitive elements that predict the existence of conspiratorial thinking is essential to understand these widespread beliefs.

In this paper we explore the relationship between confidence in the ability to explain a phenomenon (i.e., the 2016 Presidential election) and endorsement of conspiratorial beliefs for that phenomenon (i.e., electoral illegitimacy). In the following we describe research on people's overconfidence in their own understanding and a paradigm used to expose such overconfidence. We then describe our initial data on the relationship between overconfidence and conspiratorial thinking to introduce the current experiment exploring this relationship in the context of the 2016 election.

Everyday Understanding of Explanations

A growing body of evidence suggests that people show a form of hubris related to their perceived ability to causally explain phenomena; namely, people believe they understand causal phenomena much more deeply than they actually do. This miscalibration of knowledge can be illuminated through a paradigm originally developed by Rozenblit and Keil (2002). The basic experiment in Rozenblit and Keil asked participants to judge their understanding of the workings of an array of everyday objects (e.g., zipper, cylinder lock). Following these initial (time 1 [T1]) ratings, participants generated causal explanations of how those devices worked with as much detail as they could provide. After generating these explanations, participants again rated their understanding of the objects they rated at T1 (time 2 [T2] rating). Rozenblit and Keil found that the act of explaining alerted participants to how little they actually understood about the workings of the objects they rated, illuminating

what they called an illusion of explanatory depth (IOED). The IOED is hallmarked by a significant drop in ratings at T2 compared to T1. Importantly, this drop only comes when participants engaged in generating causal explanations; participants did not reduce ratings if just asked to generate descriptive details (see also Zeveney & Marsh, 2016).

The power of causal explanations to expose people's overestimated sense of understanding has been shown in a number of domains, including devices (Lawson, 2006; Mills & Keil, 2004), natural phenomena (Rozenblit & Keil, 2002; Sloman & Rabb, 2016), mental disorders (Zeveney & Marsh, 2016), and political policies (Alter, Oppenheimer, & Zemla, 2010; Fernbach et al., 2013). Outside of demonstrating the phenomenon in multiple domains, a large bulk of the work on the IOED has focused on *why* people overestimate their confidence in their explanatory ability (Mills & Keil, 2004; Sloman & Rabb, 2016; Zeveney & Marsh, 2016). However, little work has explored *how* an illusion of explanatory understanding is related to other held beliefs.

The Relationship Between Explanation and Conspiracy Beliefs

How might people's overconfidence about their explanatory abilities relate to conspiracy theories? In a first exploration of this question, Vitriol and Marsh (in press) measured participants' endorsement of a broad set of politically-related conspiracy theories (e.g., "In July 1947, the US military recovered the wreckage of an alien craft from Roswell, New Mexico, and covered up the fact.") Participants also completed an IOED paradigm that asked them to either rate their understanding of devices or of political issues. We found a relationship between endorsement of conspiratorial beliefs and self-perceived levels of understanding after explanation. Specifically, participants who still expressed high levels of self-perceived understanding of political phenomena, despite having explained those phenomena in an IOED paradigm, were also the participants who showed higher endorsement of conspiratorial thinking. This finding held when controlling for the effect of a range of variables known to covary with conspiracy ideation, including political and interpersonal trust, political cynicism and efficacy, political knowledge, and partisan and ideological identity (Berinsky, 2012; Miller, et al., 2016; Swami & Coles 2010; for a review, see Douglas, Sutton, & Cichocka, 2017). Interestingly, T2 ratings for devices were not associated with conspiratorial thinking, suggesting that conspiracy thinkers are not more generally immune to belief revision.

These findings suggest that people who remain confident in their understanding despite explanation may also be more likely to endorse conspiracy thinking. However, our results may underestimate the effect generating a causal explanation could have on conspiratorial beliefs. We asked participants to generate explanations for political *policies* that are indirectly related to the conspiratorial beliefs we tested, which captured a *general* orientation towards endorsing political conspiracies. It is possible that generating a causal explanation for a specific phenomenon that more directly implicates specific conspiracy theories could expose flaws or highlight uncertainty in that theory, and thereby weaken endorsement of conspiracy beliefs related to that phenomenon. Consistent with this logic, Fernbach et al. (2013) found that generating an explanation about the causal relation among political phenomena reduced extremism in political attitudes, which previously had been shown to increase endorsement of conspiracy theories (van Prooijen, Krouwel, & Pollet, 2015).

In this experiment we explore how explaining a specific event influences conspiratorial thinking related to that event. Using an IOED paradigm, we tested the relationship between post-explanation confidence in one's understanding of how the 2016 election was decided and conspiratorial beliefs about that election, namely beliefs that the election was determined by illegitimate factors—a commonly held conspiratorial belief among supporters of a losing candidate (Edelson, Alduncin, Kreswon, Sieja, & Uscinski, 2017; Miller et al., 2016). We hypothesized that post-explanation confidence in understanding of the electoral process for the 2016 U.S. Presidential election would predict intra-individual increases in perceived electoral illegitimacy (pre-/post-election), especially for supporters of the losing candidate.

Method

We investigated the relationship between post-explanation belief confidence in one's understanding of the electoral processes and perceptions of electoral illegitimacy in the context of the 2016 U.S. Presidential election. To do so, we utilized data collected from a larger on-line 2-wave panel design administered both before and after the 2016 election (Vitriol & Marsh, in press). Pre-election, participants completed a survey designed to measure perceptions of the electoral process (i.e., Do you believe that this election will be "rigged"?), demographics, and ideological and partisan identity. Post-election, participants participated in an election IOED, and then completed another battery of measures that reassessed their perceptions of the electoral process as well as their vote behaviors in the 2016 U.S. Presidential election. This longitudinal methodological design allows us to examine intra-individual change in perceptions of electoral legitimacy over time, in a real-world context, as a function of the IOED and vote choice (see Finkel, 1995; Lenz, 2013).

Participants

Participants were 404 U.S. citizens recruited from Amazon Mechanical Turk (34% males; age $M = 37.94$, $SD = 13.05$; 83% identify as White; and 66.4% have earned at least a Bachelor's degree). Ten non-U.S. citizens were excluded from analyses, as our focus is on American voters. Of the U.S. citizens recruited pre-election, 69% or 279 were retained post-election. Further, of the 279 participants retained at post-election, 69 did not vote in the election or did not vote for one of the two major political party candidates, leaving us with a final sample of 210 U.S. Citizens who completed both surveys and voted for either Clinton or Trump.

Although Mturk samples are not a representative, random sample of the American public, Mturk samples are older and more diverse than typical samples of university students, and more nationally representative than typical internet samples (e.g., Berinsky, Huber, & Lenz, 2012). By utilizing Mturk, we were able to obtain a large, non-random sample of Americans with sufficient variability on demographic characteristics and the constructs of interest. With the current sample size (N=210), we observed the following levels of statistical power in order to detect bivariate relationships between (a) T2 electoral IOED belief confidence and (b) pre- to post-election change in perceived electoral legitimacy (Cohen's d = .2, Power =65%; Cohen's d > .5, Power = 99%).

Procedure

The measures of interest were collected as part of a larger data set collection about conspiratorial beliefs and illusions of explanatory depth (Vitriol & Marsh, in press). Below we describe the measures collected pre- and post-election, with specifics given for the measures of interest in this study.

Pre-election Data Collection Pre-election data collection was performed on October 18-19, 2016. Participants began the experiment by completing an IOED task (reported in Vitrio & Marsh, in press, and unrelated to the current analyses). Participants then completed a series of scales that measured different traits, including endorsement of conspiracy beliefs and thinking, gnosticism, interpersonal and governmental trust, political identity, and political knowledge. Embedded in these measures, participants completed our measure of interest: perceived electoral illegitimacy. To measure perceived electoral illegitimacy, participants completed 8 items designed to measure belief in the existence of illegitimate, conspiratorial influences on the electoral process. Participants responded on a 7-point scale to such items as, "Do you believe that this election will be 'rigged'?" (1=not at all, 7=yes, definitely), "Do you believe the media is intentionally trying to influence the election in favor of a particular candidate?" (1=not at all, 7=yes, definitely), "How confident are you that, across the country, votes for the president will be accurately cast and counted this year? "(1=not at all confident, 7=very confident), and "In your opinion, how fair will the outcome of the 2016 Presidential election be?" (1=not at all fair, 7=very fair; Reverse coded). Higher values represented increased perceptions of illegitimacy (α = .87).

After completing the trait measures, participants reported their age, gender, race, and level of education.

Post-election Data Collection Post-election data collection took place from November 10-15, 2016 (election day was November 8, 2016). Participants began the experiment by completing an IOED task that asked about the 2016 election. We adapted our paradigm from the basic IOED procedure developed by Rozenblit and Keil (2002). Participants first learned how to rate their understanding of phenomena on a 7-point scale (1=very vague understanding, 7=very thorough understanding) using instructions from Rozenblit and Keil (2002) and a crossbow as an example. Participants then reported how well they understand "how the 2016 election was decided" (T1 rating).

After reporting their level of understanding of the electoral process, participants were asked to explain how the 2016 election was decided as follows (adapted from Rozenblit and Keil [2002]).

"As best you can, please describe all the details you know about how the 2016 election was decided, going from the first step to the last, and providing the causal connection between the steps. That is, your explanation should state precisely how each step causes the next step in one continuous chain from start to finish. In other words, try to tell as complete a story as you can, with no gaps. Please take your time, as we expect your best explanation".

After generating their explanation, participants then again rated their level of understanding (T2 rating).

Next, participants reported their vote choice through the following item: "Which of the following candidates for the President of the United States did you vote for in the 2016 Election?", (1 = Donald Trump, 0 = Hillary Clinton). Participants then again completed the perceived electoral illegitimacy measure (α = .82). Participants completed measures related to other purposes of interpersonal and governmental trust and well as political identity. Finally, participants were debriefed and thanked for their time.

Results

Our main area of interest was whether participants who were more confident about their understanding of the 2016 election, after being asked to explain the election, were also more likely to believe that the election was illegitimate. All continuous variables were rescaled to run from 0-1 using a linear transformation for easier interpretation and comparison of effect sizes. For some analyses, ideological and partisan identification, and demographics (age, gender, education) were included as covariates. This allowed us to isolate the observed effect on pre- to post-election intra-individual *change* in perceptions of electoral fairness as a function of the IOED and vote choice.

An Illusion of Understanding the 2016 Election

To begin, we examined whether people displayed an IOED for the 2016 election. To do so, a repeated-measures ANOVA was used to compare differences in self-reported understanding of the election, before (T1) and after (T2) explanation. No covariates were included in this model. Analyses showed a significant effect of time (F(1, 209)=83.79, p < .001; T1 M = .69, SD = .26; T2 M = .40, SD = .23). Thus, we observe a significant decrease in participants' self-perceived understanding from T1 to T2 as has been shown in previous research, suggesting that the procedure successfully revealed the IOED (Figure 1).
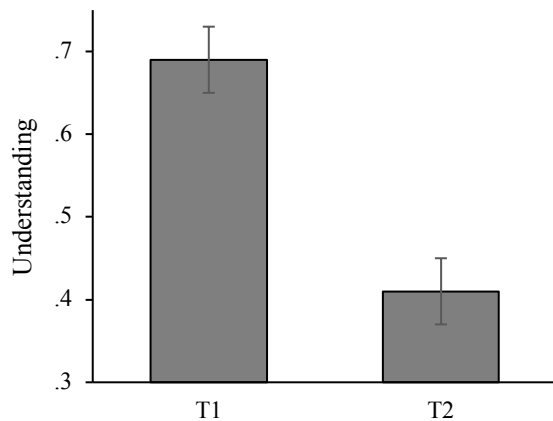
Figure 1: Understanding ratings pre- (T1) and post-
(T2) explanation. Error bars indicate 95% CI.

Explanatory Understanding and Election Illegitimacy Beliefs

We next examined the relationship between self-reported understanding of the 2016 electoral process and pre/post-election changes in perceptions of electoral fairness. To do this, we use an analysis technique frequently used in political science to measure constructs surrounding political elections, lagged dependent variable regression model (Finkel, 1995; Lenz, 2013). Such models are used when data collection happens for a given variable at multiple points separated by time and the responses at those different time points are expected to be highly correlated with each other. In effect, lagged dependent variable models allow for controlling baseline levels of responding to detect changes in subsequent responding on a dependent variable without having to create difference scores to measure such change. This statistical technique fits our design well, allowing us to observe pre-/post-election change in perceptions of electoral illegitimacy in relation to our independent variables. For our measure of explanation understanding, we used T2 IOED ratings. As in previous IOED research, we focus on belief confidence, as opposed to belief accuracy (Fernbach et al., 2013; Zeveney & Marsh, 2016), and therefore used participants' perceptions of their understanding. T2 ratings specifically serve as an indicator of the extent to which participants have confidence in their causal understanding, even after engaging in the act of explanation which has been shown to lower belief confidence (e.g., Rozenblit & Keil, 2002)[1]. As such, participants who are still high in confidence after explanation are participants for whom the IOED paradigm did not reveal a compelling illusion of understanding. We made the a priori decision to use robust standard errors in all tests on coefficients in this section to protect against possible heteroskedasticity.

Using a lagged dependent regression model, we first explored the relationship between T2 belief confidence and perceptions of electoral illegitimacy. Post-election electoral illegitimacy was regressed on T2 belief confidence and pre-election perceptions of electoral illegitimacy. We found that T2 belief confidence was significantly associated with pre-/post-election increases in perceived electoral illegitimacy (with covariates, $b = .17$, 95% CI(.09, .24), $p < .001$; and without covariates, $b = .17$, 95% CI(.09, .45), $p < .001$). Given that all variables were coded on a 0-1 interval, these coefficient estimates indicate that moving from the lowest to the highest level of post-explanation electoral understanding was associated with approximately a 17% increase in perceived electoral illegitimacy post-election.

We next explored whether the relationship between T2 belief confidence and pre/post-election perceptions of electoral illegitimacy would be moderated by vote choice (Figure 2). We conducted the same analysis as above, but this time included an interaction term between T2 belief confidence and election-day vote choice. This interaction was significant (without covariates, $b = -.22$, 95% CI(-.37, -.06), $p = .007$; with covariates, $b = -.25$, 95% CI(-.42, -.09), $p = .003$). For Trump voters, the relationship between T2 belief confidence and change in perceptions of electoral illegitimacy did not obtain significance (without covariates, $b = -.02$, 95% CI(-.14, .11), $p = .81$; with covariates, $b = -.03$, 95% CI(-.18, .13), $p = .75$). However, among Clinton voters, T2 confidence was associated with increased perceptions of electoral illegitimacy (without covariates, $b = .21$, 95% CI(.12, .25), $p < .001$; with covariates, $b = .22$, 95% CI(.12, .32), $p < .001$). Thus, moving from the lowest to the highest level of T2 belief confidence is associated with an approximately 21% pre-/post-election increase in perceptions of electoral illegitimacy among supporters of the losing candidate in the 2016 U.S. Presidential Election.
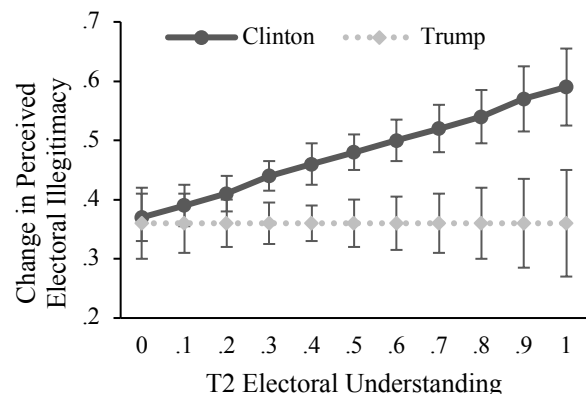

Figure 2: The relationship between conspiracy beliefs and explanatory confidence as a factor of vote choice

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[1] We did not use a lagged dependent model for T1 and T2 ratings because a few minute time gap is not enough to justify the use of such a design. Additionally, we did not use the difference between T1 and T2 because of the notable concerns that such a difference score would represent analyzing a new, unmeasured construct (e.g., De Los Reyes, 2017; Edwards, 2001; Laird & De Los Reyes, 2013).

General Discussion

In this paper we explored whether post-explanation confidence in one's understanding of the 2016 election was related to endorsing conspiracy beliefs for that event. This research takes previous work that found a general relationship between overconfidence and conspiracy beliefs (Vitriol & Marsh, in press) and explores whether specific explanation of an event can reduce conspiratorial beliefs for that event. We found that people who showed higher confidence in their own understanding of the 2016 election, after having to provide a detailed causal explanation of the election, were people more likely to show an increase in election illegitimacy beliefs post-election. This was specifically true for losing candidate voters.

What drives the relationship between high confidence and increased conspiratorial beliefs? One possibility is that high confidence in one's understanding lays the groundwork for the adoption of conspiratorial beliefs. High T2 confidence could be an indicator of a person who is more unwilling to engage in the general act of belief revision. An anti-revisionist tendency may make any conspiratorial thinking more likely to persist and be endorsed.

Alternatively, believing in conspiracy theories could make people particularly ripe for not revising their own perceived understanding. Conspiracy theories can come with public ridicule and may correspond with an expectation of having one's beliefs challenged. Being forced to defend conspiracy beliefs may teach a person to generally hold on to their beliefs tenaciously, resulting in less general belief revision. Consistent with this perspective, research on attitude change suggests that successfully defended one's opinion in response to a credible persuasive message, can result in increases in attitude certainty and stability (Tormala & Petty, 2002).

Our findings related to voter status suggest another explanation. The relationship between high T2 confidence and election illegitimacy beliefs held only for Clinton voters; people who voted for the winning candidate did not show an increase in electoral conspiratorial beliefs. These findings fit prominent perspectives that suggest endorsement of conspiracy beliefs is often motivated by psychological needs for order, structure, and certainty (e.g., Miller et al., 2016), and provide an internally consistent and meaningful explanation for threatening political events (e.g., undesirable electoral outcomes; Edelson et al., 2017). Within our experimental paradigm, participants who voted for Clinton were motivated to generate an explanation for this undesirable outcome, resulting in an increase in conspiratorial perceptions that the election was illegitimate.

Similar kinds of identity-based motivated-reasoning processes has been observed in relation to other kinds of conspiratorial beliefs (e.g., Carey, Nyhan, Valentino, & Liu, 2016). Our findings suggest that, for individuals who express high confidence in their understanding of the election, perceptions of electoral fraud may function to reduce the uncertainty and threat induced by a threatening electoral outcome. However, with our design, we cannot rule-out the reverse: participants who perceived increased levels of electoral illegitimacy were also motivated to believe that they had a more valid understanding of the electoral process. We favor an account in which inflated belief confidence in one's understanding of a phenomena serves as an antecedent for endorsement of conspiratorial beliefs about an event that threatens one's understanding of that event. However, future research should experimentally manipulate these variables in order to assess the causal relation between these constructs.

We provide an important extension of research on the IOED. The association of post-explanation understanding and known individual difference measures like conspiratorial thinking suggests not all people may revise their beliefs after explanation in the same way. Our findings represent (to our knowledge) one of the first explorations of possible individual differences for the influence of explanation generation on belief confidence. Future research should explore more generally what traits or cognitive factors predict differing levels of belief revision through causal explanation.

Future research should also explore how explanation accuracy relates to conspiracy beliefs. We followed previous work on the IOED that emphasized perceptions of understanding, rather than actual accuracy in explanation (Fernbach et al., 2013; Zeveney & Marsh, 2016). In our previous work we found that high T2 confidence in a political IOED was more strongly associated with an increase in conspiracy beliefs for people low in political knowledge (Vitriol & Marsh, in press). This suggests that participants high in T2 confidence and conspiracy beliefs in this study may not have had more accurate explanations of the election. Future work should test the accuracy of causal explanations and its relationship to conspiracy beliefs.

The findings of this study also suggest new possible ways to think about combatting conspiracy beliefs. Conspiracy beliefs are notoriously hard to change (Lewandowsky, Oberauer, & Gignac, 2013; Nyhan & Reifler, 2010). Notably, presenting a person who endorses a conspiracy theory with facts contrary to their theory often results in a stronger endorsement of the conspiratorial belief (Flynn, Nyhan, & Reifler, 2017). In our paradigm, participants reporting lower T2 ratings were less likely to have increased their conspiratorial beliefs after the election. It is possible that people who were more affected by the process of generating an explanation reduced their conspiratorial thinking. In other words, a strong sense of having the limitations of one's understanding exposed may decrease the motivation to adopt a conspiratorial explanation. It remains a valuable avenue of future research to determine if an IOED procedure can successfully reduce adherence to conspiracy beliefs.

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