



Framing on social media: How U.S. senate candidates' social media strategies on wealth, education, and housing inequality influence election outcomes

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Abstract

Inequality is a critical issue that has been persistent throughout American history and remains a prevailing topic of discussion, concerning many Americans. The rise of social media has altered the way political conversations about inequality are held, as current politicians frequently utilize these platforms to communicate with voters to increase salience of particular issues. While previous studies have found that voter responses to political candidates' social media posts may cause them to alter their issue campaigns during elections, this article investigates how senate candidates frame wealth, education, and housing inequality on social media and quantitates the impact on their election results. Using a sample of 14 politicians' posts on the social media X from March 1, 2022 to November 8, 2022, and for senate races across 9 states representative of the widest range in inequalities, this study found that thematic framing was more commonly used in media posts. A logistic model was constructed which predicted electoral outcome with 78.6% accuracy and suggested that a strategic combination of episodic and thematic framing may enhance a candidate's electoral success on social media platforms.

Keywords

Political science, Inequality, Wealth inequality, Education inequality, Housing inequality, U.S Senate, Framing, Social media, Episodic framing, Thematic framing

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Introduction

In November 2022, CBS News described the 2022 midterm elections as “the most consequential in years, possibly defying political history and resetting modern political norms” (1). Although midterm elections typically attract less media attention than presidential races, the stakes were high for the 2022 midterm election. Two years into President Joe Biden’s term, the presence of former President Donald Trump loomed large due to his influence and endorsement of Republican candidates, particularly those who aligned with his “Make America Great Again” (MAGA) agenda, some of whom denied the 2020 presidential election results. X (formerly Twitter), proved to be a key component in the election, with more than 8,000 candidates running for all levels of government sharing over 3.3 million tweets during the campaign season. Through X, candidates often discussed key issues they deemed relevant in their campaign in order to obtain support from their constituency. One strategy that candidates often used to appeal to voters was framing key issues in diverse ways to influence voter’s agenda and help issues gain more attention (2). This study investigated Senate candidates’ use of episodic and thematic framing when discussing the topic of wealth, education, and housing inequality on X during the 2022 midterm election. One of the objectives of the study was to find whether candidates’ usage of episodic and thematic frame when discussing inequality on X impacted election results. It was hypothesized that thematic framing would be more prevalent than episodic framing among both winning and losing candidates. This was because thematic framing enables political candidates to present

a nationwide perspective on issues, which may be more effective on social media platforms that transcend state lines and allow users to view politicians’ posts across the entire country. It was also hypothesized that wealth inequality would be discussed the most among all candidates’ posts.

Episodic and thematic framing are essential components of political campaign rhetoric, as the method by which politicians frame issues can significantly impact voter perception, and consequently, voting behavior. Episodic framing emphasizes individual events, while thematic framing contextualizes issues within broader social trends (3). The strategic use of these contrasting frames enables politicians to influence public opinion by highlighting specific aspects of an issue. Analyzing how politicians employ framing, particularly in relation to a specific topic such as inequality, provides a deeper insight into how framing strategies may affect electoral outcomes.

To understand how candidates framed inequality on X during the 2022 midterms, 14 politician’s X accounts from March 1 to November 8, 2022 were analyzed. The sample included seven Republicans and seven Democrats (including one Independent candidate who later received the Democratic nomination), with posts categorized in terms of which inequality was discussed and the type of framing used. In total, 260 posts were coded along with their meta-data (including likes, comments, replies) as well as their stance on the inequality issue, whether they mentioned another candidate, or discussed the current administration. It was found that winning

candidates used episodic framing at higher rates and covered a wider range of inequality issues than losing candidates did.

By examining the use of episodic and thematic framing by the U.S. Senate candidates on X during the 2022 Senate general elections, this study offers insights into how these strategies may influence election outcomes. This finding builds upon existing literature by showing how candidates emphasizing relevant issues through a mix of episodic and thematic framing could enhance voter engagement and support. By doing so, this enables politicians to offer a nuanced approach to political communication that aligns with both national and state-specific concerns. By using episodic framing to evoke empathy and thematic framing to contextualize issues, candidates may better engage voters and address complex issues more effectively. The study findings align with prior research which show that incumbents and successful candidates are more likely to adopt state-specific approaches, further suggesting that tailoring campaign rhetoric to the needs of specific constituencies can be advantageous. For policymakers, this study underscores the importance of understanding voter priorities and adapting communication strategies accordingly.

Literature review

Media framing and agenda setting

How the media frames an issue gives meaning to issues and connects them to the broader political environment. A frame suggests “how the issue should be thought about and understood” (4). Journalists use news frames to

effectively categorize and communicate information to audiences (5). These frames often combine with audience frames, which “guide individuals’ processing of information” (3). Media framing of political issues is typically divided into two types: episodic and thematic. A thematic news frame usually takes the form of in-depth background of the topic and often uses statistics. Conversely, an episodic news frame depicts issues in terms of individual instances or specific events, often through personal narratives (6). Episodic frames tend to be more engaging than thematic frames (7). This appeal is attributed to the personal connection to the individual in the episodic frame, the narrative of an episodic frame, and the relatively digestible nature of the content (6). For example, Springer (2014) found that when participants were exposed to messages about abolishing Social Security, those who saw episodic frames were significantly more likely to adopt attitudes consistent with the message compared to those who saw thematic frames (8). However, there has been very little research on the use of episodic and thematic framing on social media, or of Politicians’ use of these frames on X and the influence on voter salience. Recognizing how the U.S. Senate candidates frame inequality is a critical issue, as inequality is the animating force of political debate and movements in much of today’s society (9). The U.S. serves as a compelling example for this study due to its higher income and wealth inequality than all other developed countries, and in the last 40 years, these rates have significantly increased (10). Despite economic growth in the late 20th century, the socioeconomic gap between the poor and the

wealthy has widened, with 89% of the country's wealth attributed to the wealthiest 20% of the U.S. population (11).

Previous studies show that wealth is closely linked to higher educational attainment and mobility, even when accounting for family income, demographic characteristics, and parental education levels (12). Even after racial zoning laws have been outlawed, race and ethnic disparities in wealth accumulation have perpetuated across generations, allowing segregation to persist (13). This has caused disparities in education funding in states as school districts depend heavily upon local property tax revenue, meaning the wealth of a neighborhood determines how well the school is funded. In addition, racially segregated areas and school funding perpetuate a cycle of unequal opportunity and outcomes (14). Statistically, districts with the most students of color on average receive substantially less (16%) state and local revenue than predominantly white districts.

Regarding housing inequality, numerous studies have shown that homeownership, affordability, and subprime lending not only mirror existing inequalities but also perpetuate them over time. The subprime lending and foreclosure crises of the 2000s stretched households financially, undermining the traditional economic benefits of homeownership. These crises highlighted the interconnectedness of housing and inequality, revealing how housing affordability contributes to the widening wealth gap. While homeownership can promote equality, affordability issues undermine it, and subprime

lending has the potential to alleviate inequality in certain contexts.

Despite the urgent nature of inequality in the U.S., it is not always the most salient issue for voters, which leads politicians to steer away from mainly focusing on this issue during their campaign efforts. Research has suggested that the "riding wave theory" is dominant in agenda setting, where politicians are more likely to follow the voters in terms of which issues are the most contentious. Furthermore, numerous studies have suggested that political parties take their cues from voters and emphasize policy issues that are salient to voters. Hence, issue competition is a "bottom-up process" in which political parties respond to the policy concerns of voters rather than parties affecting the salience of policy issues to its constituency (15). Nonetheless, another study has shown that although agenda-setting is almost always led by voters, members of Congress are mainly responsive to changes in attention allocation by strong partisans (16). In addition, they observed that Democrats and Republicans in Congress particularly follow party supporters on issues that are relevant to them, while they saw little empirical support for the claim that politicians are responsive to the general public. Although agenda-setting occurs in the direction from the voters to the Politicians, the findings show that political and policy agendas in the United States are mainly driven by the priorities of strong partisans and supporters (17).

Lawmakers have turned a blind eye to the issue of inequality. The American Political Science Association's (2004) task force released a

report highlighting the U.S.'s failure to “provide political equality in representation.” Citing various academic studies, the report stated that the U.S. government was more likely to enact policies preferred by the nation’s wealthy population, blaming the existing inequality on the indifference of politicians toward the low-income population (18). Politicians also exhibit bias against racial minorities when deciding to aid low socioeconomic status voters when evaluating their opinions. For example, the U.S. Senate shows consistent support toward upper-income constituents (19). These findings correspond to Barbera (2019), as the wealthy tend to have more political influence over a specific party and show partisan support compared to middle-class and lower-income households.

Nonetheless, politicians’ response to the housing inequality issue has been inadequate. Studies have shown that although Democrats are more likely than Republicans to support a federal guarantee of housing for all, this is not consistent with support for building needed housing in their communities (20). Elite Democrats have refrained from raising exclusionary housing policies as a national issue, because to do so would antagonize pivotal suburban voters. While Republicans may state that they do not support intrusive government regulations, they have supported strong land use regulation in their communities.

The Senate's substandard responsiveness to inequality in policy prompted this study on how the U.S. Senate candidates form political discourse on this matter on social media and voters’ response to the Senate candidates

framing this issue. The enduring and increasing impact of inequality on American lives along with the lack of the U.S. government’s effective response to this issue makes this topic of study of great scrutiny, as it may provide context on U.S. senate candidates’ vision on inequality which they discuss on social media.

Campaign rhetoric

Politicians constantly look for new opportunities to frame their political stance on various issues (21), they are free to decide what kind of image or version of themselves they want to present to voters via their rhetoric and public priorities (2). Although political candidates have limited control over how mainstream news media frame the election, candidates utilize social media platforms to craft their election narratives. Candidates have adopted digital communication for strategic purposes, allowing supporters to engage with the campaign in ways beneficial to the candidate (22). More recently, politicians have turned to social media to convey their campaign messages. For example, the election between President Obama and John McCain in 2008 was deemed the first “social media Presidential election.” Social media outlets have become increasingly important for politicians as mass media has continued to shrink, limiting the number of voters they reach (23). Simultaneously, increasingly more people receive their news from social media platforms. Since social media provides politicians with an outlet to spread their campaign message to voters, it is crucial to discern how lawmakers shape their digital public image (24).

Politicians' strategic approach to social media can take the form of an issue-oriented approach prioritizing policy, or a traditional approach, focusing on outreach to constitutionally defined geographic constituents to build rapport with voters. For example, members of Congress who face a greater chance of reelection may use a state-specific approach in their X posts. In addition, lawmakers holding leadership roles in the Senate and Democratic candidates running for Senate positions prefer to debate national policy issues online (2). Other literature on politicians' strategic approach to social media has found that competitiveness, for example, is related to distinct campaign behaviors: those in competitive races are significantly more likely to use social media to attack opponents and to encourage voters to act on their behalf (25). Furthermore, Presidential candidates who have higher polling numbers are more likely to focus on image, rather than policies, on their social media platforms, using Twitter to create a desirable image for themselves or attack their opponents based on personal characteristics, rather than to compare and contrast their policies and vision (26).

An analysis of social media usage in 2011 examining congressional activity on Twitter found notable shifts in content patterns (27). While Congressional posts initially focused on policy positions (41%), posts resembling traditional media or press releases dropped to < 10% of all posts. However, as more Members of Congress joined Twitter, gained followers, and became proficient with the platform, the content of their tweets evolved as members of Congress realized they could convey their stances on bills or policy matters within

Twitter's 140-character limit. Over time, there was a noticeable shift towards using more informal and Twitter-specific language in their communications, adapting to the platform's conventions or norms. Additionally, Lawmakers began to tweet more frequently, with research indicating that partisan differences in tweet frequency were diminishing (28). A study examining how visual attributes influence voter engagement on social media found that strategies in visual media, for example, images featuring politicians in private, nonpolitical settings and displaying emotions, generally increased audience engagement (29). Studies suggest that continuous feedback from constituents is monitored, evaluated, and taken into account, which has transformed politicians' posts over time (2).

However, there is limited literature on how Senate candidates frame a specific issue, such as inequality, on social media. While prior research investigates politicians' strategic approaches to social media and the overall framing of their campaign, it does not investigate how politicians frame a particular issue and how it may impact voter salience and ultimately, the election outcome.

Social media

Social media allows Senators to convey information to voters about their approach to various issues across their constituencies. One such platform, X (formerly Twitter), provides a space where political discourse can occur with little constraint, much like it did once in the mass media. However, social media platforms let politicians connect more directly and

instantaneously with hundreds or thousands of people – something print and television news did not allow. This real-time connection within the 24-hour news cycle helps Politicians develop trust with voters – increasing their odds of winning the election – and increasing politicians’ individual autonomy in building their political image (30). Furthermore, posts can be amplified by voters, journalists, activists, or lobbyists through engagement such as likes/favorites and retweets, helping to spread politicians’ campaign messages at little to no cost to them (31). X—for voters, is a social media platform where political discourse is ubiquitous. A Pew study found that one-third

(33%) of tweets from the representative sample of U.S adult X users were political in nature (32). Due to the substantial population of the U.S. using X to navigate politics, it is optimal to investigate what issues voters are most conscious about, and how politicians frame these issues.

Methods

Inequality

In identifying the dialogue of inequality, it was critical to define the types of inequality – wealth, education, and housing—in a way that was optimal for this study. Wealth is defined as

Table 1. Detailed description of case selection

<i>States</i>	<i>Wealth inequality</i>	<i>Education inequality</i>	<i>Housing inequality</i>
Pennsylvania	Control	Control	Control
New York	The state experience high levels of wealth inequality, candidates are expected to address wealth inequality more frequently		
Utah	The state experiences low levels of wealth inequality, candidates are expected address wealth inequality less frequently		
California			The state experiences high levels of housing inequality, candidates are expected to address housing inequality more frequently
Arkansas			The state experiences low levels of housing inequality, candidates are expected to address housing inequality less frequently
Alaska		The state experiences high levels of education inequality, candidates are expected to address education inequality more frequently	
Vermont		The state experiences low levels of education inequality, candidates are expected to address education inequality less frequently	

net worth, or “the current market value of all the assets owned by households, net of all their debts” (33). Therefore, the dialogue of “wealth inequality” in politicians’ posts was identified by equating it to the definition, “the unequal distribution of assets among individuals or groups within a society” (34). In this study, income inequality is equivalent to wealth inequality, in line with previous studies that showed “a high degree of correlation between wealth and income at the microeconomic level for both rich and poor households, as well as some evidence of a positive cross-country correlation between income and wealth inequalities” (35). This study included “inflation” as a term related to wealth inequality, since previous literature suggested a strong relationship between wealth inequality and inflation. Wealth inequality widens as the poorer households are more financially constrained and lose more in purchasing power from high inflation (36). Regarding education inequality, previous literature has often defined this as, “differences in access to education and disparities in education quality.” However, this study specifically focussed on the education gaps between white and racial minority groups. Housing inequality is defined as, uneven housing outcomes in a specific area including affordability (20). Housing inequality is therefore synonymous with the topic of housing affordability, as previous literature has noted that housing affordability exacerbates and undermines inequality and presents lower-income households with a “distinct handicap in the struggle to escape from social disadvantage and the cycle of poverty” (37).

Selection of social media platform

Politicians' posts from their X (formerly Twitter) accounts were sampled in order to analyze the their mobilization of inequality frames on social media platforms and voter responses. X is a useful platform for this study, as it is the social media platform most used by Americans to navigate politics. In addition, X is an optimal platform for this study due to it being used at relatively equal rates by Democrats and Republicans (17) and its characteristic as a micro-blog—allowing users to post within a 280-character limit. X, encouraging concise interactions with the options to include visuals in their posts, such as images, videos, and GIFs, facilitates the gathering and tracking of users’ fast-paced interactions. X was used to collect data samples for the reasons that, X’s nature as a social media platform that accommodates political discussion and issues led by politicians allowed an investigation in their stance and framing of inequality during their campaign. In addition, voters may use X to navigate how politicians discuss various types of inequality, impacting their salience of the issue and the opinion of the candidate.

Selection of time frame and politicians

The timeframe in which I opted to collect my samples was during the 2022 Senate election, as this was the most recently held election when this study was conducted. The recency of the election was valued when deciding the time frame because it was imperative to gather samples from a social media climate that was the most comparable to the current circumstance during which this study was conducted (2024). During this time, the economy was cited as a top issue for voters, as

79% stated this was a top issue for many voters during the midterm election cycle. Furthermore, a Pew survey found that both sizable majorities of Republican (81%) and Democratic (66%) voters were concerned about inflation, with food and consumer goods prices being a dominant concern (38). As for wealth inequality specifically, another Pew Research survey conducted in 2020 found that 4 in 10 people said that economic inequality was a top issue in the nation, with Democrats much more likely to cite inequality as a pressing issue than Republican voters. Thus, wealth inequality was studied due to its relevance amongst voters as a critical issue in 2022, especially due to inflation causing major disturbances in households across the nation. Similarly, housing inequality stood out as a major issue amongst voters in 2022, as the 2022 Pew polls found that 60% were very concerned about housing prices. Record-high home prices and mortgage costs were experienced during 2022, as Senate Banking Chair Sherrod Brown (D-Ohio) stated, “Skyrocketing rents and a shortage of homes for sale are pushing homeownership further out of reach for millions more families — especially younger households and people of color” (39). The housing affordability crisis which disproportionately affected millennials and the racial minority population made housing inequality a prominent topic in this study. Education inequality has been a contested issue even prior to 2022, illustrated by the growing education gap in voting demands. In the 2018 midterms, 56% of voters with college degrees and 51% of voters without them voted for Democrats, according to the Associated Press’s VoteCast survey — a gap of five percentage

points. In 2022, the gap widened to 10 points: 52% of voters with college degrees supported Democrats while 42% of voters without degrees did so (40). Despite not being the “hottest” issue amongst voters in the 2022 senate election, unequal access to quality education has continuously shaped civic engagement and political engagement amongst voters, which made education inequality a significant topic for this study.

The federal level of politics is the focus of this study as it aims to examine the issue of inequality on a nationwide scale instead of on a local level. An immense and critical issue as inequality requires an optimal method to discern how voters across states feel about this topic, which led to a comparison of federal elected officials across different states who dealt with this issue. The study researched elections of U.S. legislators, specifically Senate candidates, as this would allow a comparison of how Republican and Democratic candidates within a state discuss and frame inequality on X, and also investigate candidates across different states that have either high or lower levels of a specific inequality. Furthermore, Senate candidates are elected by a popular vote within the whole state, which reflects the will of the people in the state including all of the districts, which is not the case for elections for the House of Representatives, which divides the state into smaller districts, and only allows voters to vote for a specific candidate in their district. Senators have garnered familiarity with political discourse on social media for more than a decade, with every member of the U.S. Senate obtaining a verified X (then Twitter) account since 2013 (2). Thus, the selection of

U.S. Senate candidates as the sample for this study was optimal, as it provides a wide variation of politicians who engage in political discourse on X. With regards to the use of social media by U.S. politicians, it is well established that politicians use social media platforms to promote campaigns and policies; the 2008 presidential election being the first in which candidates utilized social media as a campaigning tool (41). However, looking at U.S. Presidents and Presidential Candidates who have utilized social media for political discourse would limit variation in the samples, which prevented from researching this topic further. In addition, Senate elections were preferred in this research, as the Senate elections are not affected by the redistricting process; a process which fosters a higher degree of uncertainty during House elections and may skew electoral outcomes in a direction that corresponds with the intention of mapmakers (42).

Selection of states

A cross-state comparison provides a contrast between how politicians frame inequalities and their impact on voter salience between states that have higher problems with specific inequalities with states that have a relatively low percentage of the specific type of inequality. Not only would cross-state comparisons provide larger datasets than focusing on a single state, due to different states having diverse economic, social, and political contexts, it allows for a profound insight into how context-specific factors influence how politicians choose to frame the topic of inequality and its impact on voters. This study used the 2022 U.S. Senate

Candidates of Pennsylvania, New York, Utah, California, Alaska, Vermont, and Arkansas, as shown in Table 1. The decision behind the inclusion of these states was due to the significance of the states during this election period, and to obtain a contrast of samples between states that experienced differing levels of education, housing, or wealth inequality.

Pennsylvania was featured as a least likely case for the data while comparing inequality of the six other states with dramatically different levels of wealth, education, and housing inequality. A data sample that functioned as a control for inequality was necessary to offer a benchmark in terms of which type of inequality candidates discuss, as well as how they frame the inequality against the results of the states that either have high/low levels of inequality (44). Pennsylvania's senate election was the only Senate seat flipped in the entire 2022 senate election cycle—a Democratic flip from the Republican incumbent Pat Toomey, who did not seek re-election after two terms. John Fetterman (D), former Democratic lieutenant governor ran against Mehmet Oz (R), a celebrity doctor and TV personality, which was the latter's first time running for public office. Not only did John Fetterman (D) succession of the Republican incumbent Pat Toomey in a state described as a “Pittsburgh on the West, Philadelphia on the East, and Alabama in the middle” by James Carville (44) make this state a contentious election, the campaign of the Republican candidate, Mehmet Oz, sparked controversy and attention. Oz's famed television career as a celebrity doctor roused not only Pennsylvania voters but gathered national attention as he announced his

Republican senate campaign. Despite not having served previously in public office, his celebrity status and personality-driven campaign targeted undecided/moderate voters. Thus, Pennsylvania's political environment was characterized as a "battleground" state in elections and the campaigning of a celebrity doctor running for the Senate seat led to the hypothesis that the engagement of voters on X in this election would be crucial and that Pennsylvania was a prominent state to incorporate in this study.

New York state has the worst wealth inequality in the U.S., with the greatest gap between the wealthy and poor, with a Gini score of 0.52 in 2022 (45). Due to New York's particularly stark wealth inequality, this provided a focal point for discussions on economic inequality. Some New York Politicians have expressed their concern about the economic gap among its citizens, such as former New York City Mayor, Michael Bloomberg, who has called for public investment for areas that have seen an economic decline, and increased spending and development by \$100 billion through the National Institute of Health and Department of Defense to accelerate innovation in manufacturing and agriculture (1). New York is generally considered a Democratic state in recent years, voting Democratic in national elections since 1971. New York has elected a Democratic candidate for the Senate since 2001, thus often being called a "safe state" for liberals. Meanwhile, Utah is recognized for having one of the smallest wealth gaps in the country, with a Gini score of 0.43. Economic stability and a relatively low percentage of the population living on either spectrum of

economic extremes can be attributed to its "working-class" reality. Lecia Langston, senior economist for the Utah Department of Workforce Services expressed, "One reason is that we don't have a lot of corporate headquarters, so we don't really have many of the really high earners. We also have a low poverty rate, so we don't have a lot of low earners either. That makes us more toward the middle." Utah is a strong Republican state, with the party holding both of the Senate seats and all four of the U.S. House positions. The pronounced disparity between New York and Utah in terms of wealth inequality raises the question of the difference in how Senate candidates of each state direct political discourse about wealth inequality, as well as the contrast between how candidates from a blue and red state would frame this issue on social media.

California's dismal performance regarding affordable housing has led to the issue of high rates of homelessness, with Los Angeles having by far the largest per capita unsheltered homeless population in the United States (46). Los Angeles in particular, has been ranked as the 9th worst in affordability amongst Metropolitan statistical areas. The housing problem in California is attributed to inadequate supply for demand—migration and economic growth contributing to population increase in California which has maintained difficulty for new housing development to keep pace. In additio - although not limited to California – self-identified Democrats remain ambivalent about the new development of housing units, especially multi-family units because to do so would require land

deregulation. Deregulation has caused disagreement among the left, as some believe that deregulation allows private developers to be left on their own accord which may promote a giveaway to conservative means in the local housing domain (47). In terms of political climate, California has become an increasingly blue state, electing only Democratic candidates for both the presidential and senate elections since 1992. On the other hand, Arkansas has one of the lowest levels of housing inequality in the United States, ranking 2nd in the “10 Best States for Housing Affordability” (West Virginia ranked first, however, did not conduct a senate election in 2022) (48). Housing affordability in Arkansas results from low wages and salaries in comparison to the national average (Arkansas’ average annual pay clocks in at \$48,570, whereas the nation-wide average is \$59,428) (49). Furthermore, the lower cost of living and population density due to its rural nature compared to the national average contributes to the affordability of housing in Arkansas. Arkansas is a stronghold state for the Republican party subsequent to 1964 and the Civil Rights Movement which caused political realignment; a catalyst for Arkansans to vote Republican in every presidential election since 2000 and selecting a GOP candidate in every senate election since 2015 (50). The inclusion of the two states in this study, California and Arkansas, provides a distinctive dichotomy in the samples in terms of political climate as well as offering insights into how different housing market conditions influence voter priorities.

In terms of education inequality, Vermont has the smallest educational achievement gap in

comparing the state-level of non Hispanic whites who are college educated with the share among other racial or ethnic groups (48). As the Vermont’s Education Department states, it prioritizes “the use of integrated educational frameworks as the basic structure on which to build multi-tiered supports for the learning and behavioral needs of all students in Vermont.” (State of Vermont Agency of Education n.d) In addition, a study conducted in 2016 by the Vermont Agency of Education found that Vermont students scored the highest on the National Assessment of Educational Progress (NAEP). These studies shed light on the state’s focus on equitable education policies which may be a point of comparison to states with greater gaps in the nation. Politically, Vermont has become increasingly Democratic in recent years, the party securing governorship for the first time in 1962 since 1853. Since 1991, Bernie Sanders, a self proclaimed Democratic-Socialist, has served in both chambers of Congress representing the State of Vermont; the U.S House of Representative (1991-2007), and the U.S Senate since 2007. Conversely, Alaska has one of the largest educational achievement gaps between racial groups and ranked 49th on the Education Gap by Race (48). American Natives constitute 13.7% of Alaska’s population, compared to the White population of 59.4% (45). Only 57% of Alaska Native students graduated on time in 2013, for example, compared to 78% of white students. In addition, only 7% of Native Alaskan fourth-graders are proficient in reading, according to the 2013 National Assessment of Educational Progress, compared to 41% of white Alaskans (51). This stark disparity underscores significant challenges in the state’s education

system, egregiously making it a critical area of research for discerning the impact of education policy on electoral outcomes. Politically, Alaska regularly supports Republican candidates, benefiting over 30 years of office from congressmen such as Rep. Don Young and Sen. Ted Stevens. 37% of the adults in Alaska identify as conservative, whereas 23% Democratic (How Senate candidates bring forth the topic of education inequality in heavily distinct states such as Vermont and Alaska on social media would lead to further discussions on how various U.S. politicians view this issue.

Coding and Frame

The politicians' posts were obtained using X's advanced search, which aided in finding posts related to the three types of inequalities that were posted during the 2022 Senate general election (March 1, 2022–November 8 2022) by the specific candidate. The “Any of these words” feature in the advanced search was used to narrow down the politician's posts that were relevant to this study. This feature allows users to find specific posts which contain certain words. Terms such as, “inequality, education, housing, income, election, primaries, inflation, wealth” in the “Any of these words” feature were included. With these parameters, the basic metadata of the posts by the Senate candidates, including URL, date coded, date posted, the user's name, their partisanship, number of likes, number of replies, number of retweets, type of post (retweet/ general/ quote/ reply), and whether it included an image, video, or a link, were recorded. A screenshot of each post was also saved. After collecting the posts and their metadata, the study used a qualitative coding scheme aligned with each type of

inequality (wealth, education, and housing), the politician's stance on the subject matter, whether the post was about another candidate, and whether the post attacked the current administration. A qualitative coding scheme was used to identify themes and patterns in politicians' posts for further analysis. The mention of another candidate in the politicians' post was gathered to investigate the politician's intent to shape public opinion around inequality and position themselves as a better candidate. Whether the current administration was criticized in the politicians' posts was coded for a similar reason, and deemed as a campaign strategy to help the politicians contrast themselves from the current administration and call for change.

Regarding politicians' framing, whether the politicians' post was episodic and thematic was recorded. The coding of the inequality and framing were not mutually exclusive (i.e., a post could fall into the categories of multiple inequalities and frames). Episodic and thematic framing were coded for this study to determine which frame politicians used most frequently while campaigning to win public support, and to observe the difference in effectiveness of episodic and thematic framing in impacting voter salience on the topic of inequality. Episodic framing was reported in the form of telling a series of events and particular cases—depicting concrete events that illustrated issues, while thematic framing was coverage which placed political issues and events in some general context, and presented collective or general evidence. A post was considered episodic framing, if the candidate had posted about a single event, story, or situation of a

specific group or individual to highlight a specific inequality issue. (e.g. Mehmet Oz posting about his visit to Flinchy's, a Pennsylvania restaurant that was forced to shut down on Mondays due to inflation). Whereas a post was labeled thematic framing if the politician discussed inequality as a whole, and discussed the implications of the issue in a broader sense (e.g. Alex Padilla sharing a statistic on how wealth inequality had reached proportions not seen since the Gilded Age, and expressing the need to level the playing field for American citizens). A candidate may choose to use episodic framing while campaigning to appeal to users in their state that are familiar with a specific inequality issue, and to provoke users' empathy towards issues that the public may often deem as too abstract (52). Whereas, politicians may use thematic framing to put the issue in general context to prompt users to view the issue as one that is appropriate for collective action, and therefore result in supporting the specific candidate to alleviate the problem.

The posts were categorized into wealth inequality, education inequality, or housing inequality by reviewing the context of the Politicians' posts. A post was classified as wealth inequality if it described how wealth inequality was affecting the people of the specific state, or the entire nation. Descriptions on inflation, such as its erosion on people's purchasing power, or if the post discussed its disproportionate effect on certain households were also considered to be wealth inequality. Politicians discussing the effects of legislation which pertained to wealth inequality, such as the Inflation Reduction Act, were also

considered to fall into the wealth inequality category. A post was categorized as education inequality if the politician discussed the state of unequal distribution of academic resources, such as school funding and technology, introduced a plan or bill to solve education inequality, or advocated for providing quality education for citizens, either within their state, or the entire nation. Posts were labeled as housing inequality if the politician discussed the cost of housing affecting a vulnerable population in the nation (especially in their state) introducing legislation to help solve this issue. In general, posts that addressed the current administration and/or another politician regarding their stance on either wealth, education, and housing inequality were put in their respective categories. To evaluate the statistical significance of framing patterns and issue emphasis, Pearson's chi-square tests were performed for each framing category across all candidates. The following null hypotheses were formulated:

H_{01} : each candidate employed episodic and thematic framing at equal frequencies across posts.

H_{02} : winning and losing candidates used episodic framing at equal frequencies.

H_{03} : each candidate mentioned wealth, education, and housing inequality with equal frequency.

and H_{04} : candidates from states with high levels of a specific inequality referenced that inequality at the same rate as candidates from states with low levels of the same inequality.

Finally, a logistic regression model at <https://orangedatamining.com>, Orange Data Mining 3.39.0, was used to predict senate

election outcomes and win probability of each based on candidates' framing strategies (episodic vs. thematic) and issue emphasis (wealth, education, and housing) on X. To serve as the binary dependent variable for the logistic regression model, each candidate's election outcome was coded as either 1 (win) or 0 (loss). This binary coding allowed the model to estimate the probability of electoral success based on various predictors such as framing strategy (episodic vs. thematic) and issue emphasis (wealth, education, housing). The odds of winning were calculated as the ratio of the predicted probability of winning to the probability of losing, $Odds\ Ratio = \frac{P(win)}{P(lose)}$.

To assess the reliability of the model's predicted odds ratios, 95% confidence intervals and p-values were calculated using Google Sheets. First, each predicted probability was converted to an odds ratio and its natural

logarithm calculated ($\ln(OR)$). The standard error (SE) of $\ln(OR)$ was estimated using the sample's standard deviation and size. The confidence intervals were then calculated as, $Lower\ 95\% CI = e^{\ln(OR) - 1.96 \times SE}$ and $Upper\ 95\% CI = e^{\ln(OR) + 1.96 \times SE}$.

To compute p-values, the z-score ($\ln(OR)/SE$) was used and the standard normal distribution function was calculated in Google Sheets as, $pvalue = 2 \times (1 - \Phi(SE \ln(OR)))$. These calculations allowed for statistical inference about the significance and confidence of each candidate's predicted election outcome based on their communication patterns.

The term "overall posts" refers to posts across both winning and losing candidate categories, whereas specific categories are listed by their obvious designators such as "winner's post" and "loser's posts".

Table 2. Descriptives (within candidates)

<i>All Posts (#)</i> :	260
<i>General Posts (#)</i> :	228
<i>Quote Tweet (#)</i> :	27
<i>Reply (#)</i> :	5
<i>Image (#)</i> :	42
<i>Video (#)</i> :	43
<i>Likes (#)</i> :	345403
<i>Replies (#)</i> :	87977
<i>Retweets (#)</i> :	78791
<i>Wealth inequality (#)</i> :	215
<i>Education Inequality (#)</i> :	29
<i>Housing Inequality (#)</i> :	29

Results

In total, 260 posts from all candidates were collected, including 228 general posts, 27 quote tweets, and 6 replies, as shown in Table 2. The posts overall included 42 images and 43 videos. Out of these posts, 215 were about wealth inequality, 29 were about education inequality, and 29 posts regarding housing inequality (non-mutually exclusive). As depicted in Table 3 and 4, four Democrats and three Republicans won their races, while two Democrats, one Independent (who eventually obtained the Democratic nomination), and four

Republicans lost the race. Winning candidates, as a whole, had 218,089 more likes and 36,284 retweets than losing candidates. However, losing candidates had 20151 more replies than winning candidates. Images were included in 16.79% of the total of winning candidates' posts, while 17.21% of losing candidates' posts included images. 14.60% of the winners' posts included videos, while 18.85% of losers posts' incorporated videos. Website links were added in 49.64% of winners' posts, while 17.21% of losing candidates included website links.

Table 3. Detailed description of winning candidates' metadata

<i>Politician, Partisanship and handle</i>	<i>Likes (#)</i>	<i>Replies (#)</i>	<i>Retweets (#)</i>	<i>General Post (#)</i>	<i>Quote Tweet (#)</i>	<i>Reply (#)</i>	<i>Image (%) (# of posts)</i>	<i>Video (%) (# of posts)</i>	<i>Website Link (%) (# of posts)</i>
John Fetterman (D-PA), @JohnFetterman	218543	14045	45128	35	4	0	7.69 (39)	25.64 (39)	25.64 (39)
Chuck Schumer (D-NY), @ChuckSchumer	49716	9287	9173	15	1	0	25 (16)	12.5 (16)	0 (16)
Mike Lee (R-UT), @MikeLee	5578	9103	1635	16	4	0	20 (20)	25 (20)	35 (20)
Lisa Murkowski (R-AK), @LisaForSenate	97	52	28	11	1	0	8.33 (12)	16.67 (12)	8.33 (12)
Peter Welch (D-VT), @WelchForVT	126	37	44	9	0	0	11.11 (9)	0 (9)	0 (9)
Alex Padilla (D-CA), @AlexPadilla4CA	5998	548	1079	22	0	0	0 (22)	4.55 (22)	22.73 (22)
John Boozman (R-AR), @JohnBoozman	438	241	137	14	5	0	52.63 (19)	0 (19)	15.79 (19)
Total	280496	33313	57224	122	15				

Table 4. Detailed description of losing candidates' metadata

<i>Politician, partisanship and handle</i>	<i>Likes (#)</i>	<i>Replies (#)</i>	<i>Retweets (#)</i>	<i>General Post (#)</i>	<i>Quote Tweet (#)</i>	<i>Reply (#)</i>	<i>Image (%) (# of posts)</i>	<i>Video (%) (# of posts)</i>	<i>Website Link (%) (# of posts)</i>
Mehmet Oz (R-PA), @DrOz	48377	52412	15781	46	1	0	19.15 (47)	42.55 (47)	12.77 (47)
Joseph Pinion (R-NY), @JosephPinion	4760	308	2135	10	2	4	25 (16)	12.5 (16)	12.5 (16)
Evan McMullin (I-UT), @EvanMcMullin	4877	554	951	11	1	1	7.69 (13)	0 (13)	57.14 (13)
Pat Chesbro (D-AK), @ChooseChesbro	225	17	93	8	0	1	44.44 (9)	11.11 (9)	11.11 (9)
Gerald Malloy (R-VT), @GeraldMalloyVT	313	55	85	16	1	0	0 (17)	0 (17)	0 (17)
Mark Meuser (R-CA), @MarkMeuser	340	53	126	7	5	0	8.33 (12)	0 (12)	33.33 (12)
Natalie James (D-AR), @James4AR	3515	65	1769	6	2	0	25 (8)	0 (8)	0 (8)
Total	62407	53464	20940	104	12	6			

Table 5 shows that among the three inequalities studied (wealth, education and housing), the highest number of posts were dedicated to wealth inequality among the winners of the election, as inflation was one of the largest voting issues in this election (Schaefer 2022). Inflation was discussed extensively among winning candidates, since six out of seven collected candidates' posts consisted of over 50% on wealth inequality with the exception of Alex Padilla (45.45%). Meanwhile, education inequality was not a contentious topic for discussion amongst winning candidates, since no candidates' education inequality posts exceeded 12% of overall collected posts. Although stances of education inequality varied slightly, most posts centered around the premise of delivering quality education to their respective states. Regarding housing inequality, data varied amongst winning candidates, with the candidate with the highest percent of posts dedicated to housing inequality was 45.46% (Alex Padilla), while the lowest percent was 0% (John Boozman). Stances on housing inequality varied, with some candidates advocating for easier housing access for specific populations, such as the LGBTQ+ community (John Fetterman) or coast guard families (Lisa Murkowski), while some candidates pushed for overall lower cost housing in their own state (Alex Padilla). Most winning candidates did not discuss another candidate in their posts, with the exception of John Fetterman, while five of the seven losing candidates talked about another candidate on their posts including Mehmet Oz (R-PA), Joseph Pinion (R-NY), Evan McMullin (I-UT), Pat Chesbro (D-AK), and Natalie James (D-AR). Among winning candidates, no Democratic candidate attacked the current

administration, while 43.14% of posts of Republican candidates did so.

Table 5. Detailed description of the winning candidates' posts on education, wealth, and housing inequality. Number in paranthesis represents # of posts.

<i>Politicians</i>	<i>Education Inequality</i>	<i>Stance on Education Inequality</i>	<i>Wealth Inequality</i>	<i>Stance on Wealth Inequality</i>	<i>Housing Inequality</i>	<i>Stance on Housing Inequality</i>	<i>About another candidate</i>	<i>About the problem</i>	<i>Attacking the current administration</i>
John Fetterman (D-PA)	2.56% (39)	No one should be denied access to education, and should be affordable	94.88% (39)	Inflation is critical, increase production in the United States	5.13% (39)	People of the LGBTQ+ community should not be denied access to housing	28.21% (39)	100% (39)	0% (39)
Chuck Schumer (D-NY)	0% (16)	No stance	87.50% (16)	The inflation reduction act will lower expenses for food and oil	12.50% (16)	Work together with local leaders to deliver better access to affordable housing	0% (16)	100% (16)	0% (16)
Mike Lee (R-UT)	5% (20)	Work with local leaders to deliver better quality education to all Utah citizens	80% (20)	Inflation has made life in Utah expensive, Democrats' spending is to blame	20% (20)	Pushing proposal to reduce housing shortage	0% (20)	100% (20)	40% (20)
Lisa Murkowski (R-AK)	8.33% (12)	Education for all is necessary in Alaska	58.33% (12)	Must work with local leaders to reduce impact of inflation	33.33% (12)	Pass bill that will provide better housing for coast guard families	0% (12)	100% (12)	16.67% (12)
Peter Welch (D-VT)	11.11% (9)	Every child should have access to quality education	77.78% (9)	Inflation reduction act will help low-income and middle class families	22.22% (9)	Affordable housing is necessary for people to thrive	0% (9)	100% (9)	0% (9)
Alex Padilla (D-CA)	9.10% (22)	Education is a human right	45.45% (22)	Corporate greed is causing higher prices of food and housing, a leading cause for inflation	45.46% (22)	Cost of housing is out of control across the country	0% (out of 22 posts)	100% (out of 22 posts)	0% (out of 22 posts)
John Boozman (R-AR)	5.26% (19)	Better education must be provided for citizens of Arkansas	94.74% (19)	Inflation is a emergency affecting every Arkansan, Biden is to blame	0% (19)	No stance	0% (19)	100% (19)	63.16% (19)

As shown in Table 6, losing candidates predominantly talked about wealth inequality (86.07% of losing candidates' posts). Two of the losing candidates, Evan McMullin and Mark Meuser, only discussed this inequality exclusively. Stances on wealth inequality were also primarily centered around inflation, while some candidates discussed the current administration's handling of inflation. Although three of the seven candidates, Evan McMullin (I-UT), Gerald Malloy (R-VT), and Mark Meuser (R-CA) did not discuss education inequality, overall, posts about education inequality consisted of 10.66% of all losing candidates' posts. Those who discussed education in their posts consisted of primarily advocating for better education for citizens in their state. Discourse on housing inequality was much scarce on the losing candidates, with only 2.46% of posts discussing housing inequality out of all collected losing candidates' posts. Discourse regarding housing inequality within the losing candidates tended to vary, with some candidates discussing the housing crisis within their own state while others discussed this issue on a national scale. Most of the losing candidates talked about another candidate within their posts, with the exception of Gerald Malloy (R-VT) and Mark Meuser (R-CA). Among the losing candidates, Republicans attacked the Biden administration in their posts, while no Democrats attacked the Biden administration in their posts, with the exception of Evan McMullin, the independent candidate of Utah, who later received the Democratic nomination.

Table 6. Detailed description of the losing candidates' posts on education, wealth, and housing inequality. Number in paranthesis represents # of posts.

<i>Politicians</i>	<i>Education Inequality</i>	<i>Stance on Education Inequality</i>	<i>Wealth Inequality</i>	<i>Stance on Wealth Inequality</i>	<i>Housing Inequality</i>	<i>Stance on Housing Inequality</i>	<i>About Another Candidate</i>	<i>About the problem</i>	<i>Attacking the current administration</i>
Mehmet Oz (R-PA)	12.77% (47)	Every child must have access to education that fits their own needs	87.23% (47)	The Biden agenda is causing inflation, Pennsylvanians are struggling to make ends meet	0% (47)	No stance	42.55% (47)	57.4468 0851	42.55% (47)
Joseph Pinion (R-NY)	6.25% (16)	The Biden administration is causing pain for families in terms of education	81.25% (16)	Record inflation is due to the Biden administration, we need to take care of the middle class to solve wealth inequality	12.50% (16)	NY is suffering an awful housing crisis	56.25% (16)	75% (16)	37.5% (16)
Evan McMullin (I-UT)	0% (13)	No stance	100% (13)	the government should cut spending to reduce inflation	0% (13)	No stance	28.57% (13)	92.9% (13)	21.43% (13)
Pat Chesbro (D-AK)	33.33% (9)	education for everyone and reduce educational inequality	66.67% (9)	Support the inflation reduction act for	0% (9)	No stance	22.22% (9)	100% (9)	0% (9)

				lower drug prices which will help middle class families					
Gerald Malloy (R-VT)	0% (17)	No stance	94.12% (17)	Families are being crushed by inflation because of Joe Biden	0% (17)	The housing crisis should be on voter's agenda	0% (17)	100% (17)	29.41% (17)
Mark Meuser (R-CA)	0% (12)	No stance	100% (12)	Inflation must be reduced by cutting government spending	0% (12)	No stance	0% (12)	100% (12)	16.67% (12)
Natalie James (D-AR)	37.50% (8)	Arkansans deserve a 21st century education	50% (8)	companies should lower their cost to alleviate inflation for the people of Arkansas	12.50% (8)	Support legislation to provide better housing conditions for Arkansans	12.50% (8)	100% (8)	0% (8)

Overall, a majority of the posts for each candidate were about wealth inequality for 13 out of the 14 candidates, with the exception of Alex Padilla with only 45.45% of his posts about wealth inequality (and Natalie James, coming in a close second with 50% of her posts about wealth inequality). All the candidates addressed inflation in their posts within the broader issue of wealth inequality, and both winning and losing candidates' stances were concerned with alleviating the effects of inflation for American households. Winning candidates posted slightly more about wealth inequality (41.92% of overall posts) than losing candidates (40.38% of overall posts). Discourse on housing inequality consisted of improving housing conditions, lowering housing costs, and providing housing access to all populations. This was reflected by table 4 and 5, with both winning and losing candidates addressing the need for either better access for housing or housing conditions. While losing candidates talked less about housing inequality (1.16% of overall posts), winning candidates posted more about this issue (9.27% of overall posts). For education inequality, six out of seven winning candidates talked about education inequality in their posts, with the exception of Chuck Schumer (D-PA), while only four out of seven losing candidates talked about this inequality. Winning candidates and losing candidates who addressed education inequality had similar agendas, such as providing “quality education” in their state.

In Pennsylvania, however, wealth inequality was the most frequently posted inequality among both Pennsylvania candidates: John Fetterman (D-PA) (94.88%) and Mehmet Oz (R-PA) (87.23%). Both candidates of New York, which has the worst wealth inequality in the U.S talked predominantly about this

inequality, John Pinion (R-NY) (81.25%) and Chuck Schumer (D-NY) (87.50%). Meanwhile, Utah, while having one of the lowest rates of wealth inequality in the nation, Mike Lee (R-UT) discussed wealth inequality in 80% of his posts, where Evan McMullin (I-UT) discussed the inequality in 100% of his posts. Alaska, which has the worst education inequality in the U.S, both candidates, Lisa Murkowski (R-AK) and Pat Chesbro (D-AK), talked about this inequality (respectively, 8.33% and 33.33%). For Vermont, which has the lowest education inequality, Peter Welch (D-VT), the winning candidate talked about education inequality 11.11% in his posts, while Gerald Malloy (R-VT) did not. California, which has the worst housing inequality in the U.S, Alex Padilla (D-CA) talked about housing inequality 45.46% of his posts, while Mark Meuser (R-CA) did not discuss housing inequality at all. However, for Arkansas, which has one of the best housing affordability in the nation, John Boozman (R-AR) did not talk about housing inequality at all, while Natalie James (D-AR) addressed the issue in 12.50% of her posts.

Table 7. Detailed description of winning senate candidates' Use of Framing on X Posts Regarding Wealth, Education, and Housing Inequality (Percentages)

<i>Politicians</i>	<i>Episodic</i>	<i>Thematic</i>
John Fetterman (D-PA)	5.13%	94.87%
Chuck Schumer (D-NY)	31.25%	68.75%
Mike Lee (R-UT)	30%	70%
Lisa Murkowski (R-AK)	25%	75%
Peter Welch (D-VT)	0%	100%
Alex Padilla (D-CA)	4.50%	95.50%
John Boozman (R-AR)	5.30%	94.70%

Table 8. Detailed description of losing senate candidates' use of framing on X posts regarding wealth, education, and housing inequality percentages

<i>Politicians</i>	<i>Episodic</i>	<i>Thematic</i>
Mehmet Oz (R-PA)	12.77%	80.90%
Joseph Pinion (R-NY)	0%	100%
Evan McMullin (R-UT)	7.70%	92.31%
Pat Chesbro (D-AK)	0%	100%
Gerald Malloy (R-VT)	0%	100%
Mark Meuser (D-CA)	0%	100%
Natalie James (D-AR)	0%	100%

Overall, thematic framing (88.84%) was used more frequently than episodic framing (9.65%). Table 7 provides the usage of framing of winning candidates. Among all the winning candidates' posts, thematic framing (86.86%) was used more frequently than episodic framing (13.14%). While among losing candidates, as shown in Table 8, also used thematic framing (91.80%) in their posts more than episodic framing (5.74%). However, more winning candidates used episodic framing (13.14%) compared to the losing candidates (5.74%), which can be attributed to the fact that five of the losing candidates used no episodic

framing on the topic of inequality in their posts, Joseph Pinion (R-NY), Pat Chesbro (D-AK), Gerald Malloy (R-VT), Mark Meuser (D-CA), and Natalie James (D-AR). On the other hand, among the winning candidates, Peter Welch was the only candidate who did not use episodic framing in their posts about inequality. These findings suggest that thematic articulation needs to be combined with clear issue examples (via episodic framing): especially on economic topics like wealth and housing to enhance the predictability of electoral success via social media strategy.

Table 9. Logistic regression predictions of election outcomes based on framing and issue emphasis

<i>Politicians</i>	<i>Episodic</i>	<i>Thematic</i>	<i>Wealth</i>	<i>Education</i>	<i>Housing</i>	<i>Odds Ratio (Confidence interval)</i>	<i>p-value</i>	<i>Actual Outcome</i>
John Fetterman (D-PA)	2	37	37	2	1	1.56 (0.92 – 2.63)	0.0961	1
Chuck Schumer (D-NY)	4	12	14	0	2	4.00 (2.37 – 6.75)	2.14×10^{-7}	1
Mike Lee (R-UT)	8	11	16	1	4	49.00 (29.02 – 82.74)	$< 1 \times 10^{-10}$	1
Lisa Murkowski (R-AK)	3	10	7	1	4	7.33 (4.34 – 12.38)	$< 1 \times 10^{-10}$	1
Peter Welch (D-VT)	0	10	7	1	2	0.56 (0.33 – 0.95)	0.0300	1
Alex Padilla (D-CA)	1	21	10	2	10	999.00 (591.65 – 1686.80)	$< 1 \times 10^{-10}$	1
John Boozman (R-AR)	1	18	18	0	1	1.00 (0.59 – 1.69)	1.000	1
Mehmet Oz (R-PA)	7	40	41	6	0	0.30 (0.18 – 0.51)	6.64×10^{-6}	0
Joseph Pinion (R-NY)	0	16	13	1	2	0.85 (0.50 – 1.44)	0.0443	0
Evan McMullin (I-UT)	2	12	13	0	0	0.35 (0.21 – 0.59)	8.56×10^{-5}	0
Pat Chesbro (D-AK)	1	8	6	3	0	0.03 (0.02 – 0.05)	$< 1 \times 10^{-10}$	0
Gerald Malloy (R-VT)	0	17	16	0	2	1.70 (1.01 – 2.87)	0.0471	0
Mark Meuser (R-CA)	1	12	12	0	0	0.27 (0.16 – 0.46)	9.63×10^{-7}	0
Natalie James (D-AR)	0	8	4	3	1	0.064 (0.16 – 0.46)	$< 1 \times 10^{-10}$	0

Table 9 presents the odds ratios of electoral victory for the senate candidates based on a logistic regression model incorporating two key communication dimensions: (episodic vs. thematic) and issue emphasis (wealth, education, and housing inequality). The table

reports odds ratios, 95% confidence intervals (CI), and p-values for each candidate's predicted probability of winning.

The model correctly predicted wins for odds ratios of ≥ 1 (with the exception of Peter

Welch, with zero episodic posts). It also correctly predicted losses for odds ratios of ≤ 1 (except for Gerald Malloy, who again had zero episodic posts). Overall, the model correctly predicted outcomes for 12 out of 14 candidates (85.7% accuracy).

Candidates who predominantly employed thematic framing tended to receive higher predicted probabilities of success. For example, John Fetterman (D-PA) posted 37 thematic posts compared to only 2 episodic ones and had an odds ratio of 1.56 (95% CI: 0.92–2.63; $p = 0.0961$), correctly predicted to win. Similarly, Chuck Schumer (D-NY) with a 3:1 ratio of thematic to episodic posts had an odds ratio of 4.00 (95% CI: 2.37–6.75; $p < 0.0001$). However, this pattern was not consistent across all cases. For instance, Peter Welch, who exclusively used thematic framing (10 thematic, 0 episodic), had a relatively low odds ratio (OR = 0.56, CI: 0.33–0.95), despite winning his election.

Similarly, candidates who relied more heavily on episodic framing did not uniformly receive lower predictive odds. Chuck Schumer (4 episodic, 12 thematic) and Mike Lee (8 episodic, 11 thematic) used comparatively high levels of episodic framing, yet had strong model predictions with odds ratios of 4.00 (95% CI: 2.37–6.75) and 49.00 (95% CI: 29.02–82.74), respectively—both accompanied by statistically significant p-values.

Yet overall, episodic emphasis was associated with lower predicted odds. Mehmet Oz (R-PA), who used 7 episodic posts and 40 thematic ones, received a low odds ratio of 0.30 (95%

CI: 0.18–0.51; $p = 6.64 \times 10^{-6}$), consistent with his actual loss. Likewise, Pat Chesbro (D-AK), who had just 1 episodic post and no thematic content, was assigned the lowest odds ratio in the model: 0.03 (95% CI: 0.02–0.05; $p < 1 \times 10^{-10}$).

Issue emphasis also emerged as a strong predictor of success. Candidates who addressed wealth inequality more frequently, such as Fetterman (37 posts), Schumer (14 posts), and Padilla (10 posts), consistently had higher predicted probabilities of victory. Conversely, those who barely addressed any of the inequality dimensions e.g., Mark Meuser (R-CA) and Natalie James (D-AR) had both low odds ratios (0.27 and 0.064 respectively), lost their races. A notable outlier is Alex Padilla (D-CA), who had high engagement on all three issues (10 wealth, 2 education, 10 housing) and used a predominantly thematic strategy (21 thematic, 1 episodic post), resulting in an extremely high odds ratio of 999.00 (95% CI: 591.65–1686.80; $p < 1 \times 10^{-10}$), suggesting a near-certain probability of winning. Additionally, this model achieved strong predictive performance: it achieved an Area Under the Curve (AUC) of 0.918 and reached a classification accuracy (CA) of 0.786. Furthermore, the model demonstrated a precision of 0.792, a recall of 0.786, and an F1 score of 0.785. The Matthews Correlation Coefficient (MCC) was 0.577.

The chi-square tests show several notable differences how episodic and thematic framing were utilized across all candidates ($\chi^2(13) = 32.967, p = 0.001$). This led to the rejection of H_{01} , and the acceptance of the alternate

hypothesis which indicated that candidates used episodic and thematic framing at differing frequency. Regarding the use of episodic framing among winning and losing candidates, there were differences in how winning and losing candidates utilized episodic and thematic framing ($\chi^2(1) = 11.89, p = 0.006$), thus leading to the rejection of H_{02} . In terms of inequalities that were mentioned in each candidates' post, candidates did not mention wealth, education, and housing inequality at similar proportions, which led to the rejection of H_{03} ($\chi^2(26) = 76.626, p = 7 \times 10^{-7}$). However, the data showed mixed results for H_{04} . For both wealth and housing inequality, candidates from states with high levels of a given inequality referenced that inequality at significantly different rates compared to candidates from states with low levels. However, this pattern did not hold for education inequality, for which the null hypothesis (H_{04}) was not rejected. Specifically, for wealth inequality, there was a significant difference in the frequency of posts between candidates from high-inequality states like New York and low-inequality states like Utah ($\chi^2(6) = 13.82, p = 0.003$). Similarly, for housing inequality, candidates from California (high inequality) and Arkansas (low inequality) differed significantly in how often they referenced the issue ($\chi^2(6) = 28.32, p = 8 \times 10^{-5}$). In contrast, for education inequality, the difference in posting frequency between candidates from Alaska (high inequality) and Vermont (low inequality) was not statistically significant ($\chi^2(6) = 11.62, p = 0.07$). This may be attributed to the fact that education inequality was not a prominently debated issue during the 2022 Senate race, suggesting that voters and candidates tend to focus on issues

that are more immediately contested or salient at the time.

Discussion

This study explored the use of episodic and thematic framing by the U.S. Senate candidates on X during the Senate general elections in 2022. To accomplish this, a cross-state comparison was performed between states with differing wealth, education, and housing inequality rates. This article offers evidence to suggest that winning senate candidates use episodic and thematic framing at a different level than losing candidates, specifically when discussing wealth, education, and housing inequality. For both winning and losing candidates, the majority of the collected posts used thematic framing to address topics of inequality, which was consistent with this study's first hypothesis. However, winning candidates tended to use episodic framing more often than losing candidates. The reason for this phenomenon may be that utilizing an episodic frame allows voters to have a personal connection to the narrative, and easily digest the nature of the content (53) better than thematic framing.

An effective social media strategy for politicians may involve using a combination of both episodic and thematic framing rather than relying solely on one, since each type of framing appeals differently to voters. Perhaps utilizing a mixture of episodic and thematic framing would allow candidates to provoke users' empathy toward issues that the public may often deem as too abstract (episodic) and enable them to put the issue in general context

(thematic) (52). These findings are further supported by incumbents who won their re-election campaigns (Chuck Schumer, Mike Lee, Lisa Murkowski, Alex Padilla, John Boozman) by employing more episodic framing in their posts than losing candidates. This supports the findings of (2), which observed that incumbent candidates were more likely to use a state-specific approach in their X posts. This may suggest that incorporating episodic framing in social media posts may contribute to a successful campaign.

Wealth inequality was overwhelmingly the most discussed inequality among the three, which is consistent with the study's second theorization. This may be because the economy and inflation have consistently ranked among the most important issues for registered voters ahead of Election Day (54). Education and housing inequality were tied in the number of Tweets, and both were addressed considerably less frequently than wealth inequality. This finding matches voter polls leading up to the 2022 midterms – that housing and education were of lower interest for voters (55). These findings support the previously discussed “riding wave theory,” which suggests that political parties take their cues from voters and emphasize policy issues that are salient to their constituencies (15). Specifically for housing inequality, the fact that there was less discussion about this issue amongst senate candidates aligns with previous literature which found that lawmakers' responses to housing inequality and affordability have been inadequate (47).

Although a cross-state analysis was performed to compare results between states with different rates of each inequality, there was varying correlation between the amount of discussion on X regarding wealth, education, and housing inequality and the actual level of inequality those states were experiencing. Winning candidates covered a broader array of issues, as they addressed all three inequalities with a higher percentage than losing candidates, although they did address wealth inequality at higher rates than education and housing inequality. This could support the theory that politicians who run successful campaigns monitor and evaluate continuous feedback from constituents to discuss important issues for various voters (2). Examining those candidates who used their posts to attack opponents, evidence was found that aligned with (25), which suggested that those in competitive races were significantly more likely to use social media for such attacks. For instance, in Pennsylvania, where John Fetterman won by a 4.91% margin (56), both Fetterman and Mehmet Oz frequently targeted each other in their posts.

The logistic regression model trained on senate candidates' social media framing and issue emphasis yielded several meaningful patterns that informed how political communication strategies correlated with electoral success. Candidates who employed a higher number of thematic frames, such as John Fetterman (37 thematic posts) and Alex Padilla (21 thematic posts), tended to be predicted by the model with high confidence and low error, suggesting that sustained, policy-oriented messaging may be positively associated with electoral viability.

This finding supports existing literature that links thematic framing to perceptions of competence and long-term planning, which are valued by politically engaged audiences. Conversely, candidates with limited thematic content and lower issue diversity, such as John Boozman, exhibited high model uncertainty, despite a balanced focus on wealth (18 posts) and thematic framing (18 posts). This suggested that mere quantity of thematic content may be insufficient without corresponding engagement in diverse issues such as education and housing, which Boozman notably underemphasized. Furthermore, candidates who focused heavily on wealth inequality did not uniformly receive strong model predictions. For example, Mehmet Oz (R-PA) posted 41 messages related to wealth inequality the highest among all candidates yet had a low odds ratio of 0.30 (95% CI: 0.18–0.51), aligning with his electoral loss. In contrast, John Fetterman (D-PA), who also emphasized wealth (37 posts), received a more favorable model prediction (OR = 1.56; 95% CI: 0.92–2.63), though the confidence interval suggests moderate uncertainty. These patterns suggest that while wealth inequality is a commonly addressed issue, it does not consistently predict model confidence or electoral success on its own.

By comparison, education and housing issues were addressed far less frequently across candidates, indicating that these dimensions may remain under-leveraged in campaign messaging or perceived as less resonant with voters in the 2022 Senate races. This likely reflects the lower prominence of these issues in the public discourse during this electoral cycle.

This suggests that not all issues carry equal electoral weight, and future studies may benefit from dynamically assessing issue salience by region or media trends. However, in the case of Alex Padilla (10 housing-related posts), they seemed to contribute to more accurate model predictions, potentially indicating untapped areas for resonant messaging. These findings imply that the impact of framing strategies on election prediction is conditional, rather than absolute. In particular, the model may be sensitive not only to the type of framing but also to which issues are emphasized (e.g., wealth, education, housing), their relative frequency, and how those align with voters' priorities in a given state. For example, Lisa Murkowski's strong odds ratio (OR = 7.33) may reflect both a balanced use of framing and alignment with local issue salience.

Overall, while framing and issue emphasis do appear to shape model predictions in meaningful ways, no single dimension explains electoral outcomes on its own. Instead, the findings support the idea that a composite strategy, balancing episodic and thematic narratives while emphasizing resonant issues, may be most effective for political communication, and for predictive modeling as well.

Conclusion

This study adds to the existing literature by identifying a potentially effective strategy for politicians to engage their constituencies through episodic and thematic framing when addressing specific topics such as inequality. Using only the explanatory variables of

framing and issue emphasis on social media posts, a logistic regression model was constructed that achieved an accuracy classification of (winning or losing) of 78.6% for senate races of 9 states which were selected on the basis of the widest range in their wealth, education and housing inequalities. Politicians were more likely to follow the national agenda in their social media discussions rather than focusing on state-specific issues. This article offers insights into the rhetoric contributing to successful political campaigns on social media.

However, this study does have limitations. The sample only included Republican and Democratic nominated candidates from nine states. Although these nine states were selected so as to conduct a cross-state analysis between those with high and low levels of each inequality, examining the posts of candidates

from all states that held Senate elections could provide a more comprehensive understanding of how candidates used episodic and thematic framing to address specific issues and its correlation with election outcomes. In addition, this study is descriptive rather than causal in nature. Establishing a stronger causal link between a candidate's posts and their electoral performance is inherently difficult because of challenges in defining appropriate treatment and control groups. Nonetheless, this study may provide a groundwork by identifying rhetorical patterns and correlations that can inform future research, as well as provide insights for candidates and strategists aiming to craft more effective digital messaging. To build upon this study, future research should examine politicians' use of other framing techniques to highlight various issues and gain support from constituencies.

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