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Yes, No, For, or Against?

How Ballot Measure Wording Impacts Comprehension

Introduction

Ballot initiatives serve the purpose as a form of directly asking a population their policy preferences. In state and local elections, ballot initiatives are used to direct policy on high-salience topics like abortion and marriage equality, but also low-salience issues that can be corrupted in Ballot language is an important facet of the initiative and should follow rules and logic that make it simple for voters to understand the question. The simplicity in the ballot should be served to increase accuracy of choice between the voter and their input. However, when the language of such ballot measures comprises misleading questions and confusing legal jargon, voters are unable to understand proposed changes, effectively becoming disenfranchised from a confident vote. Certain demographic populations within the larger body may be more affected by confusing ballot language. We seek to examine if the application of accessible ballot language practices can enhance voters' confidence to vote on ballot measures, ability to vote as intended, and satisfaction with their voting experience.

Barth, Burnett, and Parry (2020) assert in their study of Arkansas voters that only about one in four voters are aware of the propositions that appear on their ballots, indicating that for most, the ballot text is the first and only opportunity to learn about and decide on these measures. Ample literature suggests ballot language has a significant impact on vote choice and voter satisfaction: A study by Reilly and Richey (2011) found that not only does lower ballot question

readability scores (greater complexity) result in greater roll-off, turnout falls to the extent that questions are difficult to read. Another study concluded that Americans struggle to vote consistently with their preferences when presented with a complex ballot measure (Ulbig and Reilly, 2021). Furthermore, Poole (2019) evaluates voters' perceptions of traditionally composed versus readable, plain-language ballot measures, determining that voters change their vote choice based on the ballot language and largely prefer plain-language wording. Researchers have come to the conclusion that simple ballot questions result in higher voter efficacy and higher voter satisfaction—namely among racial/ethnic/language minorities and those with lower education levels who are particularly disadvantaged by complex ballot language (Hvasta, 2020).

Our research would add to the existing literature by testing more specific hypotheses surrounding ballot language best practices, possibly sourced from six untested solutions proposed by the Center for Civic Design, including word limits, phrasing measures as yes-or-no questions, and explanations of what a "yes" or "no" vote entails (Isamu, 2024). We anticipate that each of their suggestions to enhance ballot language accessibility will increase our measurements of efficacy and satisfaction. In theory, the less an individual must expend mental labor and interpret an uncertain ballot measure, the more likely it is they will vote as intended and navigate the ballot without frustration. To determine this, we will use a conjoint design to pose prospective voters with ballot questions incorporating some combination of the ballot language solutions. We measure time taken to complete the ballot, satisfaction via survey questions after the fact, and intent by providing instructions to vote in a certain manner beforehand, then comparing how they actually voted.

Our findings highlight the importance of ballot language and question framing in influencing voting accuracy and voter satisfaction. Specifically, having "yes" as a change vote

aligns better with voter preferences and comprehension, particularly for individuals without a college degree, who found this framing more satisfactory. While formatting questions as "yes-or-no" versus "For/Against" shows only weak associations with satisfaction and preference alignment, our results challenge prior literature (Redish 2010) by demonstrating that voters with a high school education or less prefer the "yes as change" option. Additionally, our findings support existing research (Ulbig 2021) showing minimal impact of English proficiency on comprehension and satisfaction. These results suggest that matching ballot options with the intent and language of the measure is a critical consideration for lawmakers and ballot-writers in improving clarity and accessibility in direct democracy.

Literature Review

Although often perceived as less salient than major candidate races at the top of electoral ballots each year, ballot measures have long been presented to voters as a mechanism of direct democratic policymaking. As of October 12, 2024, the National Conference of State Legislatures (2024) reports 8,609 ballot measures that have been proposed or will soon be proposed to U.S. state residents since 1902), and in 2024 alone, 160 statewide ballot measures across 41 states have been certified for the ballot (Ballotpedia 2024). Ballot measures can range in subject from criminal justice law to tax collection to abortion rights, implicating a vast array of constituent-relevant policies. Yet, despite ballot measures' far-reaching role, ballot measure language is notoriously inaccessible to the average voter. On average, the 41 statewide ballot measures presented to U.S. voters in 2023 required 19 years of education (a third-year graduate school reading level) to comprehend according to the Flesch Reading Ease and Flesch-Kincaid Grade Level formulas (Ballotpedia 2023). Given in 2022, only 14 percent of U.S. residents age

25 and older had completed advanced education (and only 37 percent had obtained a bachelor's degree or higher) (U.S. Census Bureau 2023), complex ballot measure text effectively disenfranchises a majority of American voters from casting a confident and informed vote. When ballot language is inaccessible—or worse, deliberately misleading by the politicians and lobbyists who write them—ballot measures are rendered a disingenuous means of direct democracy (Hvasta 2020).

According to two statewide surveys of Arkansas voters in 2014 and 2016, respectively, only one in four voters are aware of the content of even one measure on an upcoming election's ballot (Barth, Burnett, and Parry 2019). Further, the majority of voters did not expect to see any ballot measures on their ballot in the first place. This study suggests the ballot itself is the first and only time voters will encounter ballot measures, in turn emphasizing the gravity of ballot presentation on voters' decision-making process. Indeed, ample research indicates subtle differences in ballot language can change how a voter casts their ballot: Rossier (2021) finds a change in ballot question framing from an absolute to percentage-based tax increase resulted in a drastic drop in support. Similarly, Dyck and Pearson-Merkowitz (2021) conclude that voters are more easily induced to vote against ballot measures that are technical and require high levels of political sophistication, education, and/or effort to understand (e.g., financial regulation). Another survey experiment by Burnett and Kogan (2015) corroborates that adjustments to ballot measure wording (i.e., "limiting same-sex marriage" vs. "eliminating the right to same-sex marriage") significantly changes voters' support for the question, although exposure to campaign information can mitigate this effect. Still, the academic consensus is that seemingly insignificant changes to a ballot measure's language can make consequential impacts to its electoral outcome.

Focusing on ballot completion, it is well established that items lower on a ballot are more likely to be skipped or voted against (in favor of the status quo) as a product of voter fatigue (Augenblick and Nicholson 2016). But, several studies also point to complex ballot language as a motivator of ballot roll-off, or nonresponse to certain questions. Such research finds that the difficulty of words and language readability score of a ballot measure increases abstentions and ballot measure opposition by voters (Shulman et al. 2022; Reilly and Richey 2009), similar to the voter fatigue effect observed in down-ballot races. While these studies lend support to the theory that ballot language complexity diminishes ballot completion, they focus specifically on plain language (short sentences composed of simple, everyday words) rather than other design features of the accessible ballot language.

The facets that contribute to the elements of correctly understanding a ballot are complex and multidimensional. The ballot is one side where variance can occur based on its language, which includes different factors such as length, wording, simplicity, and syntax. Ballot writers must also be cognizant of the voter because they may have intrinsic factors that will affect how they comprehend the ballot. Within a multivariable study treating for English proficiency and the complexity of ballot language, researchers found highly proficient English speakers to vote more consistently with the intent they had previously indicated on ballots with simpler language. This translated to more accuracy with voting for their preferred choice within the ballot. (Ulbig 2021) In the same study, authors found that for voters with less proficiency in English, there was marginal outcome variation between simpler and more complex language on ballots for similar issues. Voters are able to recognize the difference in the language between a ballot with purposefully contrasted complexity of language. In one study conducted on voters fluent in English, researchers were able to assess and survey voters on their preference for traditional or

plain ballot language (Redish 2010). The researchers treated for education level based on the argument that ballots should be usable regardless of formal degree obtained (or lack thereof). The method employed to test for the efficacy of utilizing plain language was carried out by choosing whether to give directions or not on each of the ballot's pages.

Voters are more accurate where the instructions given were plain over the traditional ballot used in real elections. Further, voters are cognizant of the difference (and more importantly, hold a clear preference) between ballots with traditional language and those with plain language. (Johnson 2023) An increase in the knowledge of the issue to the voter once they start to fill their ballot increases voter confidence and leads to a higher return rate to the ballot box in subsequent elections. (Galston p. 264) Voters prefer brevity and simplicity in their ballot questions—understanding that the preference provides them more comfort when in the voting booth. Keeping the language concerning the proposal to change the current law to a more straightforward "yes" or "no" rather than "for" or "against" improves the accuracy of voter choice. (Redish 2010) Researchers re-tooled Georgia ballot initiatives for constitutional amendments and found that changing language from "for/against" to "yes/no" ultimately increased the support for a proposed amendment by 20% to an electorate that overall favored passage. (Poole 2019) One simulated experiment conducted with the League of Women Voters' Easy Voter Guide examined the importance of even more minute detail within the legal context of ballot measures. (Johnson 2023) Changing the language in a ballot to integrate a timeline of the current and proposed state of the law works towards specifying the language to the author's intended issue of concern. Johnson (2023) incorporated only the relevant detail within the body of the text, starting with context and only writing a sentence if it is built on top of the previous line.

Existing language problems in ballot propositions must be addressed to solve concerns with voter confidence, accuracy of choice, and civic engagement. Current proposals assessed from a sample of real ballot language issues by the Center for Civic Design (2022) help to establish a usable ballot. Shortening the length of a ballot question by implementing word limits on the proposal's title and body would counter long-winded sentences. Ballots should only be asked as "yes/no" questions, where the "yes" option is for changing the amendment to help decrease voter confusion. Standardizing font and text is important too—requiring a minimum type size, left-aligning questions, and easy-to-read fonts all make a ballot more legible to the voter. (Quesenbery 2020) The literature indicates that current ballot language is not in its best form of delivery because of the confusing wording in the choices voters can mark and the body of text. We aim to address these concerns by testing for different types of ballots on how they are presented, the text of the answer choices, and simplifying the relation between choice and question.

Theory and Hypothesis

The synthesis of ballot language as a dimension for voters to read, understand, and assess puts forth issues when factors potentially contribute to difficulty in comprehension. Ballot readability is important for measures not within a high-energy discourse as more politically charged ballots. When voters are not aware of ballot measures before they enter the booth—as a part of a low information environment—the result is "low-salience" ballot voting. (Shulman et al. 2022, Kimball and Kropf 2008) Low-salience ballots are prevalent as found in a study focused on the 2018 midterm elections where they comprised 30.5% of all state-certified ballot measures. (Ballot 2018) Within low-salience ballots, it was found that measures with more

frequently used words improved the processivity of the ballot. The feasibility of ballot processing led to higher participation and support for the measure. (Shulman et al. 2022) When a ballot initiative employs words that are more commonly found in everyday or "plain" language, the voter is more likely to understand the implications of a ballot that otherwise is low-salience and generates little to no media attention. In a study conducted on the readability of state-level ballots from 1997 to 2007, where measures were indexed on readability, the authors found that increased language complexity leads to roll-off (Reilly and Richey 2011). In their OLS models, the authors found statistically significant changes in roll-off when treating for readability within the ballot initiative.

Within ballot language and readability, an important dimension on the voter side of the question involves their ability to match their value or preference to the choice that reflects their desire. Voters are more accurate in their ballots when ballot measures are presented in simple wording as presented in Ulbig and Reilly 2021, where voters that were classified as "high-proficiency" were able to vote more consistently with their stated beliefs on simpler worded initiatives. "High-proficiency" refers to the English comprehension level of the voter for those who scored beyond a threshold where they showed fluency. Although there was no impactful improvement in ballot accuracy for "low-proficiency" voters, it is important for ballot writers to consider the electorate so they can choose accessible language. Simpler wording would make it easier for voters to comprehend their ballot and match their preferred choice with their belief, leading to a more representative measure.

Although ballot readability is important to understand the choice in content of the question, the location of how far the question is down the ballot also plays a role in roll-off. Described as "choice fatigue" by Augenblick and Nicholson in their 2016 study, voters

experience more abstentions on measures placed further down the ballot. The implication of positioning of the question lowering the likelihood to engage with the ballot is that the electorate's wishes are distorted. An undervote, which is a ballot not counted in a contest offered to the voter (and for this paper's purpose refers to an unmarked choice), are more likely to occur when the question follows a long list of other measures.

Voter fatigue also varies when ballots are presented in different formats. When examining residual votes (the difference between total ballots and those in a particular contest), one study found that electronic voting machines can increase residual votes on ballot measures. (Kimball and Kropf 2008) Similar to Direct-recording electronic voting machines (DREs), lever machines are also a poor form of voting regarding residual counts for ballot measures. One factor as to why residual votes sharply increase on lever machines or DREs is that the ballot layout is confusing for some voters, leading to them missing the ballot issue. Other factors increasing residual votes include the type of ballot initiative submission, where citizen-led initiatives have lower residual voting than those placed by legislatures. Race and income also play a role in residual ballots, albeit for non-initiative choices, where counties with higher African American voters see higher residual votes for the presidential race. Similarly, a one standard deviation increase in the natural log of median income results in a 0.3% decrease in residual votes for president. (Kimball and Kropf 2008) In one case study, the phenomenon of lower-income precincts having higher residual votes for president carries over to ballot measures where poor communities in New Jersey saw higher residual votes on full-face DREs because of obscuration of ballot propositions.

The above studies of the impacts of ballot readability share a theoretical basis on understandability: voters roll off in races they find more difficult to understand (Reilly and

Richey 2011; Shulman et al. 2022), vote against their preferences when they are unable to understand what the choices on their ballot signify (Redish et al. 2010; Ulbig and Reilly 2021; Binder 2009), and greatly prefer ballot styles that they find easier to understand (Redish et al. 2010; Poole 2019). There is strong evidence that voters' ballot comprehension greatly improves various outcomes of electoral integrity and legitimacy, although understandability is narrowly defined in all of these studies as some combination of plain language, word simplicity, and sentence/measure length.

For our study, we test ballot features beyond plain language, specifically those proposed by the Center for Civic Design (2022) in a blog publication on their ballot measure research. To our knowledge, these features were inspired by ballot measure information that voters self-reported as desirable to have available (Center for Civic Design n.d.) and to address common boons to ballot comprehension defined by the Center's researchers (Center for Civic Design 2022). Discounting suggestions already tested in previous studies on ballot readability (e.g., sentence length, writing in the positive), their easily testable solutions are as follows:

1. Require that ballot measures be clearly worded as a yes-or–no question
2. Require that ballot measures be worded so that "yes" is a vote for change and "no" is a vote for no change

The Center for Civic Design posits each of these two ballot measure design features improves voters' comprehension of the ballot. Formatting the measure as a yes-or-no question makes the outcomes of each choice grammatically clearer than as a statement that one votes "for" or "against." Further, requiring "yes" to indicate change and "no" to indicate the status quo follows common sense intuition of each word's implied outcome (Center for Civic Design 2022).

If we can correctly assume each of these features improves ballot comprehension, then, like ballot readability, we also expect that they will increase voting accuracy:

H_{1A}: Formatting a ballot as a yes-or-no question will increase voting accuracy.

H_{1B}: Wording a ballot measure such that "yes" means change and "no" means no change will increase voting accuracy.

Ballot readability studies also conclude that voters prefer ballots with more readable text. If a ballot is preferred by voters, we can infer that they are more satisfied with that ballot than its alternative, so we enhance the concision of the voter preference variable by positing that the ballot features supposed to enhance comprehension will also increase voter satisfaction with the ballot:

H_{2A}: Formatting a ballot as a yes-or-no question will increase voter satisfaction.

H_{2B}: Wording a ballot measure such that "yes" means change and "no" means no change will increase voter satisfaction.

Although the readability literature theorizes only that ballot comprehension contributes to changes in voting accuracy and voter satisfaction, we also anticipate that ballot measures that are easier to understand will also require less time of voters at the ballot box. The voter fatigue literature lends additional support that the ballot comprehension features will increase voter satisfaction if it demands less time and cognitive exertion from voters.

Lastly, we highlight the disproportionate impact of difficult-to-understand ballot text on voters with lower language and reading proficiency. Ulbig and Reilly (2021) conclude that while proficient English speakers' voter accuracy improves with simplified ballot language, non-proficient speakers still struggle to vote according to their preferences and may not perceive a significant difference in ballot understandability. In accordance, we hypothesize that

individuals who are not proficient English speakers and with lower education levels will not experience the same degree of improvements to voting accuracy and voter satisfaction as their English-proficient and highly educated counterparts:

H_{3A}: Lower English proficiency will diminish the impact of features designed to improve ballot measure comprehension.

H_{3B}: Lower education level will diminish the impact of features designed to improveballot measure comprehension.

Methodology and Research Design

We will use Qualtrics software to administer an online survey of eligible U.S. voters. Below, we outline how we administer each ballot feature treatment and measure our outcome variables: voter accuracy and voter satisfaction.

Our study asks voters for their preference on three different ballot measures proposed in their home jurisdictions. These measures focus on low-salience topics—changing a sales tax dedicated to highway construction to building a new football stadium, devolving education policy jurisdictions from the Governor to the state's community college governing board, and implementing alternate side parking for street cleaning. We aim to ask low-salience questions in order to avoid the content of the question acting as a confounder towards the respondent's strong beliefs biasing the results of the conjoint study.

The conjoint survey will examine two variations of two ballot feature treatments—a total of four treatments per ballot measure. We will first test phrasing a ballot measure as a question with "yes" or "no" options changes the voting experience compared to a measure worded as a statement with "for" or "against" options. The other treatment will either frame the affirmative

option as a change to the policy's status quo (i.e., "Shall X change occur"), or frame the affirmative as maintaining the status quo (i.e., "Shall X change be rejected").

In order to measure voter satisfaction, we will be dedicating a portion of our Qualtrics survey to their feelings and reflections on their experience regarding the range of options they voted in the conjoint survey ballot. This section will be two-fold, asking participants following their completion of the ballot measure portion to answer relevant questions on their user satisfaction with the survey. Specifically, the satisfaction portion will ask how easy or difficult and how enjoyable the survey was. The satisfaction will be focused on the ballot initiative portion, including intentional wording to make clear that the respondent should only consider the quality of the questions and wording presented to them in each section. We will evaluate $\mathbf{H_{1B}}$ and $\mathbf{H_{1B}}$ by performing a multivariate regression for the satisfaction score reported by each respondent on the share of questions framed as statements and the share of questions framed with yes meaning change.

In order to measure the consistency with which voters could cast votes in line with their personal preferences, we considered two methods: instructing respondents how to vote before introducing each ballot measure, or asking respondents about their true preferences independently from the vote. However, we believed that by instructing respondents how to vote, voters may pay more attention to the ballot and not abstain in races they felt confused by at the same rates as if we had not, threatening the validity of our voting accuracy measurement. As such, the next section of the survey instead asks respondents for their true policy preferences in regard to each ballot measure they were presented earlier.

The section contains one question for each ballot measure presented in the first section of the survey. This time, the respondent will see a highly simplified review of the measure's content

and select between two statements clearly outlining one policy outcome (see Appendix A). If a respondent selects the option with the same outcome as their original vote, they voted "correctly" for that measure. If they select the option with the opposite outcome, then they are classified as voting "incorrectly." Finally, we operationalize each respondent's voting accuracy as the proportion of three ballot measures for which their vote was correct—corresponded with their true policy preference. Regardless of voting accuracy, we assume that voters believe they voted correctly the first time and do not anticipate seeing the question subject a second time will change their original policy preference.

As with satisfaction, we will evaluate $\mathbf{H_{2A}}$ and $\mathbf{H_{2B}}$ with a multivariate regression for each of the two ballot feature treatments on the proportion of ballot measures that respondents successfully answered in accordance with their true preference.

In the final section of our survey, we ask each respondent for basic demographic information, including race, gender, birth year, household income, education level, English proficiency, and partisan affiliation. We anticipate many of these variables are predictive of voters' capacity to comprehend complex ballot language, but we will utilize a multivariate regression specifically to test $\mathbf{H_{3A}}$ and $\mathbf{H_{3B}}$, whether education level and English proficiency negatively moderate the effect of ballot text features on the satisfaction and accuracy outcomes.

The full survey instrument can be found in Appendix A.

Results

Our Qualtrics survey received 430 responses, varying in response rates within the survey instrument and between demographic information. Of those who provided demographic information in the Qualtrics survey, the median age was 60, 50.4% of respondents were male (vs.

47.0% female and 2.4% identifying as non-binary), and the median household income was between $100,000 and $149,000. Respondents were given the choice to select as many races as they identified with—the largest represented combined racial group of was White at 91.4%, followed by Asian at 5.6%, (note: the total of the percentages will be greater than 100% because of multi-selection of racial category "buckets" in the survey). Those who identified as Hispanic amounted to 4.0% of our sample. 72.6% of our sample reported having completed a Bachelor's Degree or higher, and 95.6% of respondents speak English as their first language. 64.5% of respondents identified as a Democrat, while 25.8% identified as Republican, and 9.8 % identified as Other/Independent. As compared to the voter demographics of our population, which is an email list of Washington residents, the racial split in the 2020 Census skews heavily White ~76%, but not as much as our sample skew (91%), while the Hispanic population was underrepresented (4% in our survey against 17% in the State) (U.S. Census Bureau 2020). One of the more heavy skews was median age, which was 60 in our survey against 38 for the State. This may be attributed to the age demographic most likely to respond and complete an online political survey. The median household income in our survey was higher ($100,000-$149,000) than the State at $94,952. Our sample's party affiliation skewed more Democratic (~65% against 44% in the State) according to a Pew Research Study (Pew Research Center 2015). Notably in our survey analysis, respondents identifying as Democrats were more likely to find the survey usable than the baseline score (0.159) to a statistically significant level.

Below, we evaluate our proposed hypotheses against our regressions of voting accuracy and ballot usability.

H_{1A}: Formatting a ballot as a yes-or-no question will increase voting accuracy.

Our regression of voting accuracy on whether a measure was worded as a question with "yes" or "no" options (compared to wording as a statement with "for" or "against" options) was split by survey measure (Stadium, College, Parking) to isolate and control for significance by each initiative (see Appendix B). The coefficient on yes-or-no wording was not statistically significant for any of the initiatives (0.027 for Stadium, 0.598 for College, 0.197 for Parking). Although we observed marginal significance for the community college measure , we ultimately fail to reject that a yes-or-no question produces higher voting accuracy than a for-or-against statement.

H_{1B}: Wording a ballot measure such that "yes" means change and "no" means no change will increase voting accuracy.

We created an additional variable to measure the statistical significance of framing "yes" as meaning change and "no" equating to maintaining the status quo, instead of vice versa. As seen in Appendix B, Table 2, all three ballot measures yielded statistically significant results (1.740 for Stadium, 1.773 for College, 2.027 for Parking) measured against an alpha of 0.05 (see Appendix B, Figure 1), lending support to $\mathbf{H_{1B}}$. This is a valuable result for our survey as it demonstrates the significance of matching the intent of voters on a preference for a ballot question with the language of the answer choice. From our cited literature, "yes" on a ballot measure is acting as an implied "change vote" that is based on the question's appearance on the ballot (Center for Civic Design 2022).

H_{2A}: Formatting a ballot as a yes-or-no question will increase voter satisfaction.

To measure the voter satisfaction difference between for-or-against statements and yes-or-no questions, we ran a regression of voters' satisfaction with the usability of their overall ballot on their assigned proportion of measures that were yes-or-no questions vs. for-or-against

statements, and the proportion of measures that framed yes as change vs. yes as the status quo. The coefficient value on for-or-against statement framing was 0.016 and was not statistically significant (see Appendix B, Appendix B, Table 1)—there is insufficient evidence to conclude that voters find a measure to be more usable when framed as a yes-or-no question compared to a for-or-against statement.

H_{2B}: Wording a ballot measure such that "yes" means change and "no" means no change will increase voter satisfaction.

Using the same regression as **H_{2A}**, we examined the coefficient on framing a measure such that "yes" indicates change from the status quo (see Appendix B, Table 1). The coefficient was not statistically significant at a value of 0.085, therefore we also fail to reject that voters perceive a measure wording "yes" as change as opposed to as the status quo as more usable.

H_{3A}: Lower English proficiency will diminish the impact of features designed to improve ballot measure comprehension.

Our next group of hypotheses groupings examine whether demographic features moderate the effect of ballot measure features on either voting accuracy or voter satisfaction. For both the satisfaction and accuracy regressions, we ran augmented models interacting our ballot measure treatments with whether a respondent's first language was not English and whether a respondent had obtained a Bachelor's degree. Focusing specifically on whether English was a respondent's first language, none of the coefficients across any of the interaction variables of non-English nativity against the ballot treatments' effects on accuracy and satisfaction were statistically significant. In sum, we fail to conclude that English proficiency has a significant effect on how accessible ballot features affect voter accuracy or satisfaction. Still, it is important to note that the ratio of those who identify as having English as a second language to Native

English speakers is extremely low, where one category in a regression for the interaction measures had no distinct respondents identifying as English as a second language respond to the Parking Measure questionnaire for the Yes as Change question (see Appendix B, Figure 4).

H_{3B}: Lower education level will diminish the impact of features designed to improve ballot measure comprehension.

Finally, we test the interaction of education level on the for-or-against statement vs. yes-or-no question treatment and the "yes" as change and "yes" as status quo treatments with interaction regressions of voting accuracy and voter satisfaction, found in Appendix B, Table 1. Within interaction effects for voting accuracy, we found all interaction effects with college graduation not to be statistically significant, aside from marginal significance of college education and wording as a yes-or-no statement for the parking measure. However, we do not interpret practical meaning from this, as the variable reports coefficients of different signs between the three ballot measures tested.

For interaction effects for voter satisfaction, we identified one highly significant interaction: college graduation and framing an affirmative vote as change, with a negative coefficient value of -0.225. This finding suggests that voters with at least a Bachelor's degree reported significantly lower satisfaction with the usability of ballots that framed "yes" as change than voters without a Bachelor's degree (see Figure 2 in Appendix B). Given the slightly positive coefficient on framing "yes" as change as it affects voter satisfaction, while this finding partially supports $\mathbf{H_{3B}}$ in that voters with lower education status benefit from framing "yes" as change more than highly educated voters, on average the feature does not significantly improve perceived usability.

Discussion

Our most significant finding is that framing a ballot measure such that "yes" means change as opposed to the status quo significantly improves voters' ability to express a vote that matches their true preference. Simultaneously, we find that no support for framing a "yes" vote as meaning change improves voter satisfaction—this finding can be explained by the fact that voting errors are almost always unconscious—voters do not have to actively perceive a ballot as more difficult to use to vote against their actual beliefs. Ballot measure writing authorities should consider these conclusions carefully when drafting measures for presentation to the voting public, as unintuitive logic in wording proves to hinder the integrity of direct democracy. More dangerously, this may occur without voters noticing any difference in their voting experience. At the same time, voters should take caution when reading their ballots in order to ensure they are not led to unintentionally vote against their preference.

We also failed to find sufficient evidence that formatting a measure as a yes-or-no question improved either voting accuracy or voter satisfaction when compared to a measure formatted as a for-or-against statement. Our findings also contrast with the existing literature regarding English proficiency level satisfaction and ballot comprehension (Ulbig 2021, Redish 2010), as our study suggests no difference in the significant effect of "yes" as change for native English speakers and non-native English speakers. On the other hand, we find support that having less than a Bachelor's degree positively interacts with the effect of that same feature on voter satisfaction—ballot measures written with accessibility in mind particularly benefit the voters most at risk of otherwise struggling to understand them.

Our study included some limitations regarding the survey. One was that there was a heavy skew towards an older population, where our median age was 22 years higher than that of

the median age in the State of Washington (60 vs. 38) and 21 years higher than the national average (60 vs. 39). Democratic voters were overrepresented in this sample (64% vs. 44%) and respondents with at least one college degree were also significantly overrepresented. As a result of some of the demographic variances in our sample, the study should be taken as a preliminary investigation into the comprehension and satisfaction of ballot initiatives regarding valence in answer choice types and matching options with the language of the ballot text.

Future research should look into obtaining a nationally representative sample of voters, allowing for there to be large subsets in our sample to make more accurate measurements and comparisons with our baseline results. The research should be able to answer questions regarding education level and English language proficiency that have been opened by past studies (Ulbig 2021, Redish 2010). Voter demographic subset performances and preferences are critical to understand for ballot writers as these groups face more risk against confusing, long, and complex ballot measures (Hvsata 2020).

The study demonstrates that particularities of how a ballot measure is presented to voters remains a critical piece of the puzzle of direct democracy in American elections. While the effect of simplifying options for voters may not show a significant change, designing text logically following the choices presented to voters within a larger working body of the ballot shows significance as a value lawmakers and ballot-writers should hold.

Appendix A - Survey Instrument

1. Stadium Funding Section

Respondents were presented with the following four sections regarding funding a new Stadium.

- For/Against; For being change
    - *This measure repeals the countywide capital improvements sales tax of three-eighths of one percent (3/8%) funding the development of a new highway and imposes a parks sales tax of three-eighths of one percent (3/8%) for a period of 40 years to provide funding for a new football stadium to retain the local football team in the County.*
        - *For*
        - *Against*
- For/Against; For being status quo
    - *This measure maintains the countywide capital improvements sales tax of three-eighths of one percent (3/8%) funding the development of a new highway and rejects imposing a parks sales tax of three-eighths of one percent (3/8%) for a period of 40 years to provide funding for a new football stadium to retain the local football team in the County.*
        - *For*
        - *Against*
- Yes/No; Yes being change

        - *Shall the County repeal the capital improvements sales tax of three-eighths of one percent (3/8%) funding the development of a new highway and impose a parks sales tax of three-eighths of one percent (3/8%) for a period of 40 years to provide funding for a new football stadium to retain the local football team in the County?*
            - *Yes*
            - *No*
- Yes/No; Yes being status quo
    - *Shall the County maintain the capital improvements sales tax of three-eighths of one percent (3/8%) funding the development of a new highway and reject imposing a parks sales tax of three-eighths of one percent (3/8%) for a period of 40 years to provide funding for a new football stadium to retain the local football team in the County?*
        - *Yes*
        - *No*

2. <u>College System Governance Section</u>

Respondents were presented with the following four sections regarding changing power to select members of the State's community college board.

- For/Against; For being change
    - *This measure repeals existing statutory provisions on the 17-member community colleges state governing board, (1) transferring the authority to set community college executive officer salaries from the Governor to the Board and (2)*

mandating that the Governor appoint Board members based on recommendations from Board-certified community college organizations.

- *For*
- *Against*

- For/Against; For being status quo
    - *This measure maintains existing statutory provisions on the 17-member community colleges state governing board and rejects (1) transferring the authority to set community college executive officer salaries from the Governor to the Board and (2) mandating that the Governor appoint Board members based on recommendations from Board-certified community college organizations.*
        - *For*
        - *Against*
- Yes/No; Yes being change
    - *Shall the State repeal existing statutory provisions on the 17-member community colleges state governing board, (1) transferring the authority to set community college executive officer salaries from the Governor to the Board and (2) mandating that the Governor appoint Board members based on recommendations from Board-certified community college organizations?*
        - *Yes*
        - *No*
- Yes/No; Yes being status quo
    - *Shall the State maintain existing statutory provisions on the 17-member community colleges state governing board and reject (1) transferring the*

authority to set community college executive officer salaries from the Governor to the Board and (2) mandating that the Governor appoint Board members based on recommendations from Board-certified community college organizations?

-

3. **<u>Alternate Side Parking Section</u>**

Respondents were presented with the following four sections regarding changing street parking to alternate sides on a temporal basis for cleaning.

- For/Against; For being change
    - *This measure implements citywide Alternate Side Parking, establishing periods on a biweekly basis for vehicles to park legally on alternating ends of the street, enforceable by a fee of $250, to provide space for street cleaning.*
        - *For*
        - *Against*
- For/Against; For being status quo
    - *This measure maintains citywide parking laws and rejects implementing Alternate Side Parking, establishing periods on a biweekly basis for vehicles to park legally on alternating ends of the street, enforceable by a fee of $250, to provide space for street cleaning.*
        - *For*
        - *Against*
- Yes/No; Yes being change

    - *Shall the City implement Alternate Side Parking, establishing periods on a biweekly basis for vehicles to park legally on alternating ends of the street, enforceable by a fee of $250, to provide space for street cleaning?*
        - *Yes*
        - *No*
- Yes/No; Yes being status quo
    - *Shall the City maintain parking laws and reject implementing Alternate Side Parking, establishing periods on a biweekly basis for vehicles to park legally on alternating ends of the street, enforceable by a fee of $250, to provide space for street cleaning?*
        - *Yes*
        - *No*

4. **Satisfaction**

The following section provides a ranking instrument for respondents to give their opinion on the ballot.

- *The following questions ask for your opinions about the three-question ballot you just completed. Please indicate whether you strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, or strongly disagree with each statement below.*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I think that I would like to use this ballot in future elections.	○	○	○	○	○
I found the ballot unnecessarily complex.	○	○	○	○	○
I thought the ballot was easy to understand.	○	○	○	○	○
I would imagine that most people would understand this ballot very quickly.	○	○	○	○	○
I felt very confident completing this ballot.	○	○	○	○	○
I would need to learn a lot of things before I could understand this ballot.	○	○	○	○	○

5. **Preferences**

Respondents were finally asked to indicate their preferences on each ballot measure topic as clearly as possible.

- Stadium Preference
    - *Do you favor your county providing funding to the development of a new highway, or do you favor funding a new football stadium to keep the local football team in your county?*

        - *Favor new highway development*
        - *Favor new football stadium*
- College Preference
    - *Do you favor your state moving power from the Governor to the community colleges state governing board over setting community college executive officer salaries and new Board appointments, or do you favor the Governor maintaining that power?*
        - *Favor shifting power to Board*
        - *Favor Governor maintaining power*
- Parking Preference
    - *Do you favor your city implementing Alternate Side Parking, which has vehicles to park on the opposite ends of the street biweekly to make space for street cleaning?*
        - *Favor implementing Alternate Side Parking*
        - *Oppose implementing Alternate Side Parking*

Appendix B

Table 1: Ballot Usability OLS Regression

	Usability Score	
	Baseline (1)	Interaction (2)
For/Against	0.016	0.192**
	(0.072)	(0.090)
Yes as Change	0.085	0.098
	(0.071)	(0.089)
Vote Time	−0.0003	−0.0003
	(0.0002)	(0.0002)
White	0.008	0.025
	(0.049)	(0.049)
Black	0.066	0.078
	(0.072)	(0.071)
Asian	−0.076	−0.088
	(0.055)	(0.056)
NHPI	0.079	0.090
	(0.121)	(0.120)
AIAN	0.043	0.049
	(0.072)	(0.072)
Span/Hisp/Latino	−0.090	−0.086
	(0.057)	(0.057)
Age	0.001	0.001
	(0.001)	(0.001)
Female	−0.020	−0.021
	(0.021)	(0.022)
Non-binary	0.041	0.048
	(0.072)	(0.071)
Low-Income	0.153	0.154
	(0.228)	(0.226)
College Grad	−0.017	−0.007
	(0.028)	(0.028)
Non-English Speaker	−0.010	0.115*
	(0.025)	(0.062)
Democrat	0.159***	0.338***
	(0.055)	(0.115)
Republican	−0.048	−0.049
	(0.038)	(0.038)
For/Against x Yes as Change	0.010	0.014
	(0.041)	(0.041)
For/Against x College	0.017	0.021
	(0.123)	(0.124)
Yes as Change x College		−0.225***
		(0.078)
For/Against x Non-English		−0.009
		(0.080)
Yes as Change x Non-English		−0.234
		(0.166)
ch_share:englishNo		−0.128
		(0.170)
Constant	0.323***	0.210**
	(0.088)	(0.096)
Observations	410	410
R^2	0.085	0.110
Note:	*p<0.1; **p<0.05; ***p<0.01	

Table 2: Voting Accuracy Logit Regression

	Accurate Vote Probability		
	Stadium Ballot (1)	College Ballot (2)	Parking Ballot (3)
Yes/No Format	0.027	0.598*	0.197
	(0.306)	(0.312)	(0.309)
Yes as Change	1.740***	1.773***	2.027***
	(0.347)	(0.343)	(0.386)
Stadium Time	0.007		
	(0.005)		
College Time		0.004*	
		(0.002)	
Parking Time			0.006
			(0.005)
White	0.135	−0.892	0.992*
	(0.550)	(0.638)	(0.587)
Black	−1.292	−1.562*	0.202
	(0.811)	(0.811)	(0.818)
Asian	0.269	−0.858	−0.135
	(0.668)	(0.642)	(0.637)
NHPI	1.747	3.214	0.934
	(1.556)	(2.208)	(1.645)
AIAN	−1.137	−1.902**	−0.707
	(0.879)	(0.914)	(0.875)
Hispanic	−0.792	−0.190	−0.443
	(0.614)	(0.688)	(0.772)
Age	−0.003	0.002	0.008
	(0.008)	(0.008)	(0.009)
Female	−0.145	0.247	0.025
	(0.246)	(0.239)	(0.269)
Non-Binary	−0.286	2.328**	0.732
	(0.790)	(1.161)	(0.898)
Other (Gender)	−14.990	14.317	13.383
	(882.744)	(535.412)	(882.744)
Low-Income	0.105	−0.664**	−0.576*
	(0.324)	(0.308)	(0.324)
College Grad	0.327	−0.499*	0.092
	(0.277)	(0.292)	(0.297)
Non-English Native	0.149	0.258	0.346
	(0.618)	(0.644)	(0.719)
Democrat	0.230	−0.590	0.293
	(0.428)	(0.464)	(0.454)
Republican	−0.202	−0.849*	−0.591
	(0.451)	(0.490)	(0.479)
Yes/No x Change	−0.116	−0.657	0.439
	(0.497)	(0.476)	(0.598)
Constant	−0.468	1.264	−1.483
	(0.859)	(0.951)	(0.932)
Observations	395	406	404
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 3: Voting Accuracy Logit Regression w/ Interactions

	Accurate Vote Probability		
	Stadium Ballot (1)	College Ballot (2)	Parking Ballot (3)
Yes/No Format	−0.179	0.622	−0.546
	(0.523)	(0.513)	(0.504)
Yes as Change	1.606***	2.081***	1.804***
	(0.505)	(0.591)	(0.614)
Non-English Native	−0.044	0.233	−0.477
	(1.084)	(0.955)	(1.014)
College Grad	0.139	−0.310	−0.422
	(0.409)	(0.452)	(0.436)
Stadium Time	0.007		
	(0.005)		
College Time		0.004*	
		(0.002)	
Parking Time			0.006
			(0.005)
White	0.152	−0.908	1.043*
	(0.553)	(0.646)	(0.599)
Black	−1.243	−1.582*	−0.130
	(0.808)	(0.833)	(0.846)
Asian	0.234	−0.869	−0.246
	(0.673)	(0.661)	(0.676)
NHPI	1.700	3.445	1.347
	(1.573)	(2.318)	(1.718)
AIAN	−1.110	−2.005**	−0.604
	(0.880)	(0.948)	(0.878)
Hispanic	−0.769	−0.246	−0.335
	(0.615)	(0.693)	(0.819)
Age	−0.003	0.002	0.009
	(0.008)	(0.008)	(0.009)
Female	−0.139	0.220	0.047
	(0.249)	(0.243)	(0.272)
Non-Binary	−0.281	2.500**	0.643
	(0.793)	(1.204)	(0.905)
Other (Gender)	−15.072	15.356	15.150
	(882.744)	(882.744)	(2,399.545)
Low-Income	0.126	−0.603*	−0.553*
	(0.326)	(0.312)	(0.324)
Democrat	0.251	−0.600	0.284
	(0.428)	(0.471)	(0.467)
Republican	−0.182	−0.825*	−0.609
	(0.452)	(0.501)	(0.488)
Yes/No x Change	−0.074	−0.674	0.440
	(0.506)	(0.482)	(0.608)
Yes/No x Non-English	0.400	1.599	0.846
	(1.218)	(1.374)	(1.827)
Change x Non-English	−0.344	−1.651	15.104
	(1.409)	(1.318)	(687.690)
Yes/No x College	0.244	−0.093	1.048*
	(0.543)	(0.565)	(0.574)
Change x College	0.200	−0.310	0.201
	(0.540)	(0.590)	(0.645)
Constant	−0.370	1.149	−1.209
	(0.894)	(0.981)	(0.975)

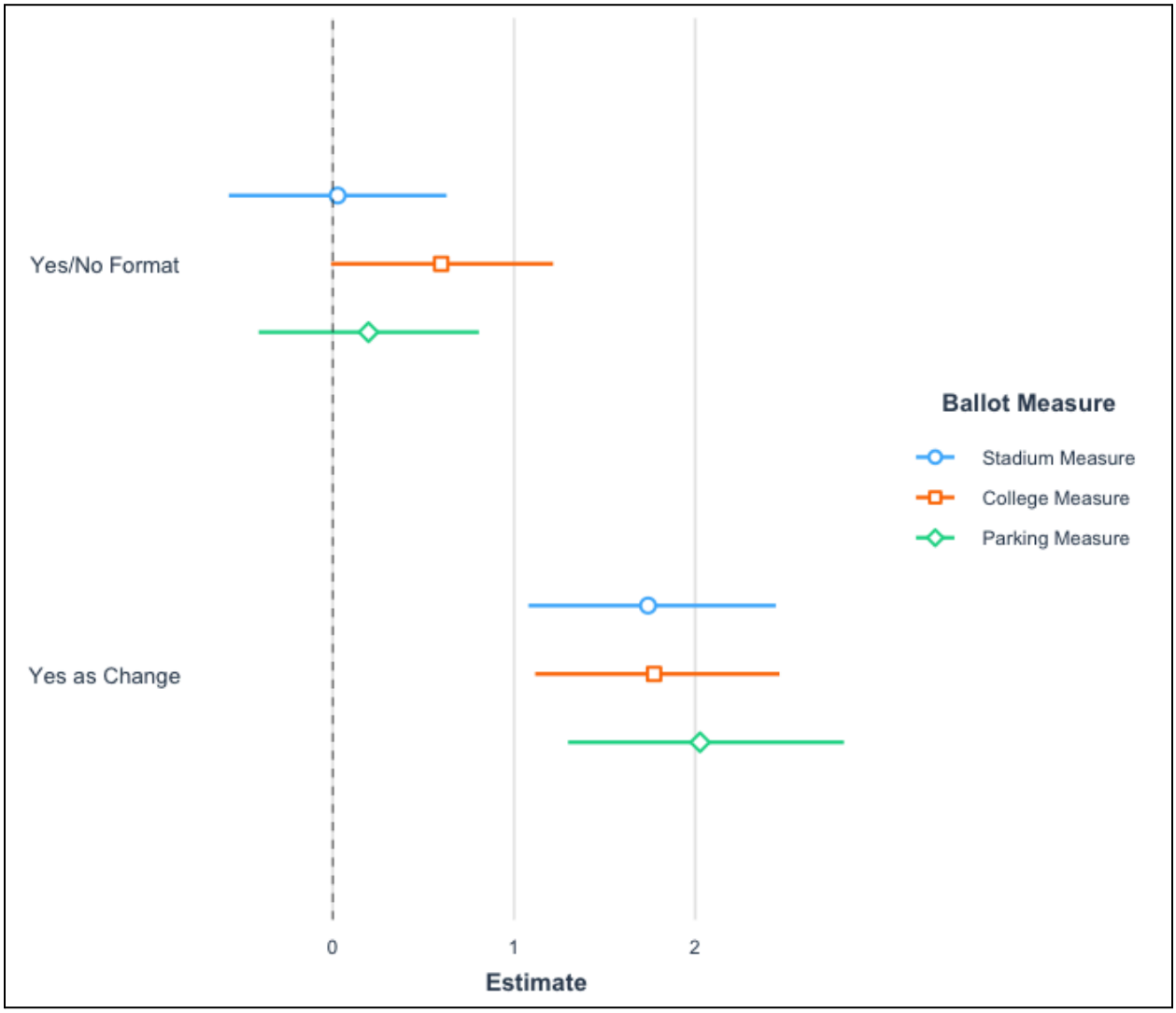

Figure 1: Baseline Regression of “Yes/No” Format and “Yes” as Change for all Ballot Measures

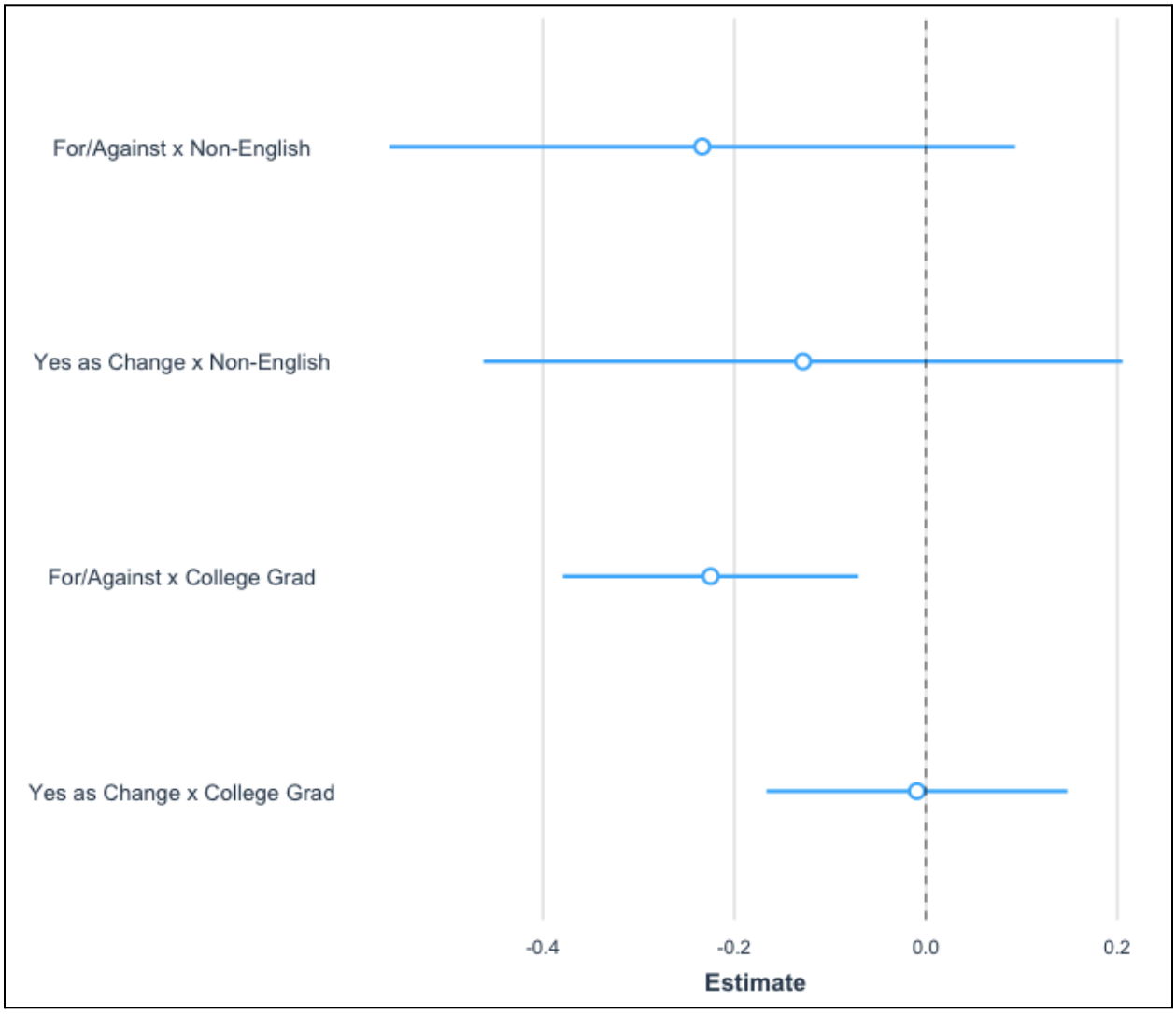

Figure 2: Interaction Effects Regression for Education Level and English Proficiency

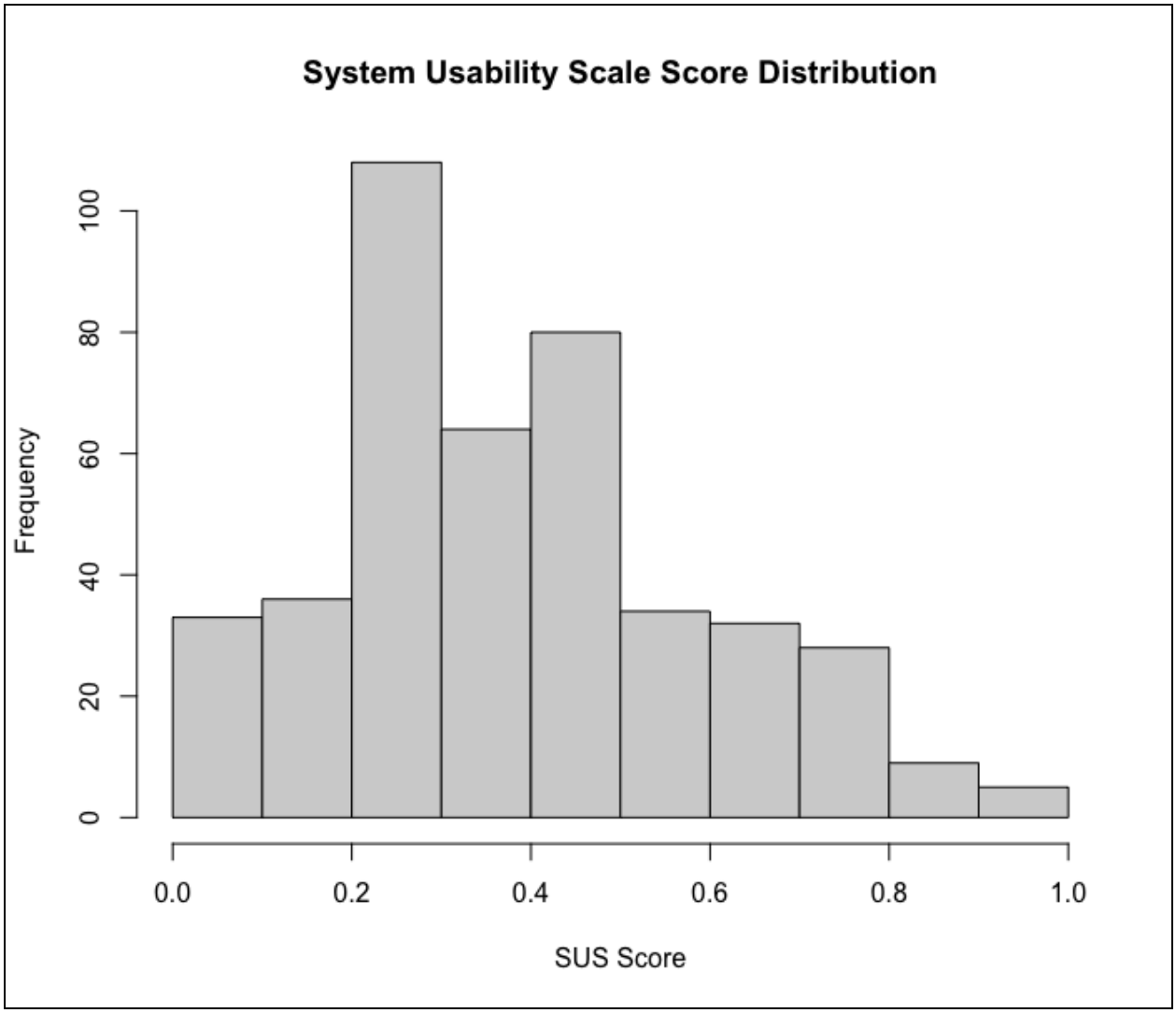

Figure 3: System Usability Scale Score Distribution

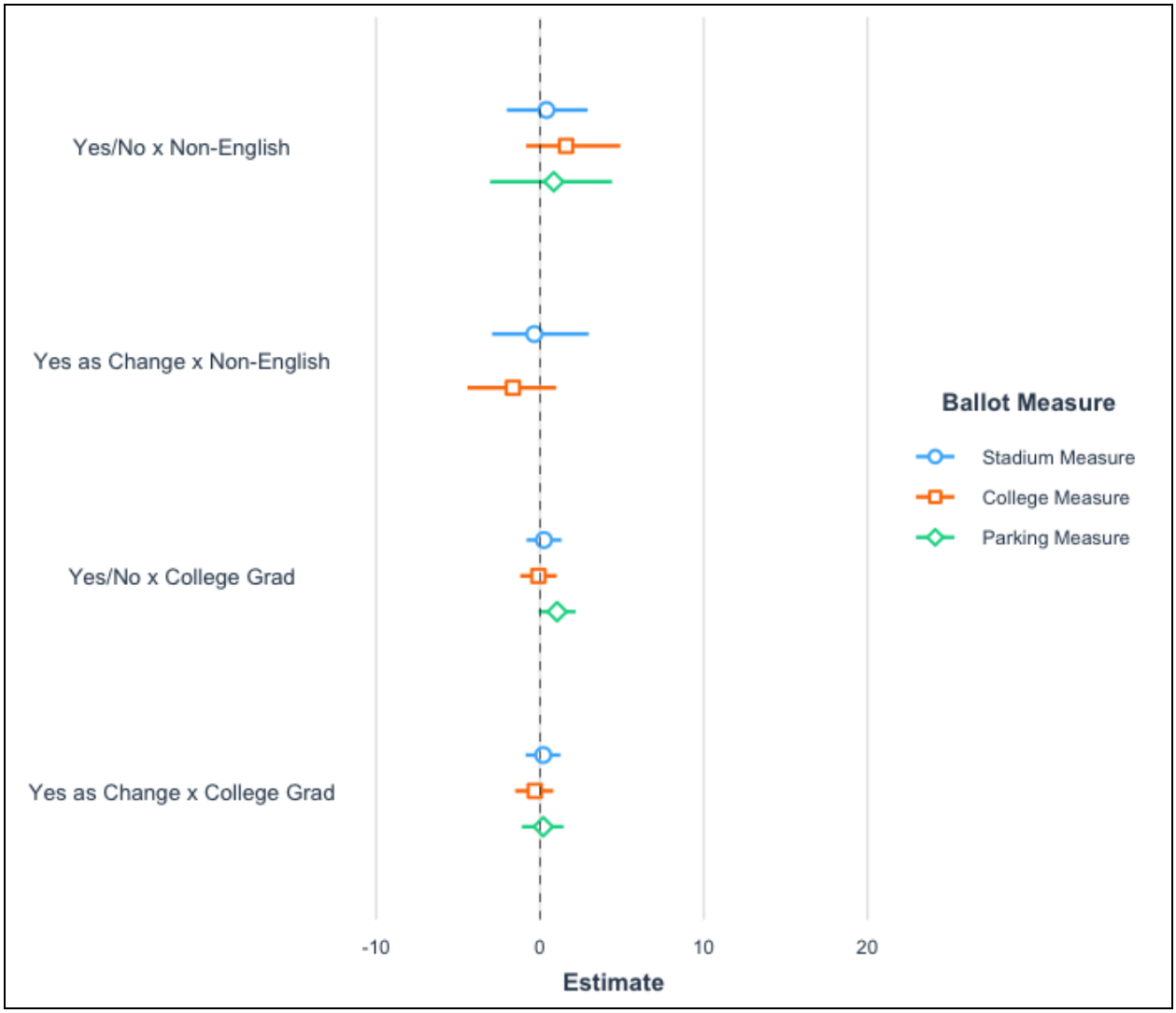

Figure 4: Regressions for Interaction Effects

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