

From Reporting Delay to Conspiracy Theory

An Analysis of the 2020 Iowa Democratic Caucuses

Ines Levin ¹ and Gabriel Katz ²

Abstract: In 2020, the Iowa caucuses became the focus of controversy due to issues with a mobile application used to report precinct-level results. This caused significant reporting delays, raised concerns about electoral integrity, and ultimately led the Iowa Democratic Party to abandon the traditional caucus system in 2024. Using survey data from a nationally representative sample of 10,300 U.S. adults collected shortly after the 2020 caucuses, we show that predispositions toward conspiratorial thinking and low levels of political knowledge strongly predict conspiratorial beliefs about the incident, while political orientations play a relatively minor role. These findings highlight the critical role of political information in shaping interpretations of electoral controversies.

Keywords: Voting Software Controversies, Mobile Voting Applications, Perceptions of Election Integrity

1 Introduction

On February 3, 2020, the Iowa Democratic Party (IDP) held its presidential caucuses to select delegates to represent the state in the selection of a Democratic candidate for the November 3, 2020 General Election. Until 2020, the delegate selection system in the Iowa Democratic caucuses involved citizens attending in-person gatherings at local precincts. To express support for a candidate, attendees physically joined a group of people assembled in a designated area of the precinct, thus publicly revealing choices rather than casting a secret ballot. Unlike primary elections, where technology plays a major role in all stages of the process, including vote casting and counting, the only stages of the caucus process where technology featured prominently were voter registration (as only those registered to vote with the political party could participate in the party caucuses) and reporting of results to headquarters.³ In 2020, the IDP introduced a new app to be used by precinct chairs to report results from 1,765 precincts to a central location.⁴

The reporting app for the 2020 Democratic caucuses, developed by the for-profit company Shadow Inc., aimed to enhance the speed and transparency of delegate selection [19, 24], a

1 University of California, Irvine, CA 92697, USA, inelevin@uci.edu,  <https://orcid.org/0000-0001-6912-5248>

2 University of Exeter, Exeter EX4 4RJ, UK, G.Katz@exeter.ac.uk,  <https://orcid.org/0000-0001-5970-2769>

3 Another important difference is that while primary elections are run by government officials, caucuses are run by party organizations, and therefore potentially less professionally run [5].

4 A different reporting app, developed by Microsoft, had been used in the 2016 Iowa Democratic Caucuses [21]. The new app used in 2020 was more complex as it was supposed to transmit three sets of election results, as opposed to just delegate counts as in 2016 [24].

common goal in voting technology adoption [2, 29, 33]. However, due to the rushed roll-out, inadequate testing, and insufficient training, precinct chairs struggled with installing and logging into the app [21]. The backup plan, involving reporting results by phone to the IDP “boiler room,” also failed, preventing the intended release of results by Caucus Night [21]. The New York Times described the situation as “a systemwide disaster” [17] and “an epic fiasco” [15]. As the night progressed, rumors—fitting Berinsky’s [6] definition of “statements that are unverified and spread through social transmission”—began circulating in the press and social media about the software issues. An IDP report, for example, noted that “media reports began to speculate that the reporting app itself was either faulty or even compromised by outside actors” [21].

While much of the press coverage focused on accurate factual accounts of the events, some of the stories contained information that promptly fueled conspiratorial thinking. For instance, several news stories highlighted the connections between Shadow Inc. and former Hillary Clinton campaign staffers, and how the company had provided consulting services to Buttigieg’s and Biden’s campaigns [26, 31]. These accounts provided fertile ground for the emergence of conspiracy theories surrounding the incident. A New Yorker columnist, for instance, noted that “It did not take long before rumors spread on social media that Shadow was in cahoots with the Buttigieg and Biden campaigns” [14]. Consistent with past studies, in this paper we define conspiracy theories as “allegations that two or more actors have coordinated in secret to achieve an outcome, and that their actions are of public interest but not widely known by the public” [7, p. 271]. According to the Pew Research Center, in the weeks following the 2020 Iowa Democratic Caucuses, approximately 32% of Americans thought that “there were major efforts to purposefully delay the results of Iowa’s Democratic caucuses” [18], indicating a widespread acceptance of conspiratorial explanations.

Although Sanders’s and Buttigieg’s campaigns requested a review of the outcome [19], the results of the Iowa Democratic caucuses were not formally challenged, and no evidence was found demonstrating any malicious or deliberate intent behind the incident [21]. Nonetheless, the software problems were described as deeply damaging to people’s trust in the caucus process, to the extent that some journalists and scholars wondered if it would spell the loss of Iowa’s first-in-the-nation status and put an end to the caucus system [19]. In response to the concerns raised after the 2020 software incident, the selection of Democratic delegates from Iowa took place by mail in 2024 [16], with people being able to vote until early March, a date by which several other states had already held primary elections.

The 2020 Iowa Democratic Caucuses provide a valuable laboratory for exploring the correlates of conspiratorial thinking around election administration failures. In the caucuses, the lack of explicit partisan cues means that participants and observers cannot rely on common cognitive shortcuts used to evaluate the integrity of elections, such as the partisan affiliation of the winning candidate. The central contribution of this study, therefore, is to examine the relationship between voter characteristics, such as propensity toward conspiratorial thinking, and perceptions of intentionality of reporting delays, in a context

of attenuated partisan cues. Studying this question is more challenging in highly partisan contexts, as partisan cues significantly shape perceptions of election integrity, as occurred during the 2020 presidential election, when Democrats and Republicans were deeply divided over Donald Trump's allegations of voter fraud [12].

Because of Iowa's first-in-the-nation status in the primary process, where a first-place result has traditionally been perceived as generating momentum in favor of a candidate and advantages in the form of greater media coverage [4, 30], the 2020 reporting delay was seen as contributing to an already weakening and declining trust in the integrity of the electoral process in the United States [5]. This study focuses on the short-term impact of this event by examining perceptions of the delay in the weeks after the caucuses, using data from a large-scale survey with national coverage conducted by the Pew Research Center.

2 What Went Wrong

In late 2020, the IDP released an internal report detailing the extent of the chaos before, during, and after Caucus Night [21]. This report revealed that the problems did not originate in a single malicious attack or an isolated technology failure, but were the consequence of a series of implementation-related failures, including inadequate planning, testing, and training. The IDP's report provides a reliable account of the major issues, and extracts from it will be used throughout this section to illustrate these failures.

First, regarding the app roll-out two weeks before the caucuses, the report describes a complex installation process that relied on beta testing platforms and required users of Android devices to disable security settings:

“For their first exposure to the app, [users] were met with a convoluted installation and login process set out in a 34-page “user manual” [...] users would then receive an IDP-branded email with directions to install the app. a) If the user was on an Apple device, they were required to use Apple's App Store to install TestFlight. TestFlight is an app that software developers can use to allow users to download and install beta versions of apps for testing purposes. [...] users had to install TestFlight and then use [it] to install the Shadow app on their devices. b) If the user was on an Android device, they had to manually install the application using TestFairy, a similar testing platform to TestFlight. Installation usually required the user to disable the default security settings on their Android device because by default, Android devices do not allow installation of apps from “unknown sources,” i.e. Shadow.”

Then, referring to the email with installation instructions, the report describes how the messages were sometimes ignored or sent to junk folders because of their resemblance to email spam:

One of the early users noted that the onboarding email included “reply-to” metadata to deliver replies to “feedback@shadowinc.io.” [...] when this user saw the domain name “shadowinc.io” in the reply-to field, it made the app and the onboarding email appear “suspicious” to him, like a phishing scam.

According to the report, only 35% of precinct chairs logged into the app on Caucus Night, and among those who logged in, only 70% submitted results using the app. The remaining precinct chairs resorted to backup plans, which involved reporting results via phone to volunteers in a central “boiler room.” However, this process also encountered issues. In this regard, the report states:

IDP volunteers were unable to log into a web portal provided by Shadow to input caucus results for caucus chairs who did not use the app [...] Shadow had provided this tool to the IDP approximately three weeks prior to the caucuses. [...] While the IDP conducted a training for boiler room volunteers the afternoon before the caucuses, it did not include the webtool as part of that training. The volunteers were seeing the tool for the first time when they arrived at the boiler room on caucus night.

Additionally, the report describes how boiler-room volunteers were unable to log into the system because a security policy banning personal phones prevented them from completing the required two-factor authentication:

[The IDP] instructed the volunteers not to bring their personal cell phones into the boiler room due to security concerns. Therefore, [...] those users could not use the mandatory two-factor authentication (2FA) system, which [...] was a security measure to confirm the user’s identity by requiring the user to enter a confirmation code sent to the user’s personal cell phone by text message.

Due to problems with the software tool for inputting results in the boiler room, volunteers turned to the second backup option: writing down results on paper. This approach also failed as phone lines became overwhelmed, with less than 20% of more than 5,000 incoming calls being answered [21].

These and other issues described in the report suggest that media portrayals of the event as chaotic were not exaggerated. The IDP had introduced the new app to improve the transparency of the process by releasing more detailed and faster results. However, delays in development and deployment, caused by disagreements with the Democratic National Committee (DNC) over security concerns related to proposed reforms (including unrealized virtual caucuses [21]), made the changes counterproductive. While the IDP report and much media coverage attribute the problems to insufficient testing, training, and incompetence of responsible actors, voters across the nation developed doubts that the incident was accidental.

3 Expected Correlates of Conspiratorial Thinking

Because of the need for Internet or network connectivity, the aspects of the election ecosystem that have been identified as most vulnerable to intrusion are the voter registration process and reporting of results [33], precisely the stages of the caucus process that rely most on technology. Most of the research on voter trust in elections and voting technologies, however, has centered on beliefs about the accuracy and integrity of vote casting and counting, such as the tabulation of votes by voting machines. This research has identified multiple correlates of voter confidence, defined as voters' trust in their votes being counted as intended [1]. One of the most consistent findings identified in these studies is that, after elections, voter confidence tends to be highest among supporters of the winning side, a result known as the 'winner's effect' [32].

The case explored here is distinct from those studied in much of the literature given the intra-party nature and unique structure of the Iowa Democratic caucuses, and that the incident involved a series of implementation failures rather than a malfunction or security breach of a vote-casting technology. Our focus here is also not on general perceptions of accuracy or integrity, but specifically on beliefs in conspiratorial explanations for electoral incidents. In coming up with research hypotheses, we therefore paid special attention to the literature on determinants of endorsement of electoral conspiracy theories.

In the context of political opinions, endorsement of conspiracy theories is primarily driven by motivated reasoning, influenced by partisanship and in-group/out-group thinking around political identities [7, 8, 11, 20, 25]. In the United States, both Democrats and Republicans exhibit concerns that the opposing party might be manipulating the electoral process for their own benefit [11], a phenomenon that became central to the debate about the 2020 presidential election [12]. Individuals from both partisan groups are susceptible to believing election-related conspiracy theories [11, 23], though Democrats and Republicans generally worry about different forms of electoral manipulation [11].

In the case of the 2020 Iowa Democratic Caucuses, the fact that all candidates were running under the same party label means that traditional partisan cues were attenuated. However, this does not eliminate the potential for motivated reasoning to shape perceptions of the software problems. Instead, we anticipate that partisan identity would manifest in two main ways. First, we expect a significant difference between the "in-group" with a direct stake in the outcome (Democrats) and "out-groups" (Republicans and Independents). As the in-group, Democrats were likely more engaged and invested in the selection of their presidential candidate, resulting in greater knowledge of and interest in the caucus outcome. At the same time, their position as outsiders might motivate non-Democrats to view the opposing party's electoral process more critically. Second, within the in-group, intense intra-party competition means that supporters of different candidates could have been motivated to interpret the events in ways that favored their preferred candidate.

Although a winner's effect might have led those ideologically closer to certain candidates to

embrace or reject conspiratorial explanations, we do not expect this to be dominant because, (1) prior studies show that while the winner's effect significantly influences voter confidence (confidence that the vote was counted as intended), it has weaker impact on beliefs about specific forms of electoral misconduct [22]; and (2) the outcome was extremely close and inconclusive due to numerous issues with the caucus process that extended beyond software problems, to the extent that the Associated Press decided not to declare a winner [3]. If a winner's effect existed, we expect voters aligned ideologically with Buttigieg to show greater trust in the process compared to those aligned with Sanders, who came second by a close margin in the official results.

Another key driver behind the endorsement of political conspiracy theories is a general tendency towards conspiratorial thinking [23]. Psychologists propose that this tendency is rooted in individuals' desire for knowledge and certainty, particularly when information "feels too much, too little, incomplete, contradictory, or ambiguous" [7, p. 273]. We anticipate that individuals who generally perceive the world through a conspiratorial lens, beyond just elections, will be more likely to believe that the delay was intentional.

Lastly, we expect that individuals with low levels of political knowledge experience significant uncertainty about the caucus process and the nature of the incident, leading to a heightened desire to understand, which can encourage conspiratorial thinking [7]. This lack of understanding makes less informed individuals more susceptible to feelings of uncertainty and a need to make sense of events, thus making them more inclined to accept conspiracy theories as explanations.

4 Data and Methods

We use data from a national probability-based online survey conducted by Ipsos for the Pew Research Center [27].⁵ It includes responses from 10,300 adults interviewed between February 18 and March 2, 2020; within a month of the Iowa caucuses and days before the World Health Organization (WHO) declared COVID-19 a pandemic, ensuring the incident is still fresh in people's minds and that responses are not contaminated by COVID-19 related opinions and concerns.⁶

The dependent variable in our analyses is based on responses to a question that asked about perceptions of the reporting delays in the 2020 Iowa Democratic Caucuses:

As you may know, full results from the Iowa Democratic caucuses in early February were not released publicly for several days. From what you've seen or heard, which of the following do you think best describes why releasing the results of the Iowa Democratic caucuses was delayed?

⁵ The dataset corresponds to Wave 62 of the American Trends Panel (ATP), maintained by the Pew Research Center.

⁶ We imputed missing values in all variables using the R package *mice* [34].

Respondents could choose from the following options: “There were unintentional problems that caused delays but not major efforts to purposefully delay the results,” indicating belief in the benign nature of the delay; “Not only were there unintentional problems causing delays, there were also major efforts to purposefully delay the results,” indicating belief that the software problems were the result of concerted electoral malfeasance; and “Not sure.” We use this question to code our dependent variable because the option “major efforts to purposefully delay the results” directly operationalizes our definition of a conspiracy theory: a secret, coordinated effort to achieve an outcome [7].

	Beliefs About Delay			N
	Intentional	Not Sure	Unintentional	
All respondents	32.0	28.2	39.8	10,300
Democrats	24.2	27.9	47.8	3,422
Republicans	42.2	26.6	31.3	3,315
Independents	30.0	30.0	40.0	3,563

Tab. 1: Beliefs About Iowa Caucus Delay by Subgroup (Weighted)

Tab. 1 shows the weighted percentage of respondents reporting that the delay was intentional, unintentional, and who are not sure, in the entire sample, as well as broken down by party identification.⁷ Among Democrats, 48% report that the delay was unintentional, 24% report that it was intentional, and 28% are unsure. This suggests that a substantial share of Democrats embrace conspiratorial explanations for the incident. The ‘unsure’ response may be interpreted as a mild form of conspiratorial belief, insofar as these respondents do not affirm the benign explanation and appear open to the possibility of a conspiracy. The extent of conspiratorial thinking is even higher among Independents (30% report it was intentional and 30% are unsure) and, particularly, Republicans (42% report it was intentional and 27% are unsure).

Tab. 2 shows the weighted percentage of respondents with different beliefs about the nature of the delay, broken down by key predictors for Democrats, Republicans, and Independents separately. The key predictors examined are non-electoral conspiratorial thinking, factual knowledge about the Democratic candidates, and ideological proximity to Bernie Sanders.⁸

The first variable of interest is predispositions toward conspiratorial thinking beyond the electoral arena. We approximate this using a question that asked whether mistakes in news stories are due to a “desire to mislead” with options: ‘a major reason,’ ‘a minor reason,’

⁷ We label respondents as Democrats if they select this option when first asked about party identification, with response alternatives including “Republican,” “Democrat,” “Independent,” and “Something Else.” The survey includes a follow-up question asking about party leanings among Independents and those selecting “Something Else,” but we do not use it in coding party identification.

⁸ Factual political knowledge is coded into three categories based on respondents’ scores on a 0–7 scale. Respondents with scores below 4 are classified as having low knowledge; those with scores of 4 or 5 as medium knowledge; and those with scores of 6 or 7 as high knowledge. For all bivariate comparisons reported in Tab. 2 we reject the null hypothesis of independence of the row variable vis-à-vis beliefs about the delay at conventional confidence levels. Test statistics are reported in Tab. A1 in the Online Appendix.

		Beliefs About Delay			
		Intentional	Not Sure	Unintentional	N
Democrats					
Conspiratorial Thinking: No		15.7	26.5	57.8	939
	Minor	23.6	26.7	49.7	1,452
	Major	33.0	30.9	36.2	1,031
Factual Knowledge:	Low	24.5	43.1	32.4	1,983
	Medium	29.7	11.0	59.3	568
	High	20.1	4.5	75.4	871
Closest to Sanders:	No	21.6	28.0	50.4	1,868
	Yes	27.5	27.8	44.7	1,555
Republicans					
Conspiratorial Thinking: No		22.3	30.9	46.9	388
	Minor	30.3	36.4	33.3	886
	Major	51.0	21.5	27.6	2,040
Factual Knowledge:	Low	41.2	33.5	25.3	2,392
	Medium	48.0	8.3	43.7	679
	High	35.5	10.0	54.6	244
Closest to Sanders:	No	41.0	22.8	36.2	2,396
	Yes	45.1	36.4	18.5	919
Independents					
Conspiratorial Thinking: No		21.4	30.3	48.3	743
	Minor	23.6	30.9	45.5	1,297
	Major	39.6	29.1	31.3	1,523
Factual Knowledge:	Low	29.2	42.7	28.1	2,230
	Medium	36.0	11.7	52.3	697
	High	26.7	5.9	67.4	635
Closest to Sanders:	No	29.2	27.7	43.1	2,566
	Yes	32.3	35.9	31.8	997

Tab. 2: Beliefs About Iowa Caucus Delay by Predictor Values (Weighted)

or ‘not a reason.’⁹ Among those without conspiratorial views of the media, belief that the delay was intentional is held by 16% of Democrats, 22% of Republicans, and 21% of Independents. This figure rises sharply among those who see a “desire to mislead” as a major reason, with 33% of Democrats, 40% of Independents, and over half of Republicans (51%) believing the delay was intentional. Increased conspiratorial thinking has a negative association with the belief that the delay was unintentional.

⁹ We validated this measure against a 0-3 scale of perceived media conspiracy derived from three questions about news organizations covering up mistakes, favoring financial interests, and attributing unfair coverage to them. The variables are positively correlated (weighted correlation = 0.37). The conspiracy scale’s highest score (3 on the scale) is observed in 62%, 39%, and 18% of respondents who see “desire to mislead” as a major, minor, and not a reason for mistakes in news stories, respectively, indicating a strong association.

The second variable of interest is a 0-7 scale measuring factual knowledge about Democratic presidential candidates' attributes and policy positions. We created this measure by adding up the number of correct responses to questions on candidates' personal characteristics and ideological positions.¹⁰ A majority of respondents with high knowledge levels believe the delay was unintentional (75% of Democrats, 67% of Independents, and 55% of Republicans) compared to only about 32% of Democrats, 28% of Independents, and 25% of Republicans among those with low knowledge. Conversely, the percentage of unsure respondents increases decidedly as knowledge levels decrease. Among Democrats, it jumps from 5% for high-knowledge individuals to 43% for low-knowledge ones. A similar, stark pattern is observed for Independents (from 6% to 43%) and to a lesser but still substantial degree for Republicans (from 10% to 34%).

The third explanatory variable of interest is an indicator of being ideologically closest to the runner-up in the Iowa caucuses (Bernie Sanders). While this measure was used in part due to the absence of a direct candidate support question in the dataset, it also offers a more nuanced measure of support. To measure proximity to Sanders we took the absolute value of the difference between respondents' ideological position and their own perception of each candidate's ideological position.¹¹ Unlike a binary indicator of candidate preference, this measure captures varying degrees of ideological proximity and is available for all respondents, not just Democrats. Compared to other respondents in their respective parties, those ideologically closest to Sanders are consistently less likely to describe the delay as unintentional. The association is most pronounced among Republicans, where the belief in an unintentional delay drops from 36% among those not closest to Sanders to just 19% among those who are. The same pattern holds for Independents (a drop from 43% to 32%) and Democrats (a more modest drop from 50% to 45%).

5 Multivariate Analysis

The group-specific beliefs summarized in Tab. 2 may reflect underlying differences in individual characteristics. Individuals with negative views of the news media and high expectations of misinformation are likely to be more susceptible to conspiratorial thinking and more inclined to interpret the delays as intentional. Those with lower educational

10 To determine if this scale captures specific knowledge about the Democratic field or general political knowledge, we compared it with a measure developed by the Pew Research Center, which is based on responses to eight factual knowledge questions about politics in a prior wave of the American Trends Panel. The measures are strongly positively correlated (weighted correlation = 0.62), indicating that familiarity with the Democratic candidates largely reflects general political knowledge.

11 Ideological self-placements were reported on a 5-point scale, with labels "very conservative," "conservative," "moderate," "liberal," and "very liberal." Perceived candidate ideological positions were originally reported on a 7-point scale, which breaks down "conservative" into "mostly conservative" and "slightly conservative," and similarly for "liberal." To place self and candidate positions on a comparable 5-point scale, we collapsed together the "mostly" and "slightly" categories for both conservative and liberal candidate positions. In constructing the binary indicator of "Closest to Sanders," we dealt with ties by assigning value one to respondents closest to both Sanders and some other candidate.

attainment may also exhibit lower levels of political knowledge and a greater tendency to endorse conspiratorial explanations. Similarly, respondents with limited interest in the campaign may be less politically informed, more ideologically moderate, and more uncertain about the nature of the Caucus Night delays.

To study the relationship between perceptions of the nature of the delay and our explanatory variables of interest, while holding constant other observable factors, we estimated a multinomial logistic regression. Since the incident took place in the context of the Iowa Democratic caucuses, we conduct the analysis separately for Democrats, who are likely to have a relatively positive attitude toward the Democratic primary process and at least some of the Democratic presidential candidates, and non-Democrats, who are comparatively more likely to either be less interested in the Democratic primary process or have a negative attitude toward it. Theoretically, this grouping allows for a comparison between the in-group with a direct stake in the election (Democrats) and out-groups (non-Democrats, including Republicans and Independents).

In our regressions, the probabilities of each belief category (intentional, unintentional, and not sure) are modeled in terms of respondent characteristics. The control variables include: an indicator of actively seeking news as opposed to involuntarily coming across news stories; a 0-5 scale of positive views of the news media; an indicator of expecting misinformation in news stories; self-reported interest in the campaign; a 5-point ideology scale; basic demographics (including education, age, gender, and race/ethnicity); an indicator of living in the Midwest region (closer to Iowa); days transpired between the interview and Caucus Day; and, in the case of the model for non-Democrats, an indicator of Republican party identification.¹²

Fig. 1 shows confidence intervals for changes in the probability of perceiving the incident as intentional (top panel), being unsure (middle panel), and unintentional (bottom panel), associated with marginal changes in values of predictors of interest, for Democrats (blue intervals) and non-Democrats (red intervals).¹³ Reporting a “desire to mislead” as a “major” cause for mistakes in news stories is associated with a significant increase in the belief that the delay was intentional, with an increase of 12 percentage points for Democrats and 18 percentage points for non-Democrats. This is accompanied by a decline in the belief that the delay was unintentional, by 10 and 13 percentage points, respectively, and a smaller

¹² We evaluated the predicted accuracy of both models by comparing observed and predicted beliefs about the nature of the delay, using weighted metrics to ensure a consistent comparison against the population-representative baseline reflected in our descriptive statistics tables. The model for Democrats correctly classifies 61.3% of respondents, and the one for non-Democrats correctly classifies 58.8%. These accuracy measures represent 13.5 and 22.9 percentage point improvements compared to intercept-only models that classify all respondents into the most common response category, respectively. Because of the imbalanced nature of the data (with ‘unintentional’ being the most popular belief), both models struggled considerably more to identify those who reported ‘intentional’ than to identify those who said ‘unintentional.’

¹³ Tab. A2 in the Online Appendix reports estimated coefficients and coefficient standard errors for the multinomial logistic regression model. Tab. A4 and Tab. A5 report point estimates and confidence intervals for marginal effects.

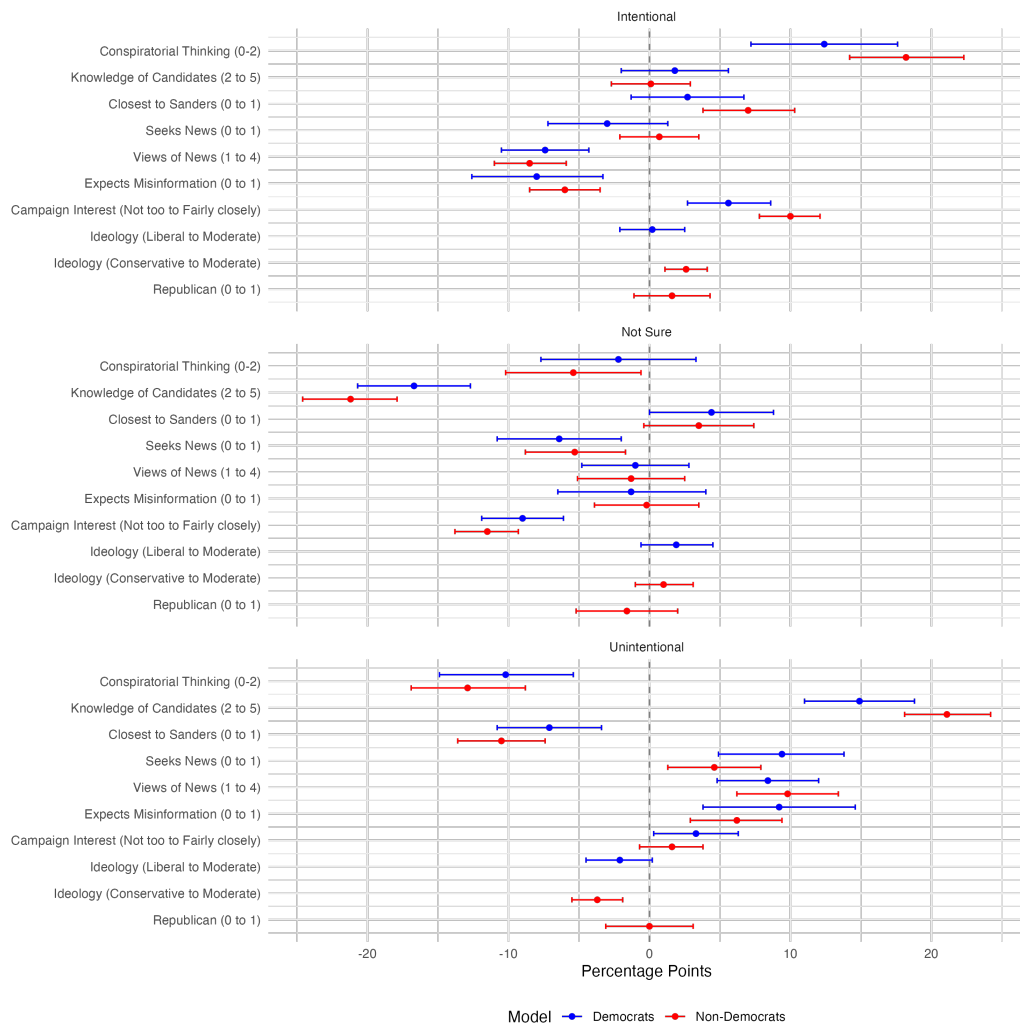


Fig. 1: Marginal Effects of Political Attitudes on Perceptions of Delays

decrease in the probability of being unsure, with a reduction of 5 percentage points or less, statistically significant only for non-Democrats.

Factual knowledge about the Democratic candidates is also strongly associated with perceptions of the nature of the delay. An increase in factual political knowledge (from 2 to 5 along the 0-7 scale) shows no statistically significant association with perceiving the delay as intentional, but is strongly associated with a reduction in the chance of being unsure

among both Democrats and non-Democrats (17 and 21 percentage points, respectively), and corresponding increase in the percentage reporting that it was unintentional (15 and 21 percentage points, respectively).

To better visualize the substantive magnitude of these findings, Fig. 2 plots the predicted probabilities of each belief across the full range of our two most important predictors: non-electoral conspiratorial thinking and factual political knowledge. The top panel of the plot shows that as non-electoral conspiratorial thinking increases, so do beliefs about the intentionality of the delay, with a corresponding decline in believing it was unintentional. The bottom panel of the plot shows that as factual political knowledge increases, so does belief that the delay was unintentional, with a corresponding decline in the probability of being unsure. An almost identical pattern is seen among Democrats and non-Democrats.

Our third variable of interest is useful for ascertaining whether Sanders sympathizers (those closest to him ideologically, relative to the other candidates) show evidence of a ‘loser’s effect.’ Our results suggest that, indeed, being ideologically closest to Sanders compared to the other candidates is associated with a lower likelihood of characterizing the delay as unintentional (7 and 11 percentage points, respectively), a moderate increase in the chance of being unsure (4 percentage points but statistically indistinguishable from zero in both models), and a moderate increase in thinking the delay was intentional (3 and 7 percentage points, respectively, but only statistically significant for non-Democrats).

These results are largely consistent with the bivariate relationships discussed earlier in the paper, suggesting that relationships between each of the three explanatory variables of interest and conspiratorial beliefs around the delay hold even after controlling for potential confounders. Our estimates suggest that some of these other factors display systematic relationships with perceptions of the delay. More positive attitudes toward the news media and greater expectations of accuracy in news stories are associated with lower chance of believing the delay was intentional and higher chance of thinking it was unintentional. A movement toward the center of the ideology scale did not result in statistically significant estimates in either model, and neither did the indicator of Republican party identification in the model for non-Democrats.

Fig. 3 shows point estimates and 95% confidence intervals for the marginal effects of the remaining variables included in our models, including demographics and time since Caucus Day. One notable result seen in this plot is that higher educational attainment is associated with greater belief that the delay was unintentional (10 and 7 percentage points among Democrats and non-Democrats, respectively), decline in the chance of being unsure (8 and 4 percentage points, respectively), and also decline in the chance of believing the delay was intentional (3 percentage points in both models). The other notable result is that Blacks and Hispanics are considerably less likely to think the delay was unintentional (more than 7 percentage point difference for Blacks and Hispanics of any party identification, compared to respondents of other races), with the most frequent alternative belief in these groups being uncertainty about the cause of the delay. And lastly, we also find that as time since

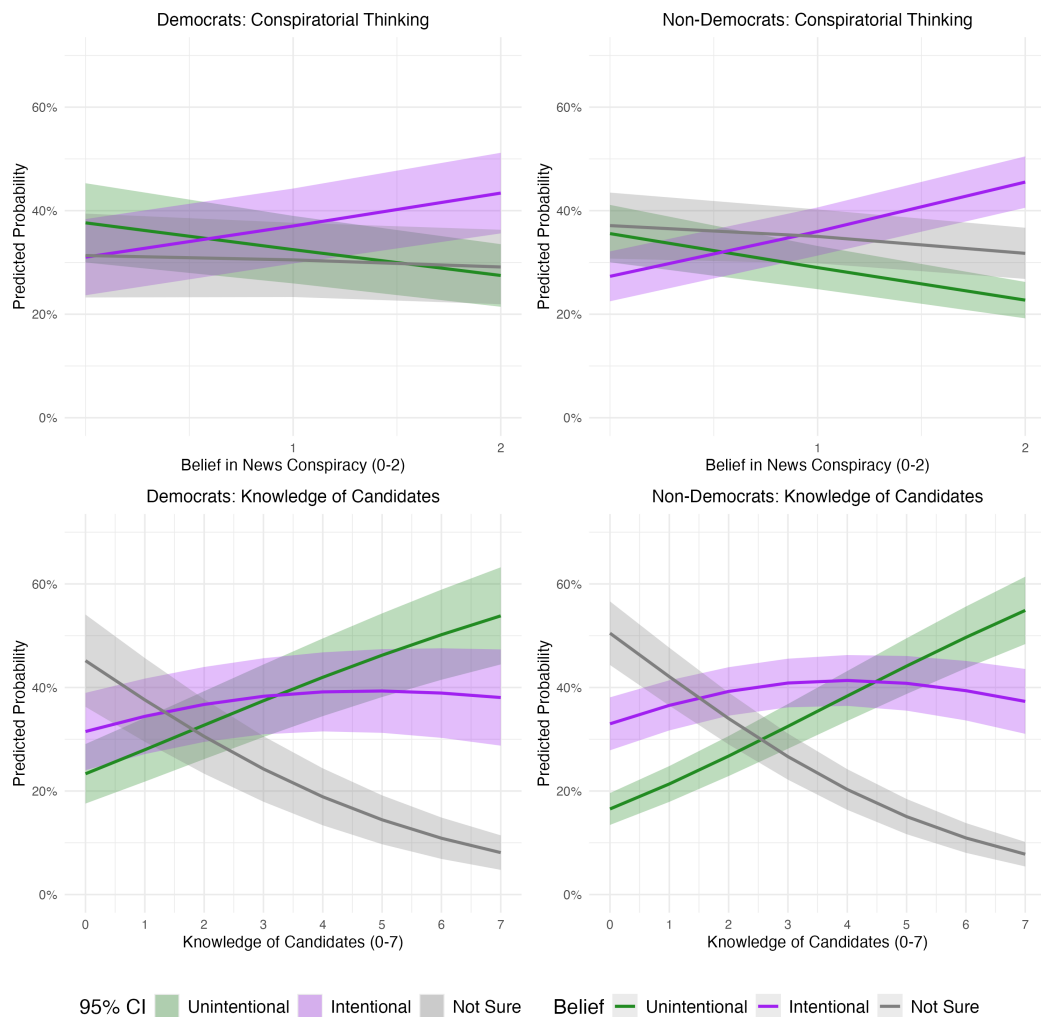


Fig. 2: Predicted Probabilities of Iowa Caucus Delay Beliefs

Caucus Night increases (from 17 to 29 days), the probability of indicating that the delay was intentional decreases (14 and 9 percentage points among Democrats and non-Democrats, respectively), and the probability of being unsure increases (22 and 11 percentage points, respectively).

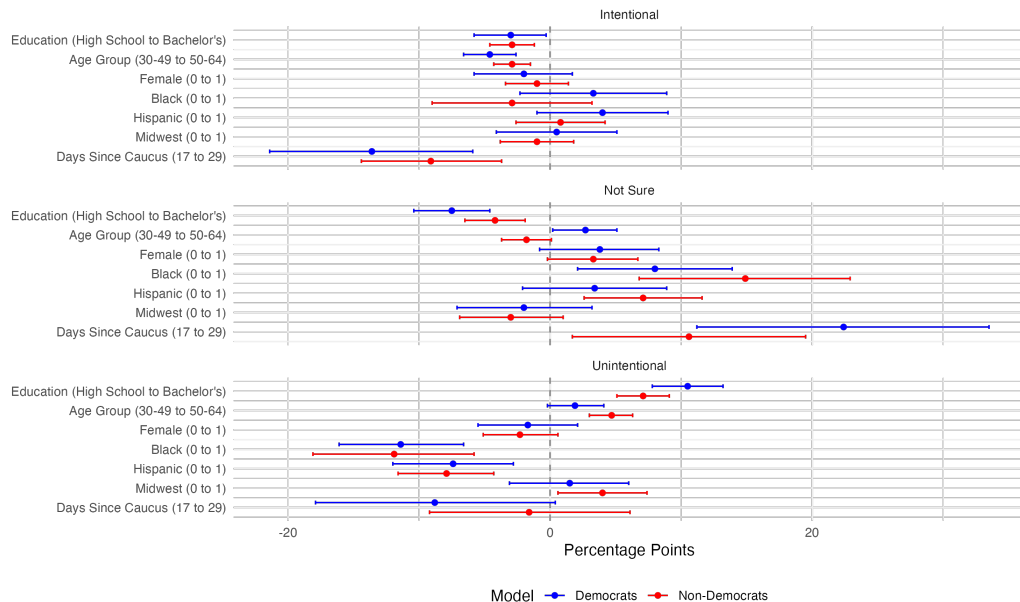


Fig. 3: Marginal Effects of Voter Demographics on Perceptions of Delays

6 Conclusion

Previous research has identified making voting more convenient and improving the voting experience as major forces behind the adoption of new voting technologies [2, 29, 33]. Duenas-Cid [9, p. 675], for instance, notes that “convenience can be understood as a gateway to technology acceptance on the condition that overall experiences remain positive and risks are perceived as manageable.” Election administrators have limited influence on perceptions of risk, as even when voting systems are objectively secure, this does not always translate into voter confidence [10] and civic education interventions may be least effective among those who need the information most [25]. Election administrators should have, however, considerable control over the electoral process and implementation of the voting system, which could be leveraged to enhance the perceived convenience of the system.

In this context, the case of the 2020 Iowa Democratic Caucuses exemplifies how party leaders did not achieve the core goals of technology deployment: greater convenience and more positive experiences for voters and caucus volunteers. The negative experience, particularly the Caucus Night chaos, delayed election results, and the subsequent skepticism about the outcome’s accuracy, severely compromised trust in the Iowa caucus process and beyond. This erosion of confidence prompted the IDP to shift away from the traditional in-person caucus system.

Much of the criticism of the deployment is supported by evidence and corroborated narratives from Caucus Night. However, it is concerning that the system used in subsequent elections was changed partly in response to collective interpretations shaped by conspiratorial thinking. It underscores concerns that conspiracy theories could increasingly become the foundation for public policy [11], as public officials may respond to election mishaps in part due to conspiracy-fueled public pressure, not solely objective failings.

This study finds that non-electoral conspiratorial thinking, specifically around news media organizations, is strongly associated with conspiratorial thinking around the election controversy. Our results offer a clear warning: when chaotic implementation and technological failures create uncertainty about the integrity of the electoral process, conspiratorial explanations and misinformation can quickly fill the confidence void, turning logistical problems into a crisis of legitimacy. As the media landscape evolves, further shifting away from mainstream media towards new media less bound by journalistic standards and where misinformation abounds [13], including unverified claims of voter fraud, we may witness an increase in the acceptance of misinformation and conspiracy theories, potentially leading to a further decline in trust in elections and voting technologies.

The results provide some reasons for optimism. There is a strong positive correlation between factual political knowledge and belief that the delay was unintentional. This suggests that as voters become more informed about the electoral process, they may become less uncertain about the system. Consequently, they may be less likely to fill information gaps with unverified information or conspiracy theories. While the broader literature finds that corrective messaging often faces significant hurdles [25], our results highlight the relevance of knowledge and suggest that well-designed informational campaigns could potentially help reassure voters and reduce their susceptibility to conspiratorial beliefs.

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A Online Appendix

Comparison	χ^2 statistic	p-value
Democrats - Conspiratorial Thinking	12.6	< 0.001
Factual Knowledge	31.2	< 0.001
Closest to Sanders	3.74	0.024
Republicans - Conspiratorial Thinking	18.9	< 0.001
Factual Knowledge	25.5	< 0.001
Closest to Sanders	21.1	< 0.001
Independents - Conspiratorial Thinking	12.7	< 0.001
Factual Knowledge	32.9	< 0.001
Closest to Sanders	8.0	< 0.001

Tab. A1: Independence Tests for Beliefs About Iowa Caucus Delays

Variable	Democrats		Non-Democrats	
	Intentional	Not Sure	Intentional	Not Sure
Intercept	1.24 (0.53)	0.81 (0.56)	0.33 (0.38)	1.72 (0.44)
Conspiratorial Thinking	0.33 (0.06)	0.12 (0.07)	0.48 (0.05)	0.15 (0.06)
Knowledge of Candidates	-0.09 (0.03)	-0.36 (0.03)	-0.15 (0.02)	-0.44 (0.03)
Closest to Sanders	0.29 (0.1)	0.34 (0.11)	0.58 (0.08)	0.44 (0.09)
Seeks News	-0.32 (0.11)	-0.45 (0.12)	-0.1 (0.08)	-0.27 (0.09)
Views of News	-0.16 (0.03)	-0.08 (0.03)	-0.2 (0.03)	-0.09 (0.03)
Expects Misinformation	-0.52 (0.13)	-0.26 (0.14)	-0.41 (0.07)	-0.16 (0.09)
Campaign Interest	0.08 (0.07)	-0.42 (0.07)	0.27 (0.05)	-0.42 (0.06)
Republican			0.06 (0.07)	-0.04 (0.09)
Ideology	0.07 (0.06)	0.12 (0.06)	0.2 (0.04)	0.13 (0.05)
Education	-0.17 (0.03)	-0.26 (0.04)	-0.15 (0.02)	-0.15 (0.03)
Age Group	-0.21 (0.05)	0.03 (0.06)	-0.23 (0.04)	-0.17 (0.05)
Female	-0.02 (0.09)	0.16 (0.11)	0.03 (0.07)	0.15 (0.08)
Black	0.46 (0.13)	0.59 (0.14)	0.3 (0.19)	0.75 (0.19)
Hispanic	0.34 (0.12)	0.32 (0.13)	0.28 (0.09)	0.43 (0.11)
Midwest	-0.02 (0.11)	-0.1 (0.13)	-0.14 (0.08)	-0.19 (0.1)
Days Since Caucus	-0.03 (0.02)	0.07 (0.02)	-0.03 (0.01)	0.02 (0.02)

Tab. A2: Multinomial Logit Model Coefficients (Standard Errors in Parentheses)

	Accuracy			Modal Category
	Full Model	Null Model	Improvement	
Democrats	61.34	47.84	13.50	Unintentional
Non-Democrats	58.78	35.88	22.89	Unintentional

Tab. A3: Model Accuracy Comparison (Weighted)

	Beliefs About Delay								
	Intentional			Not Sure			Unintentional		
Conspiratorial Thinking (0 to 2)	12.4	[7.2	17.6]	-2.2	[-7.7	3.3]	-10.2	[-14.9	-5.4]
Knowledge of Candidates (2 to 5)	1.8	[-2.0	5.6]	-16.7	[-20.7	-12.7]	14.9	[11.0	18.8]
Closest to Sanders (0 to 1)	2.7	[-1.3	6.7]	4.4	[0.0	8.8]	-7.1	[-10.8	-3.4]
Seeks News (0 to 1)	-3.0	[-7.2	1.3]	-6.4	[-10.8	-2.0]	9.4	[4.9	13.8]
Views of News (1 to 4)	-7.4	[-10.5	-4.3]	-1.0	[-4.8	2.8]	8.4	[4.8	12.0]
Expects Misinformation (0 to 1)	-8.0	[-12.6	-3.3]	-1.3	[-6.5	4.0]	9.2	[3.8	14.6]
Campaign Int. (Not too to Fairly)	5.6	[2.7	8.6]	-9.0	[-11.9	-6.1]	3.3	[0.3	6.3]
Ideology (Liberal to Moderate)	0.2	[-2.1	2.5]	1.9	[-0.6	4.5]	-2.1	[-4.5	0.2]
Education (HS to Bachelor's)	-3.0	[-5.8	-0.3]	-7.5	[-10.4	-4.6]	10.5	[7.8	13.2]
Age Group (30-49 to 50-64)	-4.6	[-6.6	-2.6]	2.7	[0.2	5.1]	1.9	[-0.2	4.1]
Female (0 to 1)	-2.0	[-5.8	1.7]	3.8	[-0.8	8.3]	-1.7	[-5.5	2.1]
Black (0 to 1)	3.3	[-2.3	8.9]	8.0	[2.1	13.9]	-11.4	[-16.1	-6.6]
Hispanic (0 to 1)	4.0	[-1.0	9.0]	3.4	[-2.1	8.9]	-7.4	[-12.0	-2.8]
Midwest (0 to 1)	0.5	[-4.1	5.1]	-2.0	[-7.1	3.2]	1.5	[-3.1	6.0]
Days Since Caucus (17 to 29)	-13.6	[-21.4	-5.9]	22.4	[11.2	33.5]	-8.8	[-17.9	0.4]

Tab. A4: Marginal Effects for Democrats (Percentage Points, Reference Person)

	Beliefs About Delay								
	Intentional			Not Sure			Unintentional		
Conspiratorial Thinking (0 to 2)	18.2	[14.2	22.3]	-5.4	[-10.2	-0.6]	-12.9	[-16.9	-8.8]
Knowledge of Candidates (2 to 5)	0.1	[-2.7	2.9]	-21.2	[-24.6	-17.9]	21.1	[18.1	24.2]
Closest to Sanders (0 to 1)	7.0	[3.8	10.3]	3.5	[-0.4	7.4]	-10.5	[-13.6	-7.4]
Seeks News (0 to 1)	0.7	[-2.1	3.5]	-5.3	[-8.8	-1.7]	4.6	[1.3	7.9]
Views of News (1 to 4)	-8.5	[-11.0	-5.9]	-1.3	[-5.1	2.5]	9.8	[6.2	13.4]
Expects Misinformation (0 to 1)	-6.0	[-8.5	-3.5]	-0.2	[-3.9	3.5]	6.2	[2.9	9.4]
Campaign Int. (Not too to Fairly)	10.0	[7.8	12.1]	-11.5	[-13.8	-9.3]	1.6	[-0.7	3.8]
Republican (0 to 1)	1.6	[-1.1	4.3]	-1.6	[-5.2	2.0]	0.0	[-3.1	3.1]
Ideology (Conserv. to Moderate)	2.6	[1.1	4.1]	1.0	[-1.0	3.1]	-3.7	[-5.5	-1.9]
Education (HS to Bachelor's)	-2.9	[-4.6	-1.2]	-4.2	[-6.5	-1.9]	7.1	[5.1	9.1]
Age Group (30-49 to 50-64)	-2.9	[-4.3	-1.5]	-1.8	[-3.7	0.1]	4.7	[3.0	6.3]
Female (0 to 1)	-1.0	[-3.4	1.4]	3.3	[-0.2	6.7]	-2.3	[-5.1	0.6]
Black (0 to 1)	-2.9	[-9.0	3.2]	14.9	[6.8	22.9]	-11.9	[-18.1	-5.8]
Hispanic (0 to 1)	0.8	[-2.6	4.2]	7.1	[2.6	11.6]	-7.9	[-11.6	-4.3]
Midwest (0 to 1)	-1.0	[-3.8	1.8]	-3.0	[-6.9	1.0]	4.0	[0.6	7.4]
Days Since Caucus (17 to 29)	-9.1	[-14.4	-3.7]	10.6	[1.7	19.5]	-1.6	[-9.2	6.1]

Tab. A5: Marginal Effects for Non-Democrats (Percentage Points, Reference Person)