

Do I need a PHD to vote: A qualitative and quantitative study

A capstone project presented in partial fulfillment of the requirements for the
degree of Master of Arts in Policy Studies

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Abstract

Throughout history, U.S ballots have been designed by the most educated and sophisticated. Research shows that even the most educated individuals do not possess the tools and knowledge necessary to understand many ballots. Literature suggests that the more education a person has the better voter they are. However, this study shows that education alone is not sufficient for a person to vote while fully understanding a ballot. This capstone studies if there is a statistically significant relationship between education and its impact on voter turnout, as well as education being a moderator-controlled variable and its influence on psychology of decision making. This study focuses on two null hypotheses: that there is no significant relationship between education and voting outcome, and if education controlled as a moderator variable has any influence on the ballot outcome itself which is measured as psychology of decision making. To test both null hypotheses, a cross-sectional survey was administered. The sample size was (N=33) with undergraduates (N=17) and graduates (N=16). Four Ballots were designed based on different real-world initiatives. The findings of this study showed no statistical significance between a person's level of education and their voting behavior, education also conducted as a controlled-moderator variable did not show any statistical significance. This study recommends that further research should be done using this cross-sectional survey across all three University of Washington branches to determine if the ballots should be further scrutinized when designed by stakeholders.

Chapter 1 – introduction

The ballot used in the US voting system is an important document on which voters confidentially indicate in writing their choice for a political candidate in the democratic process. When a citizen casts their vote, their ballot contains several choices of which a voter must read and then write or mark their choice. The ballot was designed in 1848 to make sure people in the US democratic system were provided the equal opportunity to cast their votes, however literature suggests that ballots are not the most democratic way of casting a vote. Prior to the Revolutionary war, votes were casted not by ballot, but by voice vote at the local carnivals. It was argued that given how public this method of election was, voting was easily corruptible. As the political sphere began to change in the 19th century with the aftermath of the Civil War, the term “vest-pocket” voting emerged to refer to people who kept their ballots in their pockets rather than displaying them publicly on their way to a polling place (King, 2016). The intent of the written ballots in 1848 was created with the general agreement that privacy of voting was deemed important to the democratic process. However, the question is, 1) Is there a relationship between education and the outcome of a ballot and 2) given the language and framing of the ballot does education influence the psychological process of the decision maker and the results of the vote/ballot outcome. Therefore,

the purpose of this study is to investigate the psychology of decision making and its impact on participants voting outcome.

While ballots continue to make us all wholeheartedly believe that our vote is being casted fairly with our rights to privacy, this belief should be questioned. The *psychology of decision-making* is defined by existing literature as a vote being cast solely based on its utility gain (a person will make a decision based on the utility gain/ investment return) With this frame of mind that decision making should always be based on a utility gain, a ballot can be overturned if the benefits of the initiative do not seem like a utility gain at first glance to the voter, an example of this would be requiring voters to pay more taxes for a particular initiative that is beneficial to them in the long run. However, in this study the psychology of decision making is defined by the influence of the framing and presentation of the text in the ballot in conjunction with the legalistic language used in the ballot initiative. Furthermore, the notion of both Issue Framing and legalistic language used in the ballot initiative is something that the ballot heavily depends upon (see figure 1). This simply means that the legalistic language used in the initiative is often framed in emotionally charged language which carries a bias in them that was formed by the individual who designed the ballot such as an Attorney General.

Conceptual model of the psychology of decision making

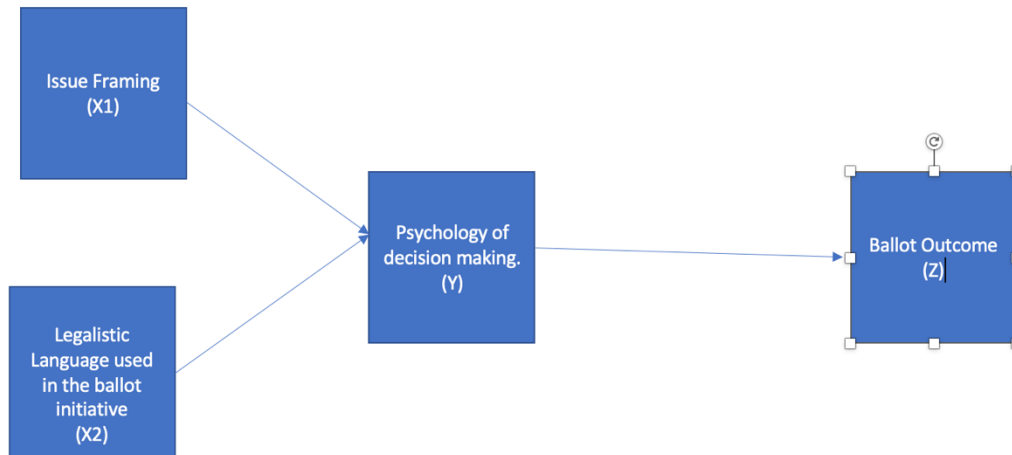


Figure 1: This study investigated the psychology of decision making and its impact on the voting outcome of University of Washington Bothell students. Psychology of decision making is presented as follows: Issue framing (X_1) + Legalistic language used in the ballot initiative (X_2) = Psychology of decision making (Y) which impacts Ballot outcome (Z).

For this study, these two theoretical constructs (*issue framing, and legalistic language used in the ballot initiative*) make up the psychology of decision making. However, given the history and influence of our Founding Fathers who represented the small white, elite population, I argue that ballots were not created for the diversity in language and culture that makes up contemporary USA. Therefore, as a result, the ballots communicate differently across populations causing unequal ballot outcomes. This notion of psychology of decision making often can influence the cognitive behavior to vote in certain ways based on how the framing and legalistic language used in the ballot initiative is designed (Tversky and Kahneman

1981). Previous research show that ballot framing and language not only influence a person's voting behavior, but they are also creating differences in the standard of comprehension for voters who are trying to perform their civic duty. In this study, I borrow the community toolbox definition for framing of the issue which is defined as "Framing is a way of structuring or presenting a problem or an issue. Framing involves explaining and describing the context of the problem to gain the most support from your audience. Your audience is key to framing" (Community toolbox, 2022).

Second, legalistic language used in the ballot initiative I define as complex language, defined as language that lacks clarity, specificity and can unintendedly lead to deception. Next this study defines psychology of decision making as the outcome of the ballots which is rooted in framing of the issue in addition to the legalistic language used in the ballot initiative. Lastly, "ballot outcome" is defined as students perceived comprehension level of ballot (1-4.)

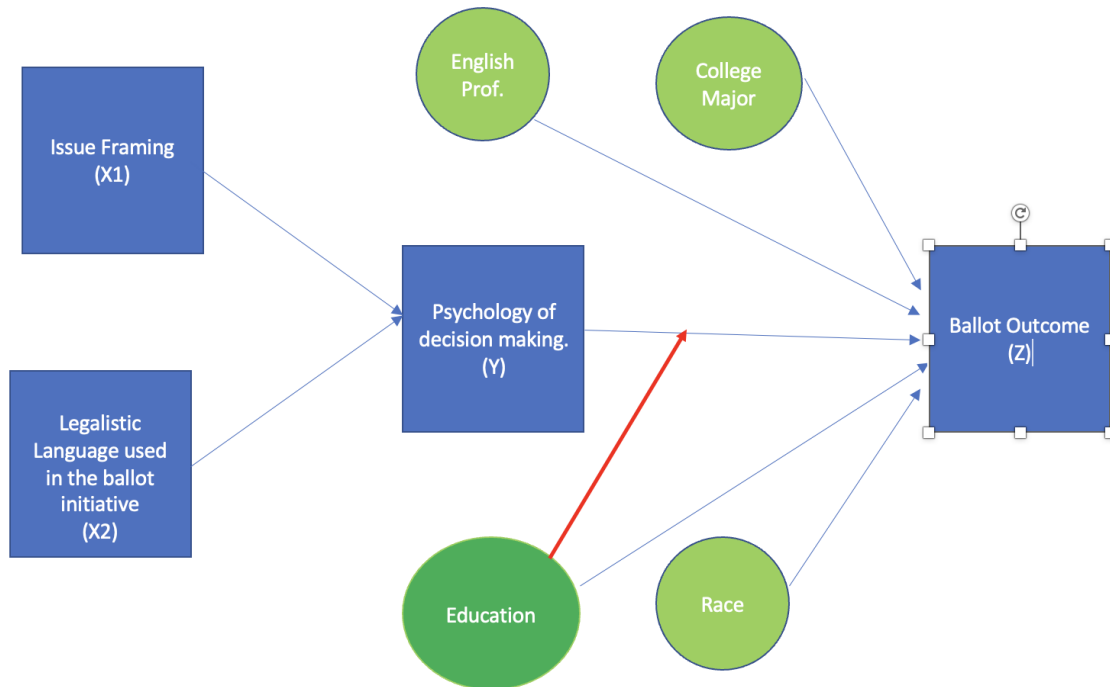
The psychology of decision making informed by issue framing and legalistic language used in the ballot initiative has been prevalent in recent ballot initiatives. A recent ballot on police reform in Minneapolis called "City Question 2" proposed by the Yes 4 Minneapolis coalition is a perfect example of an overly ambitious ballot without a clear Agenda. The City Council initially approved the ballot questions proposed by Yes 4 Minneapolis to be added to the November 2021

election. However, city council suggested that an explanatory note was needed for people to fully understand what they were voting on. Yes 4 Minneapolis refused to add the explanatory note to the ballot question and sued the city arguing the language was misleading. On September 7, 2021, the Hennepin County District Court agreed with Yes 4 Minneapolis and struck down the ballot question due to its vagueness and ruled it as misleading in *Samuels v. Minneapolis*. Ultimately the ballot questions were included without the explanatory language. This battle continued up to the Minnesota supreme court highlighting the importance of ballot language as a form of persuasion.

The existing literature review for the issue framing of ballots and its impact on an individual's comprehension of the legalistic language used in the ballot initiative has been studied several times resulting in the same conclusion-the more educated an individual is the less likely they are to be influenced by how the issues in the legalistic language used in the ballot initiative are framed (Gafke and Leuthold). However, in most of these studies individuals from all levels of education were randomly selected for surveys, which means some had less than high school, high school diploma, others had bachelors and graduate degrees (Gafke and Leuthold). This study only focuses on students who are enrolled in a bachelor's program or have graduated with a bachelors and are enrolled in a master's program.

Consistent with the existing literature identifying education as a moderator for voting outcome, a study done by Reilly and Richey in Georgia found that voting is solely dependent on education (2011). The study found that on average residents of the State of Georgia reads at an eight-grade level. However, the Georgia ballot questions are written for someone who can read at the equivalent of a twenty-second grade level which is PHD. This present study will extend this analysis by comparing undergraduates and graduate student voting behavior to determine if educated individuals do have a higher level of detecting bias in ballots reducing its impacts on voting behavior. In this study education will be measured as a control - moderating variable. Therefore, this survey design study focuses on issue framing, legalistic language used in the ballot initiative which formulates the psychology of decision making and its influence on students voting outcomes at a major R1 branch campus.

Conceptual model of the ballot outcome with Education measured as controlled variable



In addition to the three theoretical constructs of this study: the psychology of decision making as defined by the Issue framing, and the legalistic language used in the ballot initiative to determine ballot outcomes (students perceived comprehension level of ballot 1-4). Several independent variables in addition to education were included as control variables such as: a person's English proficiency level, college major, and race. This study analyzes two null hypotheses, First, that there is no significant relationship between a person's level of education and their voting outcome, and second, education does not influence the relationship between the psychology of decision making and a person's voting outcome. After running several statistical tests such as Chi-square, Spearman's rho, McNamar,

Binomial Logistical regression, Multinomial Logistical Regression, each null hypothesis was supported.

Chapter 2 – Literature Review

Framing of the issue and psychology of decision making

Ballots often determine the most pressing issues societies tend to face, one of the leading gaps in determining how effective ballots are in helping citizens exercise their civic duties in a state of democracy is due to several reasons, (1) confusing and misleading ballot titles, (2) extracting certain information's from the law to put in the ballot as a form of persuasion (3) not having prior knowledge when it comes to filling out the ballot. Those engaged in direct democracy campaigns believe that ballot title wording influences voters choices. Courts have also alluded to the importance of title wording. In the words of justice Unis of the Oregon supreme court: As Hasting and cann mention, wording of the ballot title is important because voters see only the caption, the resulting statements, and the summary on the ballot. They do not see the full text of the law... the wording of ballot title greatly influences the success or failure of a particular measure” (2014).

Since ballots can be biased and might unduly influence an election outcome, all states except for Nevada which does not allow the appeal of ballot title to the judiciary for review.

The reasons lawsuits and appeals are allowed in all states except Nevada, is because of how much influence framing effects has on ballot titles. Chon and Druckman describe framing effects as occurring when even small changes in the presentation of an issue has a large impact in changing the opinion of the voter. (2007). Years later, Hasting and Cann found out that strategic selection of words can bias the way individuals cognitively process the information they receive, likely by altering the importance afford to various beliefs one already holds” (2014).

Although there is a considerable amount of evidence for the power of framing effects, it is not unlimited power that elites could wield over the masses. Literature has continued to show that framing can have strong or weak correlations to voter turnout. A study by Hasting and Cann was done where 828 subjects were randomly assigned one of two treatment conditions (exact wording of the conditions appear in an online supplement materials). In one condition, the ballot initiative was titled “Eliminates the Right of Same-Sex couples to Marry” (the title of California’s 2008 proposition 8) while, in the other condition, the title was “The protect Marriage Act” (2014).

Hasting and Cann’s study hypothesized that framing of the ballot could impact voter decision making. Even on a matter that is hotly contested and where the policy is relatively noncomplex and relatively well understood by voters. The

results of just changing the ballot titles showed that even a change in the framing of the ballot titles can have a huge impact on voter choice.

Using a Pearson's test the results clearly show an effect that is both statistically significant (design-based $F = 3.633$, $p = .027$) and substantively large. The percentage voting in favor of the initiative is only about 39% with the "Eliminates Rights" frame while just over half of those presented with the "Protect Marriage" frame supported the initiative. This represents a shift of about 12% points attributable to the differences in the ballot title (and interestingly, would be decisive terms of the election outcome... we note that the shift due to framing effects is large enough to change the outcome of the election. (Hasting and Cann, 2014, pg. 122).

Using a multinomial logit model provides a more nuanced picture of who is the most impacted by framing, an interesting fact the study found was most of the movement in support of same-sex marriage question comes from individuals moving in out of the abstinence category rather than from No category to yes category.

None of our counterfactual scenarios for age, educational attainment, or previous position on gay marriage have an instance where we see the frame significantly increasing (or decreasing) the probability of "yes" votes while decreasing (increasing) the probability of "no" votes. Instead, the "protect marriage" frame tends to move individuals who previously opposed gay marriage from the "abstain" category to a "yes" vote to ban same-sex marriage or, on a more limited basis, to move individuals who previously supported gay marriage from a "no" vote into the "abstain" category... we don't see evidence that the frames we employed here caused widespread voting against previously stated preferences. However, the frames employed here seemed to affect whether individuals chose to vote at all on the ballot questions or not (Hasting and Cann, 2014, pg. 124).

Overall, Hasting and Cann's study shows that framing does have an impact on voter decision and through using statistical analysis it shows more significance

between the framing of the ballot titles and voter decision. This study will examine the role of education as a controlled and moderator variable on a person's voting outcome, while taking into consideration several existing factors such as their English language proficiency, school year, major, race and reading comprehension ability to collect a more representative data set.

Research done by Braidwood studies framing effects on voter behavior and outcomes, focuses more on the specificity of linguistics to determine if detailed language has more impact on voter behavior in comparison to unspecific and less detail language in the ballot (2019). The ballot complexity stems from its nuance multiple factors that shape it such as its language complexity, position on the ballot, election timing, and prepossessed knowledge of the measure themselves which have all shown to play a role in proposition outcomes.

Similarly, Braidwood found that ballot questions have also shown that they can have a large impact on altering the fiscal behavior of a government, and its state and further create conflicting results (2019). Braidwood's study found that the more visible the outcomes of a measure that requires levies with a caveat that the taxpayer will receive some utility from their investment (paying taxes) the more likely they are to vote for it (2019).

Braidwood conducted two experiments on assessing the effects of language specificity on ballot support. The first was in the fall of 2012 on Florida State

University (FSU) campus and relied entirely on student sample. The second was conducted in the spring of 2013, and relied on a combination of FSU students, and online participants. The fall 2012 experiment were divided into two groups: one group was presented with a ballot measure dealing with waste disposal, and the other with a measure regarding school funding. Subjects were divided into treatment (Specific language) and control (unspecific language) groups (2019).

Waste Disposal, Unspecific:

Shall Leon County increase its residential solid waste collection fees by \$1.75 for residential rates, \$8.75 for senior citizens rates, and shall apply to all residentially zoned dwellings within greater Leon County beginning in the upcoming fiscal year: 2013/2014 (Braidwood, 2019, pg. 36).

Waste Disposal, Specific:

Shall Leon County increase its residential solid waste collection fees by \$1.75 a month *to fund current and future maintenance and operations, including operational and capital reserves and capital needs of the County system of solid waste disposal?* This would increase current fees to \$10.75 for residential and \$8.75 for senior citizen rates (Braidwood, 2019, pg. 35).

Braidwood asked Two follow-up questions to determine the effect of ballot specificity on voter certainty. The results were consistent with hypothesis one that the more language specificity on how the tax dollars will be spent the more increase in the probability of voting yes. The results showed that “subjects receiving the unspecific vignette (hallow circles) strongly opposed the waste measure (44% voting no, 29% abstaining; top figure), but were largely ambivalent on the school support measure (12% voting no, 66% abstaining; bottom figure).

When provided with specific language about how the taxes will be utilized (solid circles), we see sizable changes in support. In fact, for both for waste disposal and support for school funding we see voting pluralities becoming majorities: moving from 27% to 56% voting yes for waste disposal, and from 22% to 61% voting yes for school funding. Finally, the robust findings suggest that it is the substance of the frame that is driving voter behavior, rather than simple the length of the measure” (2019)

The second and third hypothesis predicted that frames with greater specificity would also increase certainty about how the funds will be spent, and impact voters to have stronger feelings about the issue. Hypothesis two found strong confirmation. In the waste disposal context, specificity increased those feelings “very” and “extremely” certain by “6.3% and those feeling “somewhat” certain by 12.7% *ceteris paribus*. School spending saw even greater gains in respondents’ certainty. Those with specific ballot vignettes were 10.2% more likely to be “very” and “extremely” certain of spending, and those “somewhat” certain increased by 18.1% *ceteris paribus* (2019).

Another important factor that Braidwood mentions is when taxes are asked to be paid all at once that’s when the probability of rejecting the taxes is much higher than when they would be offered an option to pay the taxes over time. When the voters are not provided with a connection between the requested tax and the

policy outcomes, the lack of personal attachment weakens the overall support (2019,). As Dr. Kolodisnky chair, Department of Community and Applied Economics Director further points out, avoiding leading or loaded words is essential, frames that are seen to be double barreled where they ask about two questions at once may confused the voter further (2018).

The study strengths were in having narrowed set of questions and having multiple sets of hypotheses that were all supported by the results which made this study even more credible. Although the methods and the way the surveys were conducted were extremely resourceful and well thought out, the result section tends to provide an overall connection between specificity of language comparison to both of the subjects (SFU) and (MTurk) which are two sets of different subjects with different educational qualifications, however this study like many of the previous literature tends to make a huge jump with an overgeneralized assumption that individuals with more education tend to be better voters, however because the results provide an overall data of both groups rather than categorization of each groups based on their demographics there is no specific statical evidence backing up this claim. This study will focus on individuals that either hold a degree or perusing a degree and their voting behavior and outcome will be compared to the language and framing of the ballot itself to determine if there is a significant

relationship between the independent (students' education) and psychology of decision making's impact voter outcome a dependent variable

Legalistic language used in the initiative and psychology decision making

Reilly and Richey (2011) show that ballot questions often feature ambiguity in their legalistic language which makes this very difficult for voters to comprehend, this ultimately can lead to voters making a choice that is determinantal to them immediately or in the long run. Since the ballot language is often unclear, their study tries to determine the effect of questions with lower readability. They found that this resulted in higher roll-off since voters often skip questions they don't understand. "The complex wording may explain why voting on ballot measures is often less than voting for higher offices on the same ballot, because people skip the measures they do not understand" (Reilly and Richey 2011, pg. 59).

Reilly and Richey do a deeper dive into the complex wording for survey questions and a corresponding increase in nonresponse. The study hypothesized that poor readability will also increase nonresponse to ballot questions, known as roll-offs. The study found that the average readability of these questions is far above the reading leverage of average citizens. The study gathered the wording for each ballot measure and put them through a Flesch-Kincaid Grade Level readability test. For example, "the median resident of the state of Georgia reads at

an eight-grade level. We find that the average Georgia ballot question is written so that understanding it requires someone to read at the equivalent of a twenty-second grade level” (Reilly and Richey 2011, pg. 59).

With a twelve to twenty-second grade reading level required to understand the ballot, many voters will not understand ballot propositions. If a major portion of the electorate cannot understand the language of the questions, then this seems to limit the potential for a proper vote. This can have a significant limitation on voter’s ability to choose wisely if they are unable to fully comprehend the question’s wording. Different questions for ballots can provoke different responses.

In fact, studies of public opinion over time attribute much of the change in opinion to changes in question wording, which alters the response. Reilly and Richey (2011) evaluated 1,211 questions from 1997 to 2007 using the Flesch-Kincaid Grade Level which indicates the number of years of education required to read and fully understand the passage. Since ballot position readability levels can be from grade level 9 to grade level 22 to comprehend the language of the ballot this huge gap is problematic because “only 84% of Americans achieve a high school graduation and only 25% receive a college degree. Seventeen years of education would be above college level, and less than 25% of Americans would be able to fully understand the average question used in the analysis “(Reilly and Richey 2011, pg. 62). The research further shows that the length of the ballot, the

wording and longer ballots with higher voter fatigue could lead to higher roll-off. Research also shows that propositions further down the Ballot are more likely to suffer from roll-off.

Readability has a large and significant impact in increasing roll-off. Propositions written in a way that are difficult to read have less people voting on them. “A one standard deviation changes in readability, *ceteris paribus*, results in a change of around one-third of standard deviation in roll-off” (Reilly and Richey 2011, pg. 65). Thus, readability has a profound influence on this crucial aspect of initiatives and referenda voting.

Reilly and Richey’s 2011 study captures the significance of readability and impact of roll-off. While this study carries many strengths in its methodology and result section, the data collected from 1997 to 2007 does not capture the relationship of readability and ballots now since there have been so many litigation procedures around the complexities of ballot language. Furthermore, the study could have benefited from stating the statistical analysis in the result section when it stated that participants with higher income and education have an insignificant and small impact on roll-off. The study should have stated what is considered insignificant and what is considered as small impact. This capstone will address definitions necessary to fully analyze the results and will use relevant and current data to address both null hypothesis that there is no significant relationship

between education and its impact on voter turnout measured by student perceived comprehension level of ballot (1-4), and education being a moderator-control variable and its influence on ballot (1-4) votes which is also measured as psychology of decision making.

Ballot language and the psychology of decision making

In 1981, Tversky and Kahneman laid the theory ground level work on psychology and the assumption that decision making is done fully by rational humans. We use the term “decision frame” to refer to the decision maker’s conception of the acts, outcomes, and contingencies associated with a particular choice. “The frame that a decision-maker adopts is controlled partly by the formulation of the problem and partly by the norms, habits, and personal characteristics of the decision maker” (Tversky & Kahneman, 1981, pg. 453). The biggest theory around decision making is centered around how much utility can be expected. The major theory of decision-making under risk is the expected utility model. This model is based on a set of axioms, for example, transitivity of preferences, which provide criteria for the rationality of choices.

The choices of an individual who conforms to the axioms can be described in terms of the utilities of various outcomes for that individual. “The utility of a risky prospect is equal to the expected utility of its outcomes, obtained by weighting the utility of each possible outcome by its probability. When faced with

a choice, a rational decision-maker will prefer the prospect that offers the highest expected utility (1,2) “(Tversky & Kahneman, 1981, pg.453). Since when an individual is faced with a choice and they may be making a rational decision, they prefer the option that offers the highest expected utility which really depends on how individuals perceive their gains and losses.

Figure 4: Hypothetical Value Function

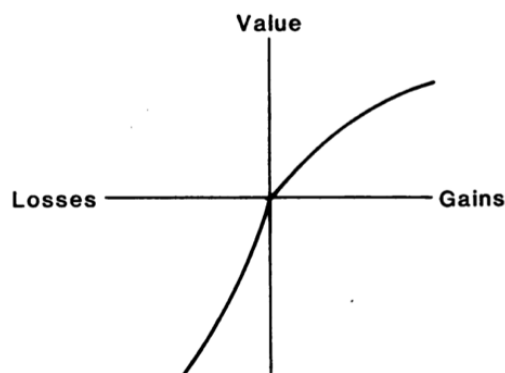


Fig. 1. A hypothetical value function.

Figure 4. Outcomes are commonly perceived as positive or negative in relation to a reference outcome that is judged neutral. Variations of the reference point can therefore determine whether a given outcome is evaluated as a gain or as a loss. Because the value function is generally concave for gains, convex for losses, and steeper for losses than for gains, shifts of reference can change the value differences between outcomes and thereby reverse the preference order between options.

Tversky and Kahneman argue that human rationality is not always dominant, and in fact the level of rationality is correlated to how those options provided are framed. Their study specifically focused on students at Stanford University and at

the university of British Columbia who answered brief questionnaires illustrated in problem 1 and problem 2. The total number of respondents for each problem is denoted by N , and the percentage who chose each option is indicated in the brackets.

The effect of Variations in framing is illustrated in problems 1 and 2

Problem 1 [$N=152$]: Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs are as follows:

If program A is adopted, 200 people will be saved. [72 %]

If program B is adopted, there is $1/3$ probability that 600 people will be saved, and $2/3$ probability that no people will be saved. [28 %]

Which of the two programs would you favor?

The majority choice in this problem is risk averse: the prospect of certainly saving 200 lives is more attractive than a risky prospect of equal expected value, that is, a one-in three chance of saving 600 lives (Tversky and Kahneman 1981, pg. 453)

A second group of respondents were given the cover story of problem 1 with a different formulation of the alternative programs, as follows:

Problem 2 [$N = 155$]:

If program c is adopted 400 people will die. [22 %]

If program D is adopted there is $1/3$ probability that nobody will die, and $2/3$ probability that 600 people will die. [78 %] (Tversky and Kahneman 1981, pg. 453)

Problems 1 and 2 illustrated a preference reversal induced by a shift of reference that transformed gains into losses. The results of this study showed that framing can have a large impact on a person's decision making.

Tversky and Kahneman's experiment usefully contradicts other studies that assume rationally based decision making is dependent on a person's level of education. This study provides a different but extremely important frame of reference which is, a person's level of education is not dependent on their level of rationality when it comes to decision making. While this study carries many strengths such as only conducting its research on human subjects with a certain level of education and or certain number of human subjects that are close to this study, it still has some weaknesses. This study does not connect these findings to levels of decision making which can impact larger populations and or societies through policy and civic duty.

The possibility that ballots text might influence voter behavior is not an idle threat. Research by political scientists, communications scholars, and psychologists has documented how elite actors can craft political messages to influence the expressed opinions of voters changing their underlying attitudes or values (Burnett, Kogen, 2015, pg.111). While this study tries to use the theories of psychology and decision making to answer an important question that is extremely correlated to various groups quality of life and access or inaccessibility to opportunity.

Ballot language and psychology of decision making's impact on voter outcome

Shifting from the theories of the psychology of decision-making being formed by framing and legalistic language use in ballot initiatives, and the

assumption that the more education an individual has the more likely they are to make decisions with higher rationality, Gafke and Leuthold (1979) focused on the psychology of decision making's impact on voter outcome. They researched the August 1976 Missouri primary, where the ballot included constitutional Amendment Number 7, an initiative proposal with a misleading title that would have removed a constitutional ban against state aid for services to students in nonpublic schools. The ballot title prepared by the Missouri Attorney General read,

Authorizes enactment of laws providing (1) services for handicapped, (2) nonreligious textbooks, and (3) transportation for all public and nonpublic elementary and secondary school children. Opponents of the amendment asked the circuit court to prohibit the reference to "public" school children in the title because, they said, public school students would receive nothing from the amendment that they were not already receiving. The attorney General's spokesman argued the intention of the amendment was provided "nondiscriminatory treatment regardless of the school attended. "He argued that the ballot title reflected that intention accurately. The judge upheld the ballot wording prepared by the Attorney General, and the election was held with that ballot title. As the petition of the opponents suggested, the ballot title was, on its face, misleading. In addition, it was difficult to understand. Measured by the Flesch Reading Ease score, the title was rated "very difficult" above the reading level of most voters (Gafke and Leuthold, 1979 pg. 395).

To measure the extent to which voters misunderstood the ballot title, a survey was administered on election day in which respondents were asked, "as best you understand, will that amendment, if passed, allow an increase in aid to children in private schools only, public schools only, or both private and public schools?" The survey was conducted in Boone County, and total of 975 surveys were conducted.

The percentage of the vote for constitutional Amendment Number 7 found in the survey was within 3 percentage points of the actual vote for the proposal in Boone County, which indicated that the survey respondents were representative of all voters in Boone County.

Another survey was done after the special election, where each voter was asked how well they understood the proposition. The data collected through the survey indicated that the ballot titles were indeed confusing and misleading when it came to voting. 55% of voters said the amendment would result in aid for children in both private and public schools. An additional 6% said it would only increase aid for children in public schools. Only 40% of voters correctly understood that aid would be increased only for children in private schools (Gafke and Leuthold, 1979). This provides further evidence that complex language in ballot titles can have an impact on voting behaviors.

Data from a second election day survey in Columbia illustrated the impact of a potentially confusing ballot title. An initiative petition was submitted objecting to planning and zoning in the rural areas of Boone County. In April 1975, voters were asked in a special election to vote “yes” or “no” on a proposition “For the termination of county planning and zoning.

“The wording, which was established by the County Clerk, required those who wanted to continue planning and zoning to vote “no” and those who wanted to eliminate it to vote “yes” Reflecting this confusion, one campaign slogan urged voters, “Be positive vote negative.” Survey research specialists

have often warned that negative or reverse statement will cause confusion, and their admonitions have been supported empirically by the experiments with ballot titles conducted by Wembridge and Means (Gafke and Leuthold, 1979 pg. 398).

The researchers used a method like the one from the August 1976 primary election. Respondents were asked if they would prefer to have planning and zoning in Boone County or not have it. The survey responses were within 1 percent of the actual results on the planning and zoning vote in the city which indicated that respondents were representative of all voters. 12% of the respondents cast voted inconsistent with their views on the general desirability of planning and zoning. 7% wanted to have planning and zoning but voted “yes” on the ballot proposal; and 5% did not want planning zoning but voted “no” The similarity of the 7% and 5% suggests that voters were confused but were not misled to the extent that they were by the ballot wording on Amendment Number 7 (Gafke and Leuthold, 1979 pg. 398).

This study like many of the previous literature also makes the assumption that the higher an individual’s education, the higher their level of rationality when it comes to decision making and voting on the ballot. Since levels of information are usually higher among people with more years of education than among those with fewer years, we expected that correct perception would be related to education, and it was. For example, among respondents with 16 or more year of education, 40 percent were correctly aware of the effect of the amendment,

compared with 32 percent of the voters with 12 or fewer years of education (N's=489, 176).

Burnett and Kogan (2015) did investigate the theory that a person who is more educated is less influenced by biased language found in ballot texts. To do so, this study focused on two subgroups (Undergraduates and Graduate students) to determine how likely they are to be influenced by an experimental survey that was replicated from biased ballots on Proposition 8 (elimination of same-sex marriage) and Colorado Amendment 7 (public funding of abortion). The experiment was an online survey of voting-age adults conducted by Time-sharing Experiences for the social sciences (TESS). During the survey, each subject was presented with a ballot title and summary of two ballot measures. After reading the text, the subjects were asked how they would vote if each measure appeared on their ballot in the next election. One of the measures asked about same-sex marriage which was based on Proposition 8 and the second measure asked about public funding for abortion which was based on an initiative that appeared on the Colorado ballot in 1998. They modeled their texts on real-world ballot text with the purpose of not only making the experiment more realistic, but also ensuring that the frames respondents saw mimicked types of language that appears on the ballot. The first group only saw ballot title and summary before being asked if they would support Proposition 8. The Second group on Amendment 7 not only had a title and

summary but also information about official positions from two prominent interest groups had taken, one yes and one no.

For both groups, the amount of information given on the ballot was limited and neither group read the full ballot to create a voting environment. Burnett and Kogan found that knowledge appears to exacerbate rather than inoculate individual susceptibility to framing effects.

“In the absence of cues, political sophisticates were substantially more likely to shift their opinion in the fact of different Ballot wording on both the same sex marriage initiative (15.8% vs 7.4%) and abortion measure (20.8% vs 6.1%) ... Although the introduction of cues also somewhat reduced the magnitude of framing due to Ballot text for less knowledgeable respondents, this reduction fell short of statistical significance and was substantially smaller among the sophisticates (Burnett, Kogen, 2015, pg.119).

This study further illustrates that the more knowledgeable you are, the less likely you are to let subtle changes in the ballot text go unnoticed. The voters who are most vulnerable to potentially deceptive ballot text are also the ones who are most likely to learn about the positions that prominent groups and individuals have taken on the issues appearing on the ballot and to use this information in structuring their own voting behavior. For these knowledgeable voters, elite endorsements are thus likely to limit the threat of ballot framing. By contrast, less knowledgeable and politically astute individuals, who may not know where political elites stand on the issues, are also less likely to comprehend subtle changes in the text used to describe measures on the ballot and to respond to the

different presentation of the issue by shifting their voting behavior (Burnett, Kogen, 2015, pg.121).

Chapter 3 – Methodology

The purpose of this study is to determine if education has an impact on voter outcome and if education used as a moderator-control variable has an influence on psychology of decision making. This study analyzes two null hypotheses, First, that there is no significant relationship between a person's level of education and their voting outcome, and second, education does not influence the relationship between the psychology of decision making and a person's voting outcome after running several statistical tests such as Chi-square, Spearman's rho, McNamar, Binomial Logistical regression, Multinomial Logistical Regression the null hypothesis was supported. To test both null hypothesis, a cross- sectional study was administered with a cross-sectional survey which included forced response questions and two open ended questions turning this into a mixed both quantitative and qualitative method of analysis.

Procedures

This study used two existing methods, one being a cross sectional online survey experiment with the second method of analysis being an open-ended question to determine if the participants understood what they really voted on

which was inspired by the Missouri Primary election of August 1976 where the voters after being asked in a special election to vote “yes” or “no” on an initiative that would have removed a constitutional ban against state aid for services to student in nonpublic schools. Gafke and Leuthold’s 1979 study was done after the special election, where each voter was asked how well they understood the proposition, this provided further evidence that complex language in ballot titles can have an impact on voting behaviors... Only 40% of voters correctly understood that aid would be increased only for children in private schools (Gafke and Leuthold, 1979). 40% is a very low and significant number which is what inspired this survey to also provide 4 dichotomous questions (Vote yes vs No) in relation to the hypothetical ballot question to rate the participants understanding of the language based on a metric system (very well understood, understood, poorly understood, did not understand).

Instruments

To determine if there is an existing relationship between education and voter outcome as well as education and psychology of decision making, an online survey with four hypothetical ballot questions was administered. The questions of this online survey were designed taking into consideration three theoretical constructs (1) legalistic language used in ballot initiative, which is further defined as complex language, which is defined as language that lacks clarity, specificity and can

unintendedly lead to deception. (2) framing of the issue defined by several studies is the design of a language that is intended to serve a certain interest group, person, or coalition. (3) The psychology of decision making defined as the outcome of both framing and legalistic language used in the ballot initiative. These three theoretical constructs used together will be manipulated to measure the level of complex language perceived and its influence on University of Washington Bothell student's voting behavior.

Overall, 14 ballots were analyzed to determine if complexity of language is an issue, to measure the legalistic language used in the ballot initiative and its impact on voting outcome, 4 specific ballots were used. The questions in the survey were designed using ballots that did not advance to the election phase and were deemed as complex in its language and ruled as unfit by the judge (Minneapolis question 2) or that had advanced into the election but still caused confusion in voters, specifically the proposition 8 and Amendment Number 7 (Gafke and Leuthold, 1979). The four ballot questions were designed with the influence of a deciding mechanism such as legalistic language used in the ballot initiative (use of emotionally charged words, use of authority, lack of specificity on how the ballot would be funded once implemented) The second being more focused on the framing of the issue, (the presentation of the language that targets certain individuals, interest groups, coalitions more than others regardless of their

actual importance including providing more explanation around how services will be provided and less on how they will be funded was implemented as well.

Due to this level of ambiguity and complexity being framed into the language of the questions in the survey, the survey tends to be deceiving to its targeted audience. Furthermore, the votes were measured based on most of the study population's policy preference being consistent with a "no" vote. The survey was administered online as a google form in both laptop, and phone versions. Individualized emails for recruitment purposes and a mass email were also sent out.

Data Collection

The survey was administered online as a google form in both laptop and phone versions. Individualized emails for recruitment purposes and a mass email were also sent out. Individuals qualified for participation were over 18, all majors offered for both Undergraduate and Graduate Students at UWB were encouraged to participate, and individuals with all levels of English reading and writing were also asked to be part of this study. To qualify as an undergrad participant, students had to be recognized as part of the UWB institution. For graduate students, they were required to have a bachelor's degree. To protect the identity of the participants, surveys were completed anonymously, and they were provided with a consent form before starting. Once the responses were collected from June 5th to June 30th, then

that data was exported to a Statistical Package for Social Sciences (SPSS) to conduct further statistical analysis to determine if the hypothesis that education does not have a correlation to voting behavior was supported.

Thirty-three students who are currently enrolled at University of Washington Bothell completed the online survey (N=33). The sample population was divided into two subgroups, one being under-graduates' (N=17) and the second being graduates (N=16). The recruitment strategy for this survey was done in three parts. There was an informal asking of friends to share the survey link with their networks, Master of Policy students and Master of Cultural Studies students were asked to take the survey through word of mouth. Lastly, to capture the votes of undergraduates, email and social media were used to send the survey links to UWB students to fill out the survey.

Analysis Strategy

This study determined if there was a statistically significant relationship between education and its impact on voter turnout, as well as education being a moderator-controlled variable and its influence on psychology of decision making.

I will examine two nulls hypothesis, first, that there is no significant relationship between a person's level of education and their voting outcome, and second, education does not influence the relationship between the psychology of

decision making and a person's voting outcome. First, I ran frequencies on education with 5 categories (School year 1, 2, 3, 4, 5+) major with 11 categories, english proficiency level categorized into (Native, Mastery, Advanced), voting outcome of ballot 1-4(Yes vs No), and comprehension level of ballot 1-4 ranked as (very well understood, understood, poorly understood, and did not understand). Next to determine whether there was a relationship between education and the control variables: major, english proficiency level, ballot 1-4 (psychology of decision making) as well as perceived comprehension of ballot 1,2,3, & 4. I tested ballot 1-4 (psychology of decision making) with education as well as major with perceived comprehension level of ballot 1-4 using a Crosstabs with chi square statistical test. The study found no statistical significance across education and ballot 1-4 as well as major and perceived comprehension level of ballot 1-4. Next a Spearman's rho test was conducted across english proficiency level and perceived comprehension of ballot 1- 4 and there was no statistical significance. Next a McNemar test was conducted with bachelor vs master as its own variable paired with ballot 1-4 (psychology of decision making) no statistical significance were found. Lastly, the Logistical Regression Model was conducted to determine if there was a relationship between education, major, english proficiency level as well as race across ballot 1-4 (psychology of decision making) the results found barely to no statistical significance. Next major was recoded from 11 categories into three

categories (science, social sciences, and graduate) and same test was conducted with education controlling for english proficiency level, major, race, paired with ballot 1-4 (psychology of decision making) finding no statical significance).

To test hypothesis 2 education being a moderator-controlled variable and its influence on psychology of decision making. The hypothesis was tested repeating the logistic regression in hypothesis 1 with the addition of an interaction term.

First, I conducted crosstabs to determine if there was a relationship between education and ballot 1-4 (psychology of decision making) make sure there was no relationship between education and the independent variables. The results showed that three of the four ballots with no significance relationship and one ballot barely significant at $P=.048$.

This is important to ensure that testing of education is a moderator and not a correlate with psychology of decision making. Then a Multinomial logistic regression was conducted between Psychology of decision-making ballots 1,2,3,4, and the corresponding comprehension 1,2,3, & 4 by adding an interaction term between education and psychology of decision making. This interaction term will test the hypothesis that education does not mediate the relationship between psychology of decision making and ballot outcome. Furthermore, to understand education as a moderator when it comes to psychology od decision making, control variables race, major and language were not included because it would over

parameterize the model and because this paper focuses on education as a moderator.

Limitations

Several limitations of this study were, due to the nature of the study being conducted through a cross-sectional online survey, the chances of receiving over 60+ survey answers are extremely low due to the short time frame. Therefore, the sample is not representative of the entire population of students at UW Bothell. Since the sample is not representative of the entire population of UW Bothell, the findings will only be indicative to the sample size. In addition to the small sample size, three other limitations were detected. (1) the time provided to recruit for respondents to take the survey was less than a month, if more time was dedicated to recruitment specially before the ending of the Spring quarter, more respondents could have participated. (2) In addition to setting aside longer recruitment time, the recruitment time itself should have been planned with more accordance, instead of beginning the recruitment process after Spring quarter, beginning of summer quarter, it should have been implemented for the beginning of spring quarter. (3) To collect a larger sample size, incentives and compensations would have been ideal to provide, however with a small budget and capacity, this was not possible.

Chapter 4 - Results

Hypothesis and outcome

This study determined if education has an impact on voter outcome and if education conducted as a moderator-control variable has an influence on psychology of decision making. This study analyzed two null hypotheses, First, that there is no significant relationship between a person's level of education and their voting outcome, and second, education does not influence the relationship between the psychology of decision making and a person's voting outcome. After running several statistical tests such as Chi-square, Spearman's rho, McNamar, Binomial Logistical regression, Multinomial Logistical Regression, the null hypothesis was supported. Due to barely to no significance being shown, this could imply that ballots indeed lack clarity when it comes to the legalistic language used in the ballot initiative, further implying that even the most educated population often lack clarity on what exactly they are voting on, and this leads to a lack of comprehension when it comes to ballots.

Respondents' Characteristics

To determine if Education has an impact on a person's voting behavior, a cross-section survey was administered. The following figures provide further analysis on the respondent's demographics. Tables 1-5 describe the 33 survey respondents' level of education, English proficiency level, major, and race.

Frequency and overall results

Table 1: Student's Year in School

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Year 2	6	17.6	18.2	18.2
	Year 3	3	8.8	9.1	27.3
	Year 4	8	23.5	24.2	51.5
	Year 5+	16	47.1	48.5	100.0
	Total	33	97.1	100.0	
Missing	System	1	2.9		
Total		34	100.0		

Table 2: Number of students who are enrolled in an Undergraduate vs Graduate program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate	18	52.9	54.5	54.5
	Graduate	15	44.1	45.5	100.0
	Total	33	97.1	100.0	
Missing	System	1	2.9		
Total		34	100.0		

Table 3: English proficiency level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Native	22	64.7	66.7	66.7
	Mastery	10	29.4	30.3	97.0
	Advanced	1	2.9	3.0	100.0
	Total	33	97.1	100.0	
Missing	System	1	2.9		
Total		34	100.0		

Table 4: Major at UWB

Major at UWB

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Biology	6	17.6	18.8	18.8
	MAPS	11	32.4	34.4	53.1
	Media and Communication Studies	2	5.9	6.3	59.4
	Master in Cultural Studies	3	8.8	9.4	68.8
	Psychology	2	5.9	6.3	75.0
	Mathematical thinking and visualization	2	5.9	6.3	81.3
	Business Administration	1	2.9	3.1	84.4
	Health Studies	2	5.9	6.3	90.6
	Accounting	1	2.9	3.1	93.8
	Environemntal Studies	1	2.9	3.1	96.9
	Premajor	1	2.9	3.1	100.0
	Total	32	94.1	100.0	
Missing	System	2	5.9		
Total		34	100.0		

Table 5: Race

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	15	44.1	45.5	45.5
	Middle Eastern/ Arab American/ North African	3	8.8	9.1	54.5
	Multiracial/Multiethnic	1	2.9	3.0	57.6
	Asian American / South Asian / Southeast Asian	7	20.6	21.2	78.8
	Black/African American	1	2.9	3.0	81.8
	Hispanic / Latinx	5	14.7	15.2	97.0
	African	1	2.9	3.0	100.0
	Total	33	97.1	100.0	
Missing	System	1	2.9		
Total		34	100.0		

Summary of frequency tables

The year of education for students varied and no student that took the survey identified as a first-year bachelor student. As for the student's English proficiency level, over 22 students said that they possessed native level speaking ability, 10 said they had mastery level, while only 1 student rated themselves as advanced. Most students that took the survey were white and most students that took the survey were graduates in the Master of Policy Studies program with 6 students enrolled in biology as the second largest number. Lastly, the number of graduates that took the survey was less by then 3 in comparison to undergraduate students.

Results of First ballot

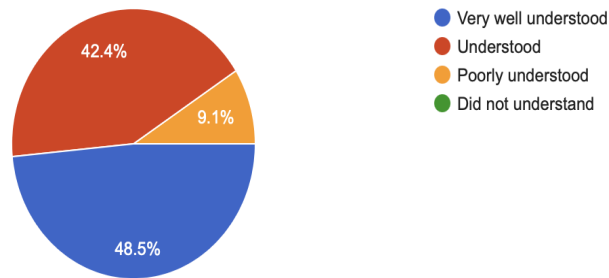
Table 6: Vote Results of ballot 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	16	47.1	48.5	48.5
	Yes	17	50.0	51.5	100.0
	Total	33	97.1	100.0	
Missing	System	1	2.9		
Total		34	100.0		

Figure 1: Level of Understanding on ballot 1

How well did you understand the language of this hypothetical ballot?

33 responses



Ballot 1 was completed by 33 respondents with 16 students voting yes and 17 students voting no which at first glance could theoretically indicate that the legalistic language used here was not as subtle in its deception as other ballots. However, Figure 1 provides an interesting analysis, 48% of students indicated that they had very well understood the ballot with only 9% stating they had poorly understood the ballot (which was the intended outcome for this study) This further proves that ballots can be extremely misleading when its language lacks clarity.

Second ballot

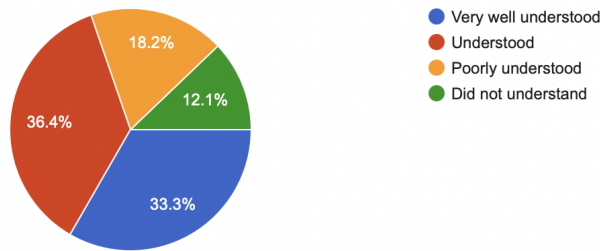
Table 7: Vote Results of ballot 2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	16	47.1	48.5	48.5
	Yes	17	50.0	51.5	100.0
	Total	33	97.1	100.0	
Missing	System	1	2.9		
Total		34	100.0		

Figure 2: Level of Understanding on ballot 2

How will did you understand the language of this hypothetical ballot?

33 responses



Ballot 2 was completed by 33 respondents with 16 students voting yes and 17 students voting no which at first glance could theoretically indicate that the legalistic language used here was not as subtle in its deception as other ballots. However, Figure 2 provides an interesting analysis, with only 33% of students indicated that they had very well understood the ballot, and 36% stating they had understood the ballot and 18% poorly understanding the ballot which doubled from ballot 1 with 12 % stating they had poorly understood the ballot (which was the intended outcome for this study) This further proves that ballots can be extremely misleading when its language lacks clarity.

Third ballot

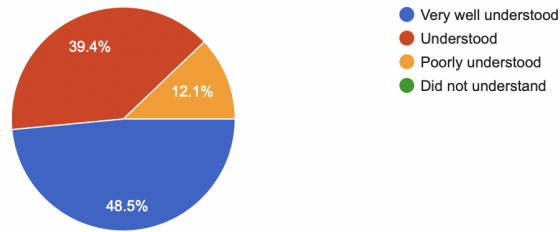
Table 8: Vote Results of ballot 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	3	8.8	9.1	9.1
	Yes	30	88.2	90.9	100.0
	Total	33	97.1	100.0	
Missing	System	1	2.9		
Total		34	100.0		

Figure 3: Level of Understanding on ballot 3

How well did you understand the language of this hypothetical ballot?

33 responses



Ballot 3 was completed by 33 respondents with 30 students voting yes and only 3 students voting no which at first glance could theoretically indicate that the legalistic language used here was incredibly subtle in its deception in comparison to ballots 1 & 2. In addition, Figure 3 provides even more interesting results, for example with 30 students voting yes, the column did not understand has completely disappeared and the percentage for both very well understood (48%) and understood (39%) increased, leaving with only 12% stating they poorly understood the ballot.

Fourth ballot

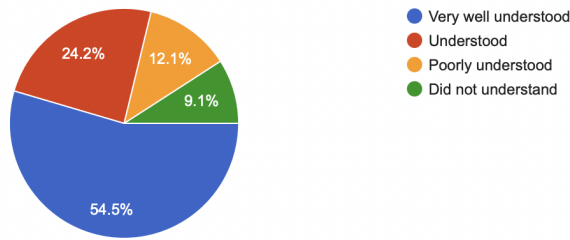
Table 9: Vote Results of ballot 4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	10	29.4	30.3	30.3
	Yes	23	67.6	69.7	100.0
	Total	33	97.1	100.0	
Missing	System	1	2.9		
Total		34	100.0		

Figure 4: Level of Understanding on ballot 4

how well did you understand the language in this hypothetical ballot?

33 responses



Ballot 4 was completed by 33 respondents with 23 students voting yes and only 10 students voting no which at first glance could theoretically indicate that the legalistic language used here was incredibly subtle in its deception in comparison to ballots 1 & 2. In addition, Figure 3 provides even more interesting results, with a bigger increase in very well understood (54%), however the rest of the percentage when it comes to ballot comprehension is distributed more evenly among understood (24%), poorly understood (12%) and did not understand (9%).

Table 10: Students who voted No and their perceived comprehension level for ballot #1 in correlation to their English proficiency level

# Of Students who voted No	# Of Bachelor students who voted No	# Of Master students who voted No	# Of students who voted Very well understood	# Of students who voted understood	# Of students who poorly understood	English level (Native and Mastery)
16	7	9	5-Masters 3-Bachelors	4- Masters 3- Bachelors	1-Bachelors	11 (Native) 5 (Mastery)
# Of students who voted Yes	# Of Bachelor students who voted Yes	# Of Master students who voted Yes	# Of students who voted very well understood	# Of students who voted understood	# Of students who poorly understood	English level (Native and Mastery)
17	10	7	5-Master 2-Bachelor	2- Master 5-Bachelor	2 - Masters	11 (Native) 5 (Master)

Table 11: Students who voted No and their perceived comprehension level for ballot # 2 in correlation to their English proficiency level

# Of Students who voted No	# Of Bachelor students who voted No	# Of Master students who voted No	# Of students who voted Very well understood	# Of students who voted understood	# Of students who poorly understood	English level (Native and Mastery)
16	7	9	5- Masters	4- Masters 3- Bachelors	1- Masters 3-Bachelor	12 (Native) 4 (Mastery)
# Of students who voted Yes	# Of Bachelor students who voted Yes	# Of Master students who voted Yes	# Of students who voted very well understood	# Of students who voted understood	# Of students who poorly understood	English level (Native and Mastery and Advanced)
17	10	7	4-Masters 6-Bachelors	4- Bachelor	2-Bachlors	10 (Native) 6 (Master) 1 (Advanced)

Table 12: Students who voted No and their perceived comprehension level for ballot # 3 in correlation to their English proficiency level

# Of Students who voted No	# Of Bachelor students who voted No	# Of Master students who voted No	# Of students who voted Very well understood	# Of students who voted understood	# Of students who poorly understood	English level (Native and Mastery)
3	1	2	1-Master	0	2-Masters 2-Bachelors	1 (Native) 2 (Mastery)
# Of students who voted Yes	# Of Bachelor students who voted Yes	# Of Master students who voted Yes	# Of students who voted very well understood	# Of students who voted understood	# Of students who poorly understood	English level (Native and Mastery and Advanced)

30	16	14	8-Masters 7-Bachelors	5- Masters 8-Bachelors	1-Master 1-Bachelor	21 (Native) 8 (Master) 1 (Advanced)
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Table 13: Students who voted No and their perceived comprehension level for ballot # 4 in correlation to their English proficiency level

# Of Students who voted No	# Of Bachelor students who voted No	# Of Master students who voted No	# Of students who voted Very well understood	# Of students who voted understood	# Of students who poorly understood and did not understand	English level (Native and Mastery)
10	4	3	3-Masters 1-Bachelor	1-Master	2- Bachelor (poorly) 2-Master 1-Bachelor (Did not understand)	7 (Native) 3 (Mastery)
# Of students who voted Yes	# Of Bachelor students who voted Yes	# Of Master students who voted Yes	# Of students who voted very well understood	# Of students who voted understood	# Of students who poorly understood	English level (Native and Mastery and Advanced)
23	13	10	7-Masters 6-Bachelors	1-Master 6-Bachelors	1-Master 1-Bachelor	15 (Native) 7 (Master) 1 (Advanced)

Ballot 1 in comparison to ballot 3 showed a high rate in students who voted No, (N=16) while for ballot 3, only (N=3) students voted No. In ballot 1 out of the 9 students enrolled in a master’s program had voted No; 5 students had stated that they had very well understood the ballot’s legalistic language used in the initiative. While in ballot 3, only 2 students enrolled in a master’s program had voted No with both stating they had poorly understood the legalistic language used in the initiative. Comparing Ballot 1 to 3 provides further analysis that Education itself cannot be used as a mechanism that proved consistent results.

In fact, ballot 1 had a lower number of students who voted Yes (N=17) while ballot 3 had a very high number of students who voted Yes, (N=30). In ballot 1 Out of 7 students enrolled with a master's program who had voted and 5 had said they very well understood the ballot's legalistic language used in the initiative. While in ballot 3, 14 students who voted Yes were enrolled in a master's program with 8 stating that they had very well understood the legalistic language used in the initiative.

Hypothesis 1 - Correlation Results

Table 14: Student Major and Comprehension Level for ballots 1-4

	Value	df	Asymptotic significance (2-sided)	Statistically significant/ Not statistically significant
Major AND comprehension level of Ballot 1	16.570	22	.681	Not statistically significant
Major AND comprehension level of Ballot 2	28.547	30	.541	Not statically significant
Major AND comprehension level of Ballo3	15.023	20	.775	Not statistically significant
Major AND comprehension level of Ballot 4	31.579	30	.387	Not statistically significant

Using the Chi-square Test, there was no significant relationship shown between students major and their perceived comprehension level when it came to ballots 1-4.

	Value	df	Asymptotic significance (2-sided)	Statistically significant/ Not statistically significant
Major AND voting outcome of Ballot 1	11.818	10	.297	Not statistically significant
Major AND voting outcome of Ballot 2	10.424	10	.404	Not statically significant

Major AND voting outcome of Ballot 3	3.645	10	.962	Not statistically significant
Major AND voting outcome of Ballot 4	8.516	10	.579	Not statistically significant

Table 15: Major and Voting Outcome of ballots 1-4

Using the Chi-square Test, there was no significant relationship shown between students major and their voting outcome of Ballots 1-4.

Table 16: Student Type and Voting Outcome of ballots 1-4

	Exact Sig. (2 – tailed)	Statistically significant/ Not statistically significant
Bachelors' vs masters Ballot 1	.824	Not statistically significant
Bachelors' vs masters Ballot 2	.815	Not statically significant
Bachelors' vs masters Ballot 3	<.001	statistically significant
Bachelors' vs masters Ballot 4	.115	Not statistically significant

Thirty-three participants were recruited to take part in an intervention designed to determine if their level of education obtained (bachelor vs masters) had an impact on their voting outcome (ballot 1, 2, 3, 4). McNamar's test determined that there is no significant difference between undergraduate and graduate student voting decisions on ballots 1, 2, and 4. There was a statistically significant difference between graduates' and undergraduates' voting decision on ballot 3.

	Correlation Coefficient	Sig. (2-tailed)	Statistically significant/ Not statistically significant
English proficiency for Ballot 1-4	1.000	.	Not statistically significant
Students' perceived understanding of Ballot 1	.157	.383	Not statistically significant
Students' perceived understanding of Ballot 2	-.178	.320	Not statistically significant
Students' perceived understanding of Ballot 3	.405	.019	Statistically significant
Students' perceived understanding of Ballot 4	.206	.884	Not statistically significant

Table 17: Students' English proficiency and perceived understanding of ballot 1-4

The Spearman's rho showed that there was no significant relationship between students' English proficiency and their perceived comprehension level of ballot 1-4 (psychology of decision making). There was no there was no significant relationship between a person's English level and their perceived comprehension level for ballot 1, 2, and 4 and barely significance was shown for ballot 3 at $P = .019$.

Regression Results

Table 19: Binomial Logistic Regression Results

	Chi-square	df	Nagelkerke R Square	Asymptotic significance (2-sided)	Overall percentage	Statistically significant/ Not statistically significant
Major, education, English, race, AND voting outcome of Ballot 1	23.382	16	69%	.104	78%	Not statistically significant
Major, education, English, race,	19.553	16	61%	.241	81%	Not statically significant

AND voting outcome of Ballot 2						
Major, education, English, race, AND voting outcome of Ballot 3	10.649	16	61%	.831	87%	Not statistically significant
Major, education, English, race, AND voting outcome of Ballot 4	18.691	16	62%	.285	78%	Not statistically significant

A logistic regression was carried out to assess the effect of University of Washington Bothell student’s education, with english level proficiency, major and race controlled on the likelihood of voting outcome on ballot 1. The overall model was not statistically significant when compared to the null model, ($X^2(16) = 23.382$ $p = .104$).

A logistic regression was carried out to assess the effect of University of Washington Bothell student’s education, with english level proficiency, major and race controlled on the likelihood of voting outcome, specifically ballot #2. The overall model was not statistically significant when compared to the null model, ($X^2(16) = 19.553$, $p = .241$), explained 61% of the variation of survival and correctly predicted 81% of the cases.

A logistic regression was carried out to assess the effect of University of Washington Bothell student’s education, with the variable english level proficiency, major and race controlled on the likelihood of voting outcome, specifically ballot #3. The overall model was not statistically significant when compared to the null model, ($X^2(16) = 10.649$, $p = .831$), explained 61% of the variation of survival and correctly predicted 87% of the cases.

A logistic regression was carried out to assess the effect of University of Washington Bothell student’s education, with the following variables controlled for english level proficiency,

major and race on the likelihood of voting outcome, specifically ballot #4. The overall model was not statistically significant when compared to the null model, ($X^2(16) = 18.691$, $p = .285$), explained 62% of the variation of survival and correctly predicted 78% of the cases.

Table 20: Binomial Logistic Regression with Major recoded - Results

	Chi-square	df	Nagelkerke R Square	Asymptotic significance (2-sided)	Overall percentage	Statistically significant/ Not statistically significant
Major_R, education, English, race, AND voting outcome of Ballot 1	7.069	8	39%	.136	50%	Not statistically significant
Major_R, education, English, race, AND voting outcome of Ballot 2	4.905	7	18%	.672	50%	Not statically significant
Major_R, education, English, race, AND voting outcome of Ballot 3	6.785	7	41%	.452	90%	Not statistically significant
Major_R, education, English, race, AND voting outcome of Ballot 4	6.783	7	26%	.452	68%	Not statistically significant

Running a Logistical Regression Model with major recoded into three categories (Science, social science, and graduate) to determine if there is a significance relationship with education and ballot 1-4 (psychology of decision making) with variables Major_R, race, english profecieicy level being controlled, no significance was shown.

Hypothesis 2 – correlation results**Table 21: education and Voting Outcome of Ballots 1-4**

	Value	df	Asymptotic significance (2-sided)	Statistically significant/ Not statistically significant
Education AND voting outcome of Ballot 1	7.894	3	.048	Not statistically significant
Education AND voting outcome of Ballot 2	3.223	3	.359	Not statically significant
Education AND voting outcome of Ballot 3	1.237	3	.744	Not statistically significant
Education AND voting outcome of Ballot 4	1.829	3	.609	Not statistically significant

A crosstabs analysis was conducted to determine if there was a relationship between education and ballot 1-4 (psychology of decision making) make sure there was no relationship between education and the independent variables. The results showed that three of the four ballots with no significance relationship and one ballot barely significant at $P=.048$.

Table 22: Multinomial Logistic Regression with perceived comprehension of ballot 1-4

(psychology of decision making) = Comp1_R recoded - Results

	Chi-square	df	Nagelkerke R Square	Asymptotic significance (2-sided)	Overall percentage	Statistically significant/ Not statistically significant
Comp1_R, education, AND voting outcome of Ballot 1	3.954	6	24%	.683	90%	Not statistically significant
Comp2_R, education, AND	13.210	6	46%	.040	69%	Not statically significant

voting outcome of Ballot 2						
Comp 3_R, education, AND voting outcome of Ballot 3	8.992	5	45%	.109	87%	Not statistically significant
Comp4_R, education, AND voting outcome of Ballot 4	12.695	5	49%	.048	78%	Not statistically significant

After running a Multinomial Logistical Regression model with perceived comprehension of ballot 1-4 (psychology of decision making) recoded into two categories' (understood and did not understand) was paired with education. While ballot 1 and ballot 3 showed no significance, ballot 2 and 4 showed some significance for ballot 1, at $P = (.040)$ and ballot 4 barely significant at $P = (.048)$.

Ballot 3 and theoretical constructs behind its significance

The only ballot that showed a small amount of significance multiple times was ballot number 3. To better analyze several theories on what could have caused this small amount of significance the legalistic language used in ballot 3 will be compared to ballot 1 which did not show as much significance through a capture of the legalistic language used for both ballots.

Question 1

Shall the Bothell City Charter be amended to remove the Bothell Police Department, it will be terminated by June 20, and year 2022 and replaced with peace officers in charge of administering the department of public safety. The Bothell Mayor for an extended time has jurisdiction over the establishment, maintenance, and command, which could include licensed peace officers if necessary to fulfill its responsibilities for public safety. The Bothell Mayor can make rules and regulations and may promulgate and enforce general and special orders necessary to operate the Bothell public safety department.

Education in reference to psychology of decision making, specifically on ballot 1 (question 1) with 16 student who voted no in comparison to 17 students who voted yes did not show any statistical significance due to several theories, the usage of authority (mayor) mixed with the word (peace officers) could have impacted the amount of voters who voted yes on this, furthermore, the length of the text as well as its ambiguity in unheard terms such as peace officers may have resulted in 16 voting no.

Question 3

This initiative would impose all Bothell Law enforcement police officers in Washington State to receive community response and violence curtailment training, as developed by the criminal justice training commission. It would cut the proposed budget administered to the Bothell Police department by 8 cents per \$100 dollars of the appraisal values to address the community defined proceedings now.

Education in reference to psychology of decision making, specifically on ballot 3 (question 3) with only 3 student who voted no in comparison to 33 students who voted yes, showed small

amounts of statistical significance due to several theories, the usage of currently and overly used term around de-escalation methods, specifically referred to in ballot 3 as “community response and violence curtailment training) as well as defunding the policy by taking out 8 cents per \$100 dollars may have increased the overall reason why 33 students voter yes on this question.

Chapter 5 – Conclusion and Recommendations

The data revealed several findings and supported both null hypothesis that education does not have a relationship to voter outcome, nor does education controlled as a moderator variable have a significant relationship to ballot 1-4 measured as psychology of decision making This study found that a person could be extremely educated and still vote against the intended purpose, and still believe they fully comprehended the ballot question. However, there were also cases where students voted no on the ballot like the hypothesis intended and they checked the box of being confused. The findings are very fascinating because they can be categorized into many different categories: people who voted with confidence and said yes and claimed they understood the ballots language fully, people who voted yes but claimed that they did not fully understand the ballot language and lastly, people who voted yes and stated that they did not understand the ballot language. These numerous categories further revealed the over-complicated ballots that citizens are required to fill out to exert their right to vote.

The analysis revealed that a person’s level of education as well as their major experimented as a controlled variable has no statistically significant relationship to voting outcome. Another finding suggested that a person’s major (controlled variable) has no significant correlation to their perceived comprehension level of ballot 1- 4 treated as a controlled variable.

Furthermore, a person's level of English proficiency and their race in correlation to their voting outcome had no significant relationship which further supports both null hypothesis

Looking at the four ballots revealed several powerful points when ballot 1 and ballot 3 were compared. In ballot 1 of those students who voted No, 9 of the students who were enrolled in a master's program, 5 had stated they had very well understood the legalistic language used in the initiative. In comparison to ballot 3 of those who voted Yes, 14 of the students had enrolled in a master's program with 8 stating they had very well understood the legalistic language used in the initiative. Several theories around legalistic language were explored on what may have caused ballot 3 to show some small significance in general. Theories such as use of authority in a ballot, de-escalation and defunding of police terms that may seem unbiased may have also impacted the significance.

The findings of this survey have several limitations, since the sample size is not large enough the data is not representative of the University of Washington Bothell entire student population. In addition to the small sample size, the recruitment strategy itself should have been more planned out, instead of beginning the recruitment process at the end of the Spring Quarter/ beginning of summer quarter, the students should have been asked to fill out the survey in the beginning of Spring quarter which would have been more ideal. In addition to the sample size and recruitment strategy limitations discussed, several other variables such as students age, income, political views should have been implemented as other variables to examine if there was any existing relationship between age, income, political views in comparison to voting outcomes.

Recommendation

Although the sample size (N=33) is very small, the data suggests that further analysis needs to be done when using the variable education as a measuring mechanism to understand

voting behavior. With education showing little to no statistical significance, this overly used assumption that a more educated a person is the more likely they are to vote properly is a false assumption that requires deeper research, analysis, and questioning. This study recommends, that a similar cross-sectional survey should be administered across all three campuses: University of Washington Bothell, University of Washington Seattle, and University of Washington Tacoma to determine if both designed null hypothesis holds true. If both null hypotheses are supported with a sample size of (N=5,000) students, then legalistic language used in the ballot initiatives in general should be placed under further scrutiny, to design ballots that have clear, concise language that is not biased, allowing people of all educational backgrounds status to perform their civic duty.

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Yes 4 Minneapolis

Appendix

Ballot questions 1-4 screenshot

Question 1

Shall the Bothell City Charter be amended to remove the Bothell Police Department, it will be terminated by June 20, and year 2022 and replaced with peace officers in charge of administering the department of public safety. The Bothell Mayor for an extended time has jurisdiction over the establishment, maintenance, and command, which could include licensed peace officers if necessary to fulfill its responsibilities for public safety. The Bothell Mayor can make rules and regulations and may promulgate and enforce general and special orders necessary to operate the Bothell public safety department.

Question 2

The proposed amendment reallocates 10 cents of every \$ 60 of a certain state revenue, and this revenue is valued at \$123 billion collected from state of Washington's capital gain taxes on property, stocks, and bonds. This reallocated fund will be used to immediately terminate the qualified immunity withheld by the Bothell police department on June 25, 2022, to preserve justice and protect its citizens. The termination of qualified immunity proposes that police officer must purchase external insurance to respectfully follow their duty in protecting individual liberty and constitutional rights.

Question 3

This initiative would impose all Bothell Law enforcement police officers in Washington State to receive community response and violence curtailment training, as developed by the criminal justice training commission. It would cut the proposed budget administered to the Bothell Police department by 8 cents per \$100 dollars of the appraisal values to address the community defined proceedings now.

Question 4

Refund and replenish community safety measures to improve Bothell neighborhoods and its community by: (1) improving community response safety, security, emergency handle and communications (2) upgrade safety measures and violence curtailment and de-escalation training (3) upgrade dispatch services, enhancement training to civilian responses (4) removing police induced violence with de-escalation training services provided to Bothell police officers. Shall Bothell Washington police department issue \$3.5 billion in bonds at legal rates, projecting levy of 5-cents per \$50 dollars of assessed valuation of 40 years, providing full training and state annual audits and citizens oversight?

What school year are you?	Please state your major	Please state your English level	Ballot 1	How well did you understand Ballot 2	How well did you understand Ballot 3	How well did you understand Ballot 4	How well did you understand
Year 5+ (graduate school)	Policy Studies	Native	Vote No	Very well understood	Vote Yes	Very well understood	Vote Yes
Year 5+ (graduate school)	MAPS	Native	Vote Yes	Understood	Vote No	Understood	Vote Yes
Year 3	Biology	Mastery (similar level to)	Vote Yes	Very well understood	Vote Yes	Very well understood	Vote Yes
Year 2	Media And Communicati	Native	Vote Yes	Understood	Vote No	Poorly understood	Vote Yes
Year 4	Biology	Native	Vote Yes	Very well understood	Vote No	Poorly understood	Vote Yes
Year 5+ (graduate school)	Policy Studies	Native	Vote No	Understood	Vote No	Did not understand	Vote Yes
Year 5+ (graduate school)	Policy studies	Native	Vote Yes	Very well understood	Vote Yes	Very well understood	Vote Yes
Year 5+ (graduate school)	Master of Policy Studies	Advanced (can have con	Vote Yes	Understood	Vote Yes	Very well understood	Vote Yes
Year 5+ (graduate school)	Policy Studies	Mastery (similar level to)	Vote No	Very well understood	Vote No	Very well understood	Vote No
Year 5+ (graduate school)	Policy	Native	Vote No	Very well understood	Vote Yes	Very well understood	Vote Yes
Year 5+ (graduate school)	Policy analysis	Native	Vote No	Very well understood	Vote Yes	Very well understood	Vote No
Year 5+ (graduate school)	Masters in Cultural Studi	Mastery (similar level to)	Vote Yes	Very well understood	Vote Yes	Very well understood	Vote Yes
Year 5+ (graduate school)	MAPS	Native	Vote No	Understood	Vote No	Understood	Vote Yes
Year 5+ (graduate school)	MACS	Native	Vote No	Understood	Vote No	Did not understand	Vote No
Year 2	Psychology	Mastery (similar level to)	Vote No	Poorly understood	Vote No	Poorly understood	Vote Yes
Year 5+ (graduate school)	Public policy	Mastery (similar level to)	Vote Yes	Very well understood	Vote No	Understood	Vote Yes
Year 2	Mathematical Thinking ar	Native	Vote No	Very well understood	Vote Yes	Understood	Vote Yes
Year 5+ (graduate school)	Policy Studies	Native	Vote Yes	Poorly understood	Vote No	Did not understand	Vote Yes
Year 5+ (graduate school)	Master's in Cultural Studi	Mastery (similar level to)	Vote No	Very well understood	Vote Yes	Very well understood	Vote No
Year 2	Business Administration	Native	Vote No	Understood	Vote No	Understood	Vote No
Year 5+ (graduate school)	Health Studies	Native	Vote Yes	Very well understood	Vote No	Understood	Vote Yes
Year 4	Mathematical Thinking ar	Native	Vote Yes	Understood	Vote Yes	Understood	Vote Yes
Year 4	Biology	Native	Vote No	Understood	Vote Yes	Poorly understood	Vote Yes
Year 4	Biology	Native	Vote Yes	Understood	Vote Yes	Understood	Vote Yes
Year 3	Accounting	Mastery (similar level to)	Vote Yes	Understood	Vote Yes	Very well understood	Vote Yes
Year 4	Media communication st	Native	Vote Yes	Very well understood	Vote No	Understood	Vote Yes
Year 3	Media communication st	Mastery (similar level to)	Vote Yes	Very well understood	Vote Yes	Understood	Vote Yes
Year 2	Psychology	Mastery (similar level to)	Vote No	Understood	Vote Yes	Understood	Vote Yes
Year 4	Biology	Mastery (similar level to)	Vote No	Very well understood	Vote No	Understood	Vote No
Year 4	Health Studies	Native	Vote Yes	Poorly understood	Vote No	Did not understand	Vote Yes
Year 4	Environmental Studies	Native	Vote Yes	Understood	Vote Yes	Poorly understood	Vote Yes
Year 5+ (graduate school)	Degree, MAPS	Native	Vote No	Understood	Vote No	Poorly understood	Vote No
Year 2	Premajor	Native	Vote No	Very well understood	Vote Yes	Very well understood	Vote Yes

Hypothesis 1 – results

Crosstabs

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Major at UWB * Students perceived comprehension of ballot language 1	33	97.1%	1	2.9%	34	100.0%
Major at UWB * Students perceived comprehension of ballot language 2	33	97.1%	1	2.9%	34	100.0%
Major at UWB * Students perceived comprehension of ballot language 3	33	97.1%	1	2.9%	34	100.0%
Major at UWB * Students perceived comprehension of ballot language 4	33	97.1%	1	2.9%	34	100.0%

Major at UWB * Student's perceived comprehension of ballot language 1

Crosstab

			Students perceived comprehension of ballot language 1			Total
			understood	very well understood	Poorly understood	
Major at UWB	Biology	Count	2	3	1	6
		% within Major at UWB	33.3%	50.0%	16.7%	100.0%
		% within Students perceived comprehension of ballot language 1	14.3%	20.0%	33.3%	18.8%
		% of Total	6.3%	9.4%	3.1%	18.8%
	MAPS	Count	5	6	0	11
		% within Major at UWB	45.5%	54.5%	0.0%	100.0%
		% within Students perceived comprehension of ballot language 1	35.7%	40.0%	0.0%	34.4%
		% of Total	15.6%	18.8%	0.0%	34.4%
	Media and Communication Studies	Count	1	1	0	2
		% within Major at UWB	50.0%	50.0%	0.0%	100.0%
		% within Students perceived comprehension of ballot language 1	7.1%	6.7%	0.0%	6.3%
		% of Total	3.1%	3.1%	0.0%	6.3%
Master in Cultural Studies	Count	1	2	0	3	
	% within Major at UWB	33.3%	66.7%	0.0%	100.0%	
	% within Students perceived comprehension of ballot language 1	7.1%	13.3%	0.0%	9.4%	
	% of Total	3.1%	6.3%	0.0%	9.4%	
Psychology	Count	1	0	1	2	
	% within Major at UWB	50.0%	0.0%	50.0%	100.0%	
	% within Students perceived comprehension of ballot language 1	7.1%	0.0%	33.3%	6.3%	
	% of Total	3.1%	0.0%	3.1%	6.3%	
Mathematical thinking and visualization	Count	1	1	0	2	
	% within Major at UWB	50.0%	50.0%	0.0%	100.0%	
	% within Students perceived comprehension of ballot language 1	7.1%	6.7%	0.0%	6.3%	
	% of Total	3.1%	3.1%	0.0%	6.3%	
Business Administration	Count	1	0	0	1	
	% within Major at UWB	100.0%	0.0%	0.0%	100.0%	

Crosstab

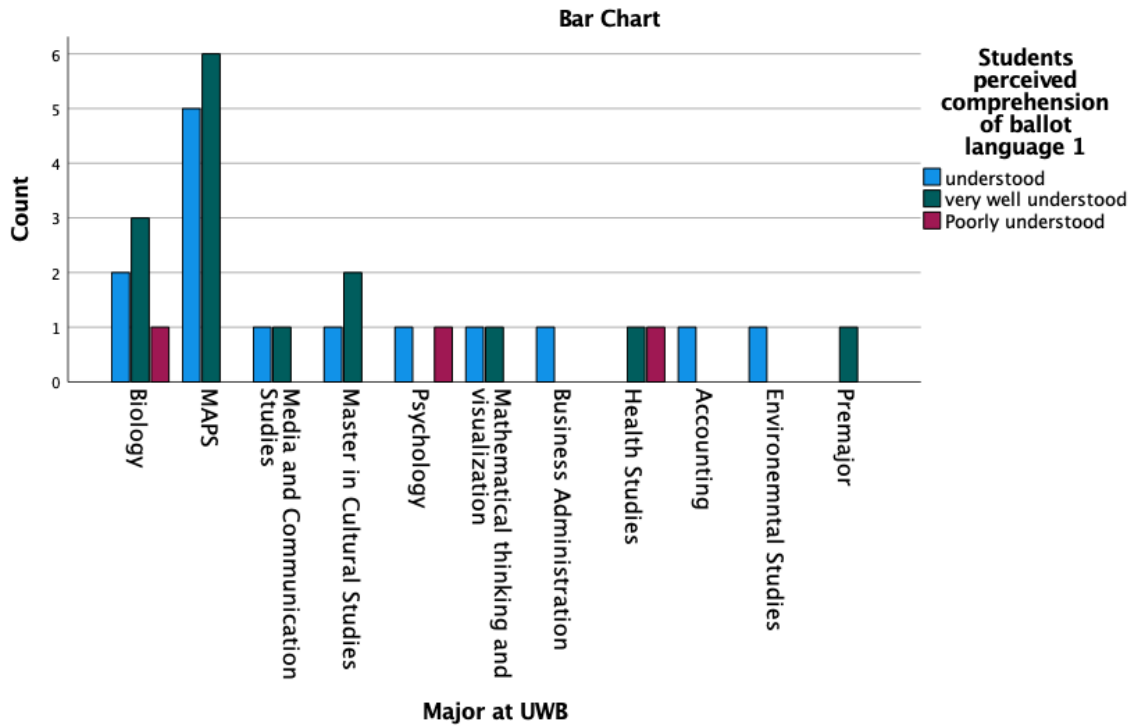
		Students perceived comprehension of ballot language 1			Total
		understood	very well understood	Poorly understood	
Health Studies	% within Students perceived comprehension of ballot language 1	7.1%	0.0%	0.0%	3.1%
	% of Total	3.1%	0.0%	0.0%	3.1%
	Count	0	1	1	2
	% within Major at UWB	0.0%	50.0%	50.0%	100.0%
Accounting	% within Students perceived comprehension of ballot language 1	0.0%	6.7%	33.3%	6.3%
	% of Total	0.0%	3.1%	3.1%	6.3%
	Count	1	0	0	1
	% within Major at UWB	100.0%	0.0%	0.0%	100.0%
Environmental Studies	% within Students perceived comprehension of ballot language 1	7.1%	0.0%	0.0%	3.1%
	% of Total	3.1%	0.0%	0.0%	3.1%
	Count	1	0	0	1
	% within Major at UWB	100.0%	0.0%	0.0%	100.0%
Premajor	% within Students perceived comprehension of ballot language 1	0.0%	6.7%	0.0%	3.1%
	% of Total	0.0%	3.1%	0.0%	3.1%
	Count	0	1	0	1
	% within Major at UWB	0.0%	100.0%	0.0%	100.0%
Total	% within Students perceived comprehension of ballot language 1	100.0%	100.0%	100.0%	100.0%
	% of Total	43.8%	46.9%	9.4%	100.0%
	Count	14	15	3	32
	% within Major at UWB	43.8%	46.9%	9.4%	100.0%

Chi-Square Testsr

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.570 ^a	20	.681
Likelihood Ratio	17.876	20	.596

Linear-by-Linear Association	.001	1	.969
N of Valid Cases	32		

a. 32 cells (97.0%) have expected count less than 5. The minimum expected count is .09.



Major at UWB * Students perceived comprehension of ballot language 2

Crosstab

		Students perceived comprehension of ballot language 2				Total	
		Understood	Very well understood	Poorly understood	Did not understand		
Major at UWB	Biology	Count	2	1	2	1	6
		% within Major at UWB	33.3%	16.7%	33.3%	16.7%	100.0%
		% within Students perceived comprehension of ballot language 2	18.2%	9.1%	33.3%	25.0%	18.8%
		% of Total	6.3%	3.1%	6.3%	3.1%	18.8%
	MAPS	Count	3	6	1	1	11
		% within Major at UWB	27.3%	54.5%	9.1%	9.1%	100.0%
		% within Students perceived comprehension of ballot language 2	27.3%	54.5%	16.7%	25.0%	34.4%
		% of Total	9.4%	18.8%	3.1%	3.1%	34.4%
	Media and Communication Studies	Count	1	0	1	0	2
		% within Major at UWB	50.0%	0.0%	50.0%	0.0%	100.0%
		% within Students perceived comprehension of ballot language 2	9.1%	0.0%	16.7%	0.0%	6.3%
		% of Total	3.1%	0.0%	3.1%	0.0%	6.3%
Master in Cultural Studies	Count	0	2	0	1	3	
	% within Major at UWB	0.0%	66.7%	0.0%	33.3%	100.0%	
	% within Students perceived comprehension of ballot language 2	0.0%	18.2%	0.0%	25.0%	9.4%	
	% of Total	0.0%	6.3%	0.0%	3.1%	9.4%	
Psychology	Count	1	0	1	0	2	
	% within Major at UWB	50.0%	0.0%	50.0%	0.0%	100.0%	
	% within Students perceived comprehension of ballot language 2	9.1%	0.0%	16.7%	0.0%	6.3%	
	% of Total	3.1%	0.0%	3.1%	0.0%	6.3%	
Mathematical thinking and visualization	Count	2	0	0	0	2	
	% within Major at UWB	100.0%	0.0%	0.0%	0.0%	100.0%	
	% within Students perceived comprehension of ballot language 2	18.2%	0.0%	0.0%	0.0%	6.3%	
	% of Total	6.3%	0.0%	0.0%	0.0%	6.3%	
Business Administration	Count	1	0	0	0	1	
	% within Major at UWB	100.0%	0.0%	0.0%	0.0%	100.0%	

Crosstab

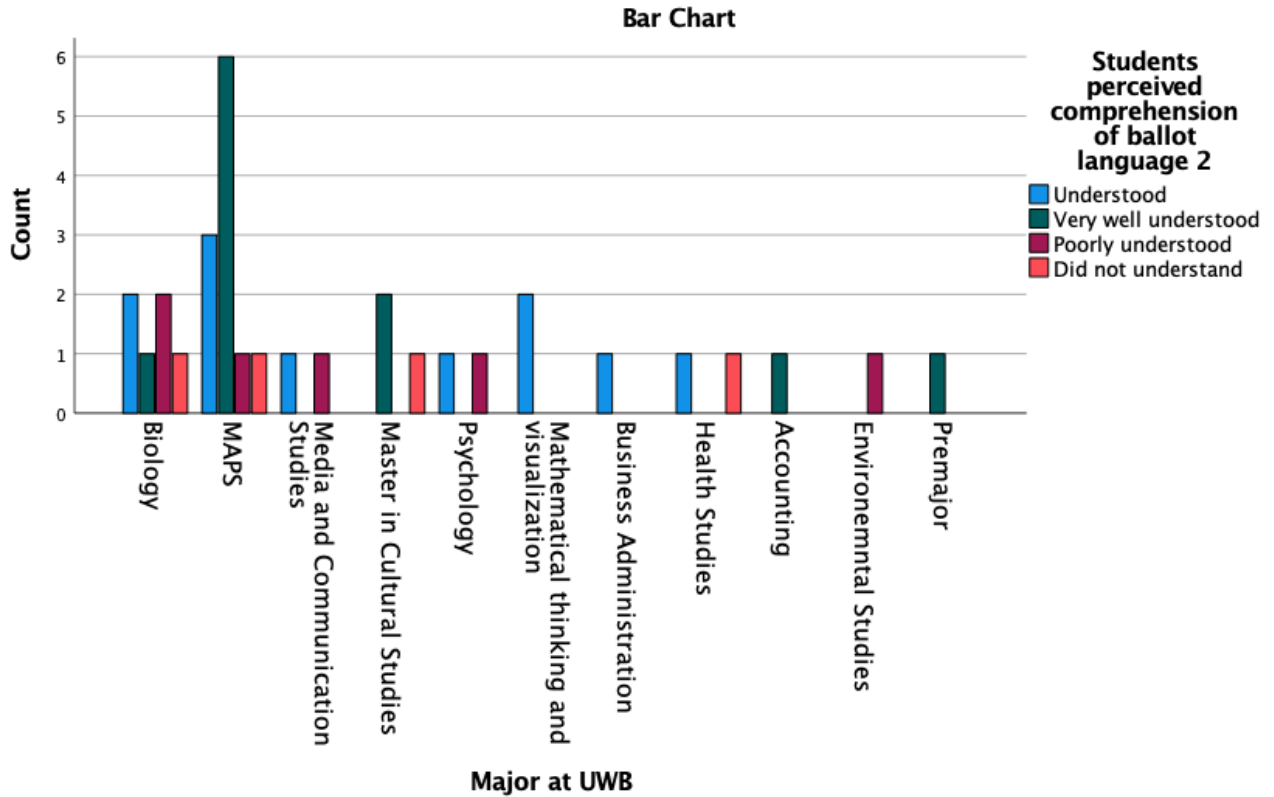
		Students perceived comprehension of ballot language 2				Total
		Understood	Very well understood	Poorly understood	Did not understand	
Health Studies	% within Students perceived comprehension of ballot language 2	9.1%	0.0%	0.0%	0.0%	3.1%
	% of Total	3.1%	0.0%	0.0%	0.0%	3.1%
	Count	1	0	0	1	2
	% within Major at UWB	50.0%	0.0%	0.0%	50.0%	100.0%
	% within Students perceived comprehension of ballot language 2	9.1%	0.0%	0.0%	25.0%	6.3%
Accounting	% of Total	3.1%	0.0%	0.0%	3.1%	6.3%
	Count	0	1	0	0	1
	% within Major at UWB	0.0%	100.0%	0.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 2	0.0%	9.1%	0.0%	0.0%	3.1%
	% of Total	0.0%	3.1%	0.0%	0.0%	3.1%
Environmental Studies	Count	0	0	1	0	1
	% within Major at UWB	0.0%	0.0%	100.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 2	0.0%	0.0%	16.7%	0.0%	3.1%
	% of Total	0.0%	0.0%	3.1%	0.0%	3.1%
	Count	0	1	0	0	1
Premajor	% within Major at UWB	0.0%	100.0%	0.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 2	0.0%	9.1%	0.0%	0.0%	3.1%
	% of Total	0.0%	3.1%	0.0%	0.0%	3.1%
	Count	11	11	6	4	32
	% within Major at UWB	34.4%	34.4%	18.8%	12.5%	100.0%
Total	% within Students perceived comprehension of ballot language 2	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	34.4%	34.4%	18.8%	12.5%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.547 ^a	30	.541
Likelihood Ratio	30.955	30	.418
Linear-by-Linear Association	.020	1	.887

N of Valid Cases	32	
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a. 44 cells (100.0%) have expected count less than 5.
 The minimum expected count is .13.



Major at UWB * Students perceived comprehension of ballot language 3

Crosstab

			Students perceived comprehension of ballot language 3			Total
			Understood	very well understood	Poorly understood	
Major at UWB	Biology	Count	3	2	1	6
		% within Major at UWB	50.0%	33.3%	16.7%	100.0%
		% within Students perceived comprehension of ballot language 3	23.1%	13.3%	25.0%	18.8%
		% of Total	9.4%	6.3%	3.1%	18.8%
	MAPS	Count	4	6	1	11
		% within Major at UWB	36.4%	54.5%	9.1%	100.0%
		% within Students perceived comprehension of ballot language 3	30.8%	40.0%	25.0%	34.4%
		% of Total	12.5%	18.8%	3.1%	34.4%
	Media and Communication Studies	Count	2	0	0	2
		% within Major at UWB	100.0%	0.0%	0.0%	100.0%
		% within Students perceived comprehension of ballot language 3	15.4%	0.0%	0.0%	6.3%
		% of Total	6.3%	0.0%	0.0%	6.3%
Master in Cultural Studies	Count	0	2	1	3	
	% within Major at UWB	0.0%	66.7%	33.3%	100.0%	
	% within Students perceived comprehension of ballot language 3	0.0%	13.3%	25.0%	9.4%	
	% of Total	0.0%	6.3%	3.1%	9.4%	
Psychology	Count	0	1	1	2	
	% within Major at UWB	0.0%	50.0%	50.0%	100.0%	
	% within Students perceived comprehension of ballot language 3	0.0%	6.7%	25.0%	6.3%	
	% of Total	0.0%	3.1%	3.1%	6.3%	
Mathematical thinking and visualization	Count	1	1	0	2	
	% within Major at UWB	50.0%	50.0%	0.0%	100.0%	
	% within Students perceived comprehension of ballot language 3	7.7%	6.7%	0.0%	6.3%	
	% of Total	3.1%	3.1%	0.0%	6.3%	
Business Administration	Count	1	0	0	1	
	% within Major at UWB	100.0%	0.0%	0.0%	100.0%	

Crosstab

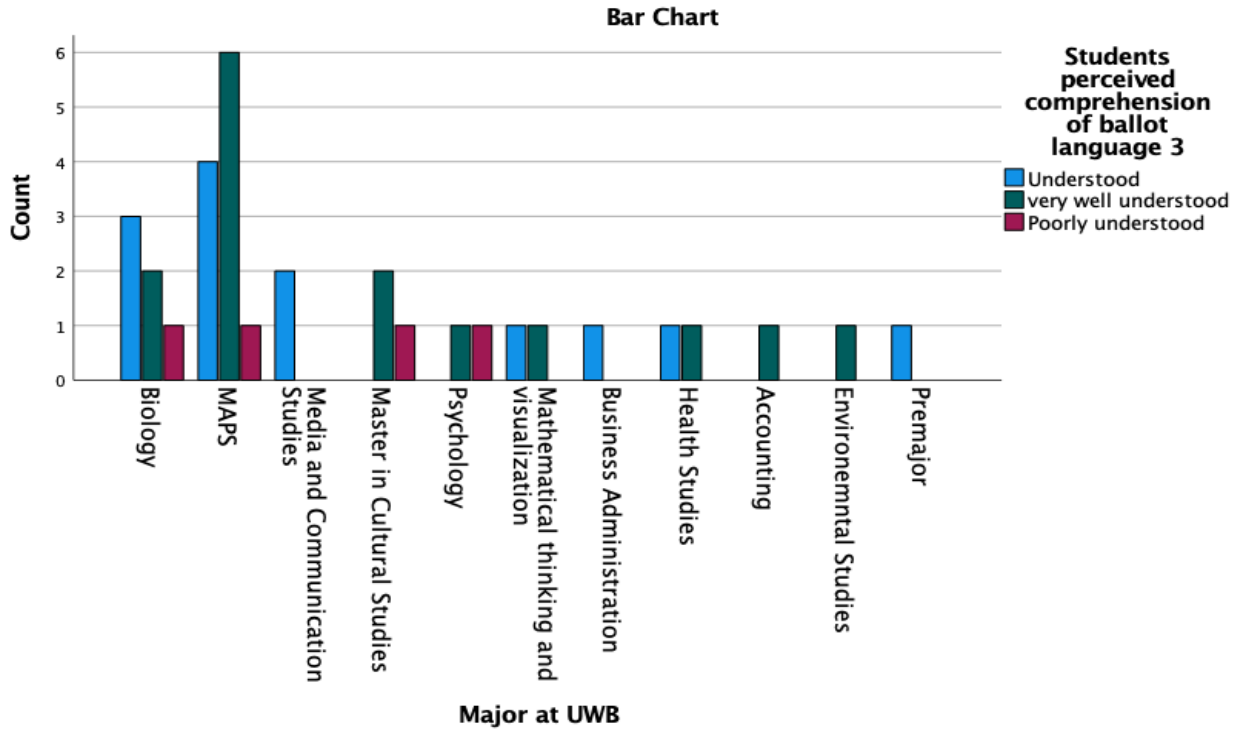
		Students perceived comprehension of ballot language 3			Total
		Understood	very well understood	Poorly understood	
Health Studies	% within Students perceived comprehension of ballot language 3	7.7%	0.0%	0.0%	3.1%
	% of Total	3.1%	0.0%	0.0%	3.1%
	Count	1	1	0	2
	% within Major at UWB	50.0%	50.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 3	7.7%	6.7%	0.0%	6.3%
Accounting	% of Total	3.1%	3.1%	0.0%	6.3%
	Count	0	1	0	1
	% within Major at UWB	0.0%	100.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 3	0.0%	6.7%	0.0%	3.1%
	% of Total	0.0%	3.1%	0.0%	3.1%
Environmental Studies	Count	0	1	0	1
	% within Major at UWB	0.0%	100.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 3	0.0%	6.7%	0.0%	3.1%
	% of Total	0.0%	3.1%	0.0%	3.1%
	Count	1	0	0	1
Premajor	% within Major at UWB	100.0%	0.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 3	7.7%	0.0%	0.0%	3.1%
	% of Total	3.1%	0.0%	0.0%	3.1%
	Count	13	15	4	32
	% within Major at UWB	40.6%	46.9%	12.5%	100.0%
Total	% within Students perceived comprehension of ballot language 3	100.0%	100.0%	100.0%	100.0%
	% of Total	40.6%	46.9%	12.5%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15.023 ^a	20	.775
Likelihood Ratio	18.351	20	.564
Linear-by-Linear Association	.073	1	.787

N of Valid Cases	32	
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a. 32 cells (97.0%) have expected count less than 5. The minimum expected count is .13.



Major at UWB * Students perceived comprehension of ballot language 4

Crosstab

		Students perceived comprehension of ballot language 4				Total	
		Understood	Very well understood	Poorly understood	Did not understand		
Major at UWB	Biology	Count	3	2	1	0	6
		% within Major at UWB	50.0%	33.3%	16.7%	0.0%	100.0%
		% within Students perceived comprehension of ballot language 4	42.9%	11.1%	25.0%	0.0%	18.8%
		% of Total	9.4%	6.3%	3.1%	0.0%	18.8%
	MAPS	Count	2	8	0	1	11
		% within Major at UWB	18.2%	72.7%	0.0%	9.1%	100.0%
		% within Students perceived comprehension of ballot language 4	28.6%	44.4%	0.0%	33.3%	34.4%
		% of Total	6.3%	25.0%	0.0%	3.1%	34.4%
	Media and Communication Studies	Count	0	1	0	1	2
		% within Major at UWB	0.0%	50.0%	0.0%	50.0%	100.0%
		% within Students perceived comprehension of ballot language 4	0.0%	5.6%	0.0%	33.3%	6.3%
		% of Total	0.0%	3.1%	0.0%	3.1%	6.3%
Master in Cultural Studies	Count	0	2	0	1	3	
	% within Major at UWB	0.0%	66.7%	0.0%	33.3%	100.0%	
	% within Students perceived comprehension of ballot language 4	0.0%	11.1%	0.0%	33.3%	9.4%	
	% of Total	0.0%	6.3%	0.0%	3.1%	9.4%	
Psychology	Count	0	1	1	0	2	
	% within Major at UWB	0.0%	50.0%	50.0%	0.0%	100.0%	
	% within Students perceived comprehension of ballot language 4	0.0%	5.6%	25.0%	0.0%	6.3%	
	% of Total	0.0%	3.1%	3.1%	0.0%	6.3%	
Mathematical thinking and visualization	Count	1	1	0	0	2	
	% within Major at UWB	50.0%	50.0%	0.0%	0.0%	100.0%	
	% within Students perceived comprehension of ballot language 4	14.3%	5.6%	0.0%	0.0%	6.3%	
	% of Total	3.1%	3.1%	0.0%	0.0%	6.3%	
Business Administration	Count	0	0	1	0	1	
	% within Major at UWB	0.0%	0.0%	100.0%	0.0%	100.0%	

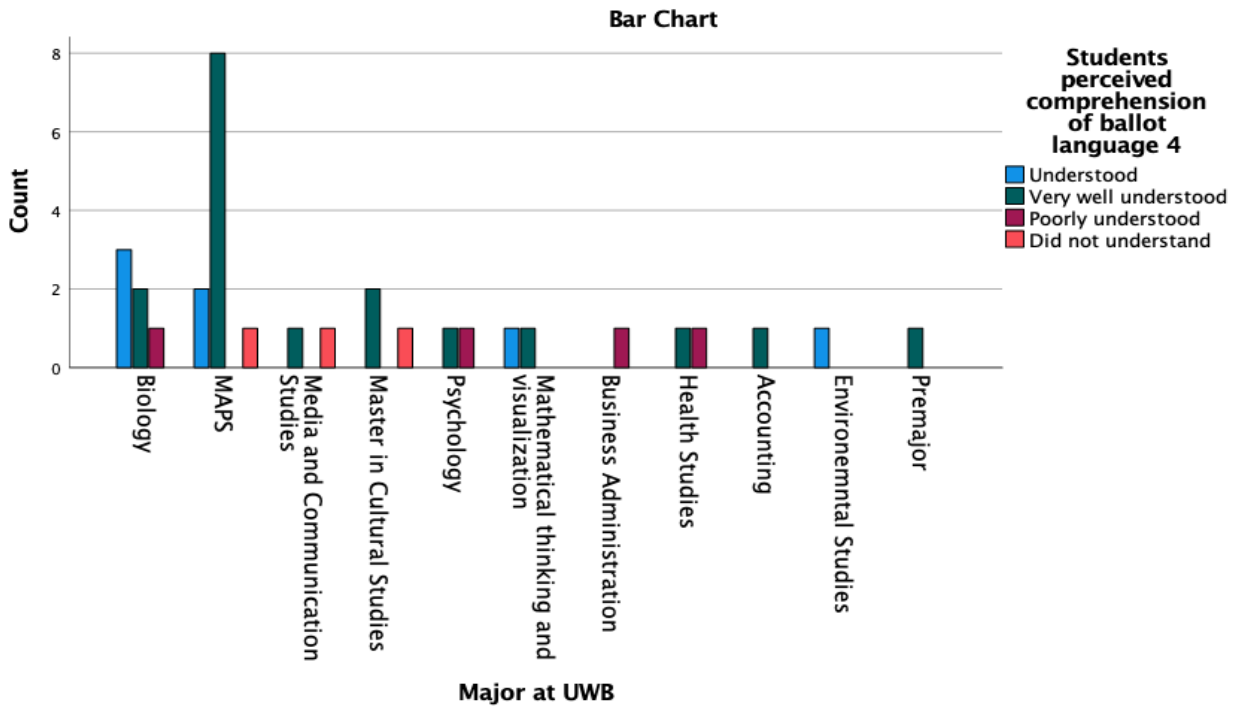
Crosstab

		Students perceived comprehension of ballot language 4				Total
		Understood	Very well understood	Poorly understood	Did not understand	
Health Studies	% within Students perceived comprehension of ballot language 4	0.0%	0.0%	25.0%	0.0%	3.1%
	% of Total	0.0%	0.0%	3.1%	0.0%	3.1%
	Count	0	1	1	0	2
	% within Major at UWB	0.0%	50.0%	50.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 4	0.0%	5.6%	25.0%	0.0%	6.3%
Accounting	% of Total	0.0%	3.1%	3.1%	0.0%	6.3%
	Count	0	1	0	0	1
	% within Major at UWB	0.0%	100.0%	0.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 4	0.0%	5.6%	0.0%	0.0%	3.1%
	% of Total	0.0%	3.1%	0.0%	0.0%	3.1%
Environmental Studies	Count	1	0	0	0	1
	% within Major at UWB	100.0%	0.0%	0.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 4	14.3%	0.0%	0.0%	0.0%	3.1%
	% of Total	3.1%	0.0%	0.0%	0.0%	3.1%
	Count	0	1	0	0	1
Premajor	% within Major at UWB	0.0%	100.0%	0.0%	0.0%	100.0%
	% within Students perceived comprehension of ballot language 4	0.0%	5.6%	0.0%	0.0%	3.1%
	% of Total	0.0%	3.1%	0.0%	0.0%	3.1%
	Count	7	18	4	3	32
	% within Major at UWB	21.9%	56.3%	12.5%	9.4%	100.0%
Total	% within Students perceived comprehension of ballot language 4	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	21.9%	56.3%	12.5%	9.4%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	31.579 ^a	30	.387
Likelihood Ratio	29.073	30	.514
Linear-by-Linear Association	.114	1	.736
N of Valid Cases	32		

a. 43 cells (97.7%) have expected count less than 5. The minimum expected count is .09.



Crosstabs

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Major at UWB * First designed ballot	32	94.1%	2	5.9%	34	100.0%
Major at UWB * Second designed ballot	32	94.1%	2	5.9%	34	100.0%
Major at UWB * Third designed ballot	32	94.1%	2	5.9%	34	100.0%
Major at UWB * Fourth designed ballot	32	94.1%	2	5.9%	34	100.0%

Major at UWB * First designed ballot

Crosstab

		First designed ballot			
		No	Yes	Total	
Major at UWB	Biology	Count	2	4	6
		% within Major at UWB	33.3%	66.7%	100.0%
		% within First designed ballot	12.5%	25.0%	18.8%
		% of Total	6.3%	12.5%	18.8%
MAPS		Count	7	4	11
		% within Major at UWB	63.6%	36.4%	100.0%
		% within First designed ballot	43.8%	25.0%	34.4%
		% of Total	21.9%	12.5%	34.4%
Media and Communication Studies		Count	0	2	2
		% within Major at UWB	0.0%	100.0%	100.0%
		% within First designed ballot	0.0%	12.5%	6.3%
		% of Total	0.0%	6.3%	6.3%
Master in Cultural Studies		Count	2	1	3
		% within Major at UWB	66.7%	33.3%	100.0%
		% within First designed ballot	12.5%	6.3%	9.4%
		% of Total	6.3%	3.1%	9.4%
Psychology		Count	2	0	2
		% within Major at UWB	100.0%	0.0%	100.0%
		% within First designed ballot	12.5%	0.0%	6.3%
		% of Total	6.3%	0.0%	6.3%
Mathematical thinking and visualization		Count	1	1	2
		% within Major at UWB	50.0%	50.0%	100.0%
		% within First designed ballot	6.3%	6.3%	6.3%
		% of Total	3.1%	3.1%	6.3%
Business Administration		Count	1	0	1
		% within Major at UWB	100.0%	0.0%	100.0%
		% within First designed ballot	6.3%	0.0%	3.1%
		% of Total	3.1%	0.0%	3.1%
Health Studies		Count	0	2	2
		% within Major at UWB	0.0%	100.0%	100.0%
		% within First designed ballot	0.0%	12.5%	6.3%
		% of Total	0.0%	6.3%	6.3%
Accounting		Count	0	1	1
		% within Major at UWB	0.0%	100.0%	100.0%

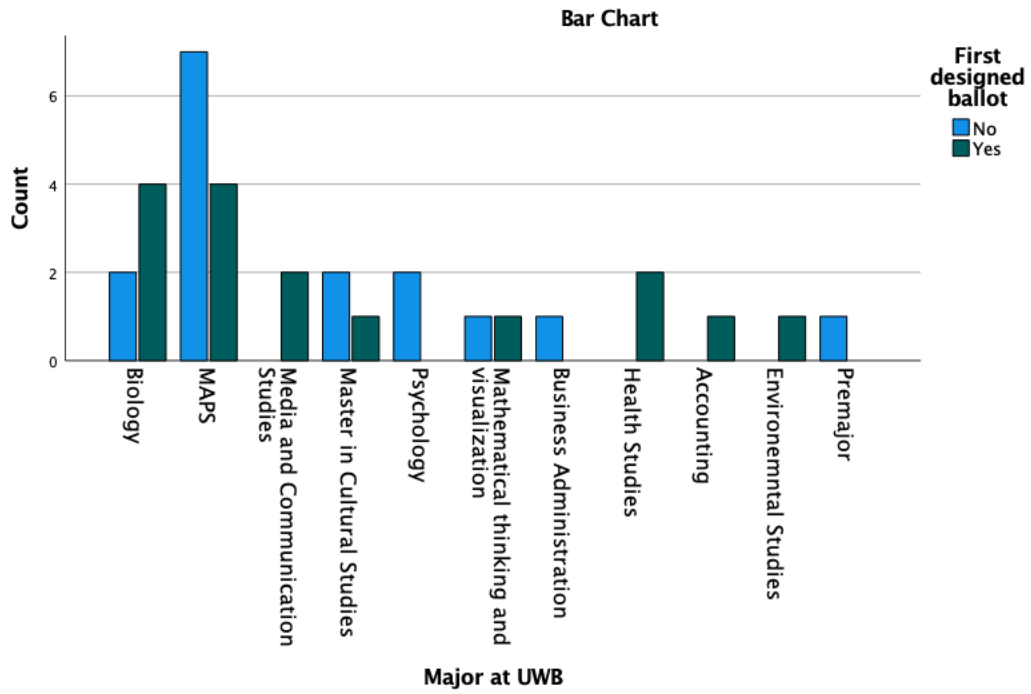
Crosstab

		First designed ballot		Total
		No	Yes	
Environmental Studies	% within First designed ballot	0.0%	6.3%	3.1%
	% of Total	0.0%	3.1%	3.1%
	Count	0	1	1
	% within Major at UWB	0.0%	100.0%	100.0%
	% within First designed ballot	0.0%	6.3%	3.1%
Premajor	% of Total	0.0%	3.1%	3.1%
	Count	1	0	1
	% within Major at UWB	100.0%	0.0%	100.0%
	% within First designed ballot	6.3%	0.0%	3.1%
	% of Total	3.1%	0.0%	3.1%
Total	Count	16	16	32
	% within Major at UWB	50.0%	50.0%	100.0%
	% within First designed ballot	100.0%	100.0%	100.0%
	% of Total	50.0%	50.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.818 ^a	10	.297
Likelihood Ratio	15.711	10	.108
Linear-by-Linear Association	.093	1	.760
N of Valid Cases	32		

a. 20 cells (90.9%) have expected count less than 5. The minimum expected count is .50.



Major at UWB * Second designed ballot

Crosstab

		Second designed ballot		Total	
		No	Yes		
Major at UWB	Biology	Count	3	3	6
		% within Major at UWB	50.0%	50.0%	100.0%
		% within Second designed ballot	18.8%	18.8%	18.8%
		% of Total	9.4%	9.4%	18.8%
MAPS		Count	6	5	11
		% within Major at UWB	54.5%	45.5%	100.0%
		% within Second designed ballot	37.5%	31.3%	34.4%
		% of Total	18.8%	15.6%	34.4%
Media and Communication Studies		Count	2	0	2
		% within Major at UWB	100.0%	0.0%	100.0%
		% within Second designed ballot	12.5%	0.0%	6.3%
		% of Total	6.3%	0.0%	6.3%
Master in Cultural Studies		Count	1	2	3
		% within Major at UWB	33.3%	66.7%	100.0%
		% within Second designed ballot	6.3%	12.5%	9.4%
		% of Total	3.1%	6.3%	9.4%
Psychology		Count	1	1	2
		% within Major at UWB	50.0%	50.0%	100.0%
		% within Second designed ballot	6.3%	6.3%	6.3%
		% of Total	3.1%	3.1%	6.3%
Mathematical thinking and visualization		Count	0	2	2
		% within Major at UWB	0.0%	100.0%	100.0%
		% within Second designed ballot	0.0%	12.5%	6.3%
		% of Total	0.0%	6.3%	6.3%
Business Administration		Count	1	0	1
		% within Major at UWB	100.0%	0.0%	100.0%
		% within Second designed ballot	6.3%	0.0%	3.1%
		% of Total	3.1%	0.0%	3.1%
Health Studies		Count	2	0	2
		% within Major at UWB	100.0%	0.0%	100.0%
		% within Second designed ballot	12.5%	0.0%	6.3%
		% of Total	6.3%	0.0%	6.3%
Accounting		Count	0	1	1
		% within Major at UWB	0.0%	100.0%	100.0%

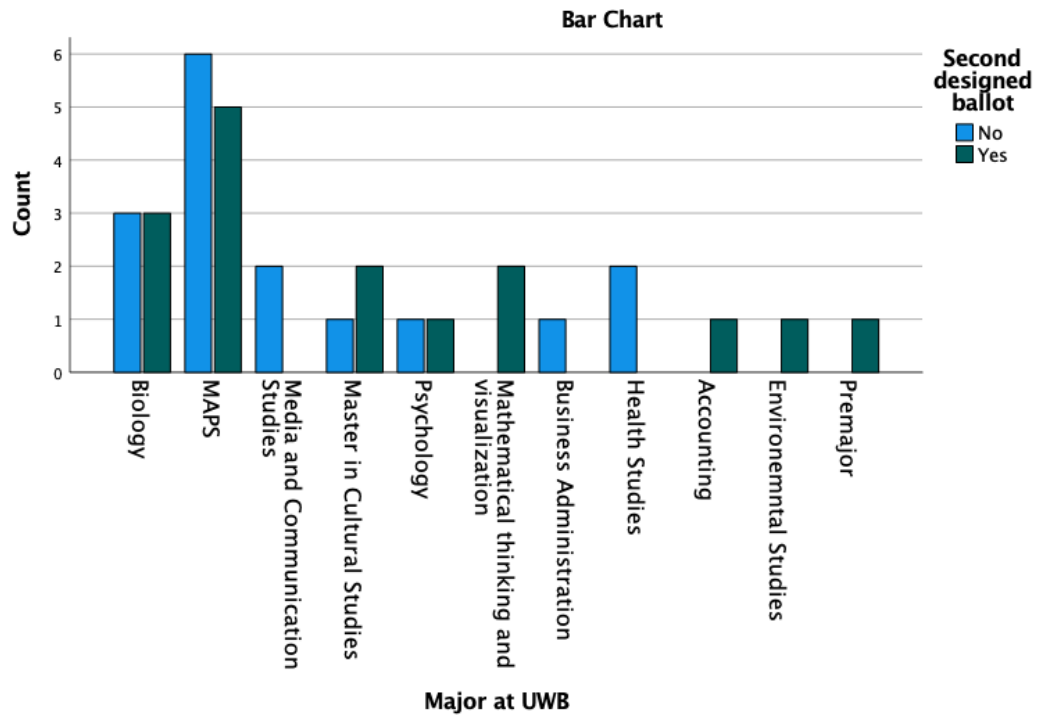
Crosstab

		Second designed ballot		Total
		No	Yes	
Environmental Studies	% within Second designed ballot	0.0%	6.3%	3.1%
	% of Total	0.0%	3.1%	3.1%
	Count	0	1	1
	% within Major at UWB	0.0%	100.0%	100.0%
Premajor	% within Second designed ballot	0.0%	6.3%	3.1%
	% of Total	0.0%	3.1%	3.1%
	Count	0	1	1
	% within Major at UWB	0.0%	100.0%	100.0%
Total	% within Second designed ballot	0.0%	6.3%	3.1%
	% of Total	0.0%	3.1%	3.1%
	Count	16	16	32
	% within Major at UWB	50.0%	50.0%	100.0%
Total	% within Second designed ballot	100.0%	100.0%	100.0%
	% of Total	50.0%	50.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.424 ^a	10	.404
Likelihood Ratio	14.294	10	.160
Linear-by-Linear Association	.840	1	.359
N of Valid Cases	32		

a. 20 cells (90.9%) have expected count less than 5. The minimum expected count is .50.



Major at UWB * Third designed ballot

Crosstab

		Third designed ballot			
		No	Yes	Total	
Major at UWB	Biology	Count	1	5	6
		% within Major at UWB	16.7%	83.3%	100.0%
		% within Third designed ballot	33.3%	17.2%	18.8%
		% of Total	3.1%	15.6%	18.8%
MAPS		Count	1	10	11
		% within Major at UWB	9.1%	90.9%	100.0%
		% within Third designed ballot	33.3%	34.5%	34.4%
		% of Total	3.1%	31.3%	34.4%
Media and Communication Studies		Count	0	2	2
		% within Major at UWB	0.0%	100.0%	100.0%
		% within Third designed ballot	0.0%	6.9%	6.3%
		% of Total	0.0%	6.3%	6.3%
Master in Cultural Studies		Count	1	2	3
		% within Major at UWB	33.3%	66.7%	100.0%
		% within Third designed ballot	33.3%	6.9%	9.4%
		% of Total	3.1%	6.3%	9.4%
Psychology		Count	0	2	2
		% within Major at UWB	0.0%	100.0%	100.0%
		% within Third designed ballot	0.0%	6.9%	6.3%
		% of Total	0.0%	6.3%	6.3%
Mathematical thinking and visualization		Count	0	2	2
		% within Major at UWB	0.0%	100.0%	100.0%
		% within Third designed ballot	0.0%	6.9%	6.3%
		% of Total	0.0%	6.3%	6.3%
Business Administration		Count	0	1	1
		% within Major at UWB	0.0%	100.0%	100.0%
		% within Third designed ballot	0.0%	3.4%	3.1%
		% of Total	0.0%	3.1%	3.1%
Health Studies		Count	0	2	2
		% within Major at UWB	0.0%	100.0%	100.0%
		% within Third designed ballot	0.0%	6.9%	6.3%
		% of Total	0.0%	6.3%	6.3%
Accounting		Count	0	1	1
		% within Major at UWB	0.0%	100.0%	100.0%

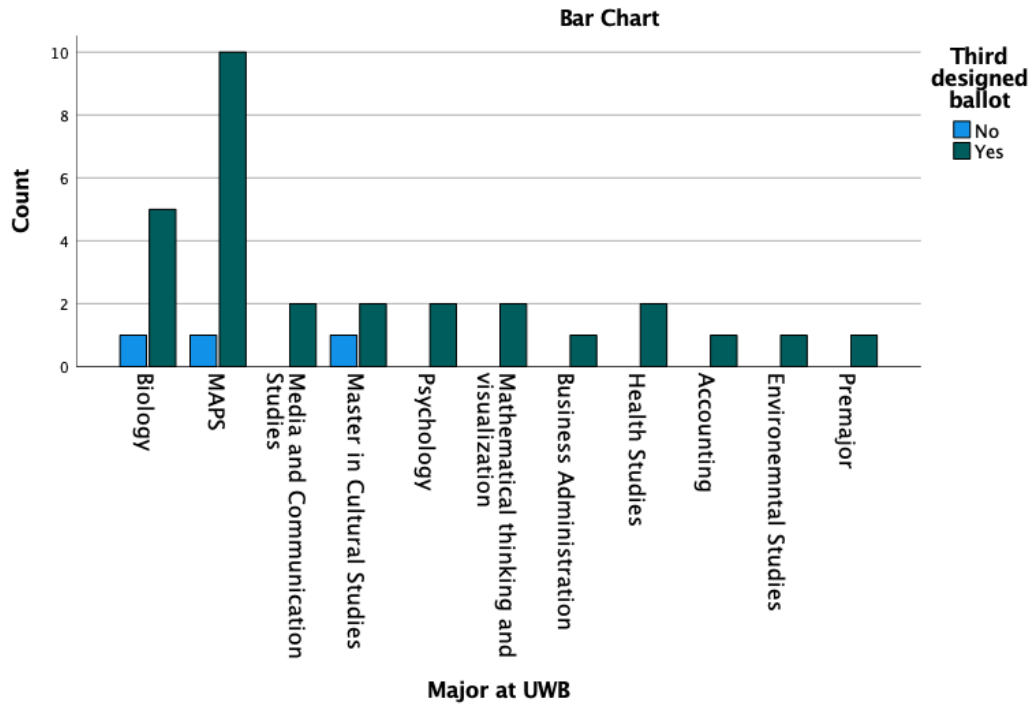
Crosstab

		Third designed ballot		Total
		No	Yes	
Environmental Studies	% within Third designed ballot	0.0%	3.4%	3.1%
	% of Total	0.0%	3.1%	3.1%
	Count	0	1	1
	% within Major at UWB	0.0%	100.0%	100.0%
	% within Third designed ballot	0.0%	3.4%	3.1%
Premajor	% of Total	0.0%	3.1%	3.1%
	Count	0	1	1
	% within Major at UWB	0.0%	100.0%	100.0%
	% within Third designed ballot	0.0%	3.4%	3.1%
	% of Total	0.0%	3.1%	3.1%
Total	Count	3	29	32
	% within Major at UWB	9.4%	90.6%	100.0%
	% within Third designed ballot	100.0%	100.0%	100.0%
	% of Total	9.4%	90.6%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.645 ^a	10	.962
Likelihood Ratio	3.984	10	.948
Linear-by-Linear Association	.829	1	.363
N of Valid Cases	32		

a. 20 cells (90.9%) have expected count less than 5. The minimum expected count is .09.



Major at UWB * Fourth designed ballot

Crosstab

		Fourth deisgned balot		Total	
		No	Yes		
Major at UWB	Biology	Count	1	5	6
		% within Major at UWB	16.7%	83.3%	100.0%
		% within Fourth deisgned balot	10.0%	22.7%	18.8%
		% of Total	3.1%	15.6%	18.8%
MAPS		Count	4	7	11
		% within Major at UWB	36.4%	63.6%	100.0%
		% within Fourth deisgned balot	40.0%	31.8%	34.4%
		% of Total	12.5%	21.9%	34.4%
Media and Communication Studies		Count	1	1	2
		% within Major at UWB	50.0%	50.0%	100.0%
		% within Fourth deisgned balot	10.0%	4.5%	6.3%
		% of Total	3.1%	3.1%	6.3%
Master in Cultural Studies		Count	2	1	3
		% within Major at UWB	66.7%	33.3%	100.0%
		% within Fourth deisgned balot	20.0%	4.5%	9.4%
		% of Total	6.3%	3.1%	9.4%
Psychology		Count	0	2	2
		% within Major at UWB	0.0%	100.0%	100.0%
		% within Fourth deisgned balot	0.0%	9.1%	6.3%
		% of Total	0.0%	6.3%	6.3%
Mathematical thinking and visualization		Count	0	2	2
		% within Major at UWB	0.0%	100.0%	100.0%
		% within Fourth deisgned balot	0.0%	9.1%	6.3%
		% of Total	0.0%	6.3%	6.3%
Business Administration		Count	1	0	1
		% within Major at UWB	100.0%	0.0%	100.0%
		% within Fourth deisgned balot	10.0%	0.0%	3.1%
		% of Total	3.1%	0.0%	3.1%
Health Studies		Count	1	1	2
		% within Major at UWB	50.0%	50.0%	100.0%
		% within Fourth deisgned balot	10.0%	4.5%	6.3%
		% of Total	3.1%	3.1%	6.3%
Accounting		Count	0	1	1
		% within Major at UWB	0.0%	100.0%	100.0%

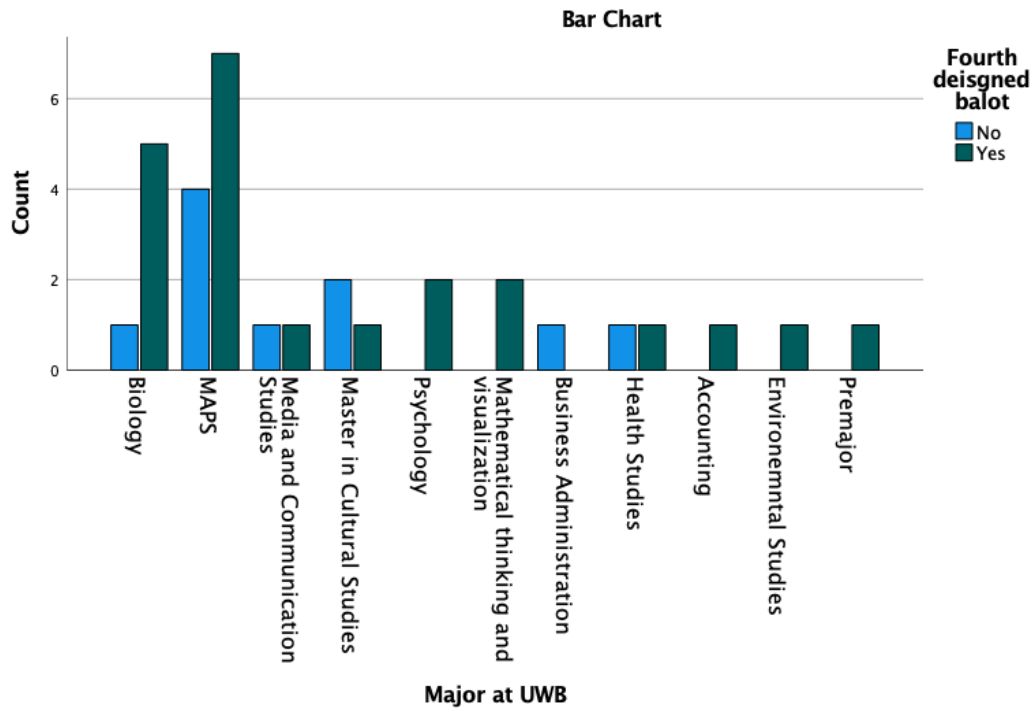
Crosstab

		Fourth deisgned balot		Total
		No	Yes	
Ervironemntal Studies	% within Fourth deisgned balot	0.0%	4.5%	3.1%
	% of Total	0.0%	3.1%	3.1%
	Count	0	1	1
	% within Major at UWB	0.0%	100.0%	100.0%
	% within Fourth deisgned balot	0.0%	4.5%	3.1%
Premajor	% of Total	0.0%	3.1%	3.1%
	Count	0	1	1
	% within Major at UWB	0.0%	100.0%	100.0%
	% within Fourth deisgned balot	0.0%	4.5%	3.1%
	% of Total	0.0%	3.1%	3.1%
Total	Count	10	22	32
	% within Major at UWB	31.3%	68.8%	100.0%
	% within Fourth deisgned balot	100.0%	100.0%	100.0%
	% of Total	31.3%	68.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.516 ^a	10	.579
Likelihood Ratio	10.558	10	.393
Linear-by-Linear Association	.137	1	.711
N of Valid Cases	32		

a. 21 cells (95.5%) have expected count less than 5. The minimum expected count is .31.



Nonparametric Correlations

Correlations

			English proficiency level	Student's year of education enrolled
Spearman's rho	English proficiency level	Correlation Coefficient	1.000	-.084
		Sig. (2-tailed)	.	.641
		N	33	33
	Student's year of education enrolled	Correlation Coefficient	-.084	1.000
		Sig. (2-tailed)	.641	.
		N	33	33

Nonparametric Correlations

Correlations

		English proficiency level	Students perceived comprehension of ballot language 1	Students perceived comprehension of ballot language 2	Students perceived comprehension of ballot language 3	Students perceived comprehension of ballot language 4	
Spearman's rho	English proficiency level	Correlation Coefficient	1.000	.157	-.178	.405*	.026
		Sig. (2-tailed)	.	.383	.320	.019	.884
		N	33	33	33	33	33
	Students perceived comprehension of ballot language 1	Correlation Coefficient	.157	1.000	.107	-.086	.156
		Sig. (2-tailed)	.383	.	.552	.635	.387
		N	33	33	33	33	33
	Students perceived comprehension of ballot language 2	Correlation Coefficient	-.178	.107	1.000	.080	.355*
		Sig. (2-tailed)	.320	.552	.	.656	.042
		N	33	33	33	33	33
	Students perceived comprehension of ballot language 3	Correlation Coefficient	.405*	-.086	.080	1.000	-.038
		Sig. (2-tailed)	.019	.635	.656	.	.832
		N	33	33	33	33	33
	Students perceived comprehension of ballot language 4	Correlation Coefficient	.026	.156	.355*	-.038	1.000
		Sig. (2-tailed)	.884	.387	.042	.832	.
		N	33	33	33	33	33

*. Correlation is significant at the 0.05 level (2-tailed).

NPar Tests

McNemar Test

Crosstabs

Number of students who are enrolled in an Undergraduate vs Graduate program – First Ballot

Number of students who have bachelor's vs masters	First designed ballot	
	No	Yes
Undergraduate	7	11
Graduate	9	6

Number of students who are enrolled in an Undergraduate vs Graduate program – Second Ballot

Number of students who have bachelor's vs masters	Second designed ballot	
	No	Yes
Undergraduate	8	10
Graduate	8	7

**Number of students who are enrolled in
an Undergraduate vs Graduate program
– Third Ballot**

Number of students who have bachelor's vs masters	Third designed ballot	
	No	Yes
Undergraduate	1	17
Graduate	2	13

**Number of students who are enrolled in an
Undergraduate vs Graduate program –
Fourth Ballot**

Number of students who have bachelor's vs masters	Fourth designed ballot	
	No	Yes
Undergraduate	4	14
Graduate	6	9

Test Statistics^a

	Number of students who have bachelor's vs masters & first designed ballot	Number of students who have bachelor's vs masters & second designed ballot	Number of students who have bachelor's vs masters & third designed ballot	Number of students who have bachelor's vs masters & fourth designed ballot
N	33	33	33	33
Exact Sig. (2-tailed)	.824 ^b	.815 ^b	<.001 ^b	.115 ^b

a. McNemar Test

b. Binomial distribution used.

Logistic Regression'

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	32	94.1
	Missing Cases	2	5.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable

Encoding

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding									
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Major at UWB	Biology	6	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	MAPS	11	1.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Media and Communication Studies	2	.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000
	Master in Cultural Studies	3	.000	.000	1.000	.000	.000	.000	.000	.000	.000	.000
	Psychology	2	.000	.000	.000	1.000	.000	.000	.000	.000	.000	.000
	Mathematical thinking and visualization	2	.000	.000	.000	.000	1.000	.000	.000	.000	.000	.000
	Business Administration	1	.000	.000	.000	.000	.000	1.000	.000	.000	.000	.000
	Health Studies	2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
	Accounting	1	.000	.000	.000	.000	.000	.000	.000	1.000	.000	.000
	Environmental Studies	1	1.000	.000	.000	.000	.000	.000	.000	.000	1.000	.000
Premajor	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000	
Student's year of education enrolled	Year 2	6	.000	.000	.000							
	Year 3	2	1.000	.000	.000							
	Year 4	8	.000	1.000	.000							
	Year 5+	16	.000	.000	1.000							
English proficiency level	Native	22	.000	.000								
	Mastery	9	1.000	.000								
	Advanced	1	.000	1.000								

Block 0: Beginning Block

Classification Table^{a,b}

Observed			Predicted		Percentage Correct
			First designed ballot No	Yes	
Step 0	First designed ballot	No	0	16	.0
		Yes	0	16	100.0
Overall Percentage					50.0

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.000	.354	.000	1	1.000	1.000

Variables not in the Equation

		Score	df	Sig.	
Step 0	Variables	Student's year of education enrolled	6.917	3	.075

Student's year of education enrolled (1)	2.133	1	.144
Student's year of education enrolled (2)	2.667	1	.102
Student's year of education enrolled (3)	.500	1	.480
English proficiency level	1.111	2	.574
English proficiency level (1)	.155	1	.694
English proficiency level (2)	1.032	1	.310
Major at UWB	11.818	10	.297
Major at UWB (1)	1.247	1	.264
Major at UWB (2)	2.133	1	.144
Major at UWB (3)	.368	1	.544
Major at UWB (4)	2.133	1	.144
Major at UWB (5)	.000	1	1.000
Major at UWB (6)	1.032	1	.310
Major at UWB (7)	2.133	1	.144
Major at UWB (8)	1.032	1	.310
Major at UWB (9)	1.032	1	.310
Major at UWB (10)	1.032	1	.310
Race	.191	1	.662
Overall Statistics	15.689	16	.475

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	23.382	16	.104
	Block	23.382	16	.104
	Model	23.382	16	.104

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	20.980 ^a	.518	.691

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.846	8	.774

Contingency Table for Hosmer and Lemeshow Test

Step 1		First designed ballot = No		First designed ballot = Yes		Total
		Observed	Expected	Observed	Expected	
		1	3	3.000	0	
2	3	2.805	0	.195	3	
3	5	3.806	0	1.194	5	
4	1	2.123	2	.877	3	
5	1	1.771	2	1.229	3	
6	2	1.621	1	1.379	3	
7	1	.875	2	2.125	3	
8	0	.000	3	3.000	3	
9	0	.000	4	4.000	4	
10	0	.000	2	2.000	2	

Classification Table^a

Observed		Predicted		Percentage Correct
		First designed ballot No	First designed ballot Yes	
Step 1 First designed ballot	No	15	1	93.8
	Yes	6	10	62.5
Overall Percentage				78.1

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Student's year of education entrolled			.000	3	1.000			
	Student's year of education entrolled(1)	61.876	50945.177	.000	1	.999	7.454E+26	.000	.
	Student's year of education entrolled(2)	40.832	31303.934	.000	1	.999	5.408E+17	.000	.
	Student's year of education entrolled(3)	61.301	39780.058	.000	1	.999	4.193E+26	.000	.
	English profeciency level			.026	2	.987			
	English profeciency level (1)	.208	1.285	.026	1	.872	1.231	.099	15.262
	English profeciency level (2)	21.753	40192.969	.000	1	1.000	2.800E+9	.000	.
	Major at UWB			.025	10	1.000			
	Major at UWB (1)	-21.376	24546.212	.000	1	.999	.000	.000	.
	Major at UWB (2)	61.094	38339.326	.000	1	.999	3.409E+26	.000	.
	Major at UWB (3)	-21.635	24546.212	.000	1	.999	.000	.000	.
	Major at UWB (4)	18.851	42180.156	.000	1	1.000	153802262	.000	.
	Major at UWB (5)	20.262	22135.220	.000	1	.999	630396172	.000	.
	Major at UWB (6)	18.866	50945.178	.000	1	1.000	156062884	.000	.
	Major at UWB (7)	20.469	24546.206	.000	1	.999	775201822	.000	.
	Major at UWB (8)	.000	56841.443	.000	1	1.000	1.000	.000	.
	Major at UWB (9)	20.846	40192.969	.000	1	1.000	1.130E+9	.000	.
	Major at UWB (10)	19.272	50945.178	.000	1	1.000	234240576	.000	.
	Race	.203	.281	.523	1	.469	1.225	.707	2.124
	Constant	-41.287	31303.934	.000	1	.999	.000		

a. Variable(s) entered on step 1: Student's year of education entrolled, English profeciency level, Major at UWB , Race .

Selected Cases	Included in Analysis	32	94.1
	Missing Cases	2	5.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	(1)	(2)	(3)	(4)	Parameter coding						
			(5)	(6)	(7)	(8)	(9)	(10)					
Major at UWB	Biology	6	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	MAPS	11	1.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Media and Communication Studies	2	.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Master in Cultural Studies	3	.000	.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000
	Psychology	2	.000	.000	.000	1.000	.000	.000	.000	.000	.000	.000	.000
	Mathematical thinking and visualization	2	.000	.000	.000	.000	1.000	.000	.000	.000	.000	.000	.000
	Business Administration	1	.000	.000	.000	.000	.000	1.000	.000	.000	.000	.000	.000
	Health Studies	2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000	.000
	Accounting	1	.000	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
	Environmental Studies	1	.000	.000	.000	.000	.000	.000	.000	.000	1.000	.000	.000
Student's year of education enrolled	Premajor	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000
	Year 2	6	.000	.000	.000								
	Year 3	2	1.000	.000	.000								
	Year 4	8	.000	1.000	.000								
English proficiency level	Year 5+	16	.000	.000	1.000								
	Native	22	.000	.000									
	Mastery	9	1.000	.000									
	Advanced	1	.000	1.000									

Block 0: Beginning Block

Classification Table^{a,b}

Observed

Predicted

			Second designed ballot		Percentage Correct
			No	Yes	
Step 0	Second designed ballot	No	0	16	.0
		Yes	0	16	100.0
	Overall Percentage				50.0

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.000	.354	.000	1	1.000	1.000

Variables not in the Equation

		Score	df	Sig.	
Step 0	Variables	Student's year of education enrolled	2.250	3	.522
		Student's year of education enrolled (1)	2.133	1	.144
		Student's year of education enrolled (2)	.000	1	1.000
		Student's year of education enrolled (3)	.500	1	.480
		English proficiency level	1.293	2	.524
		English proficiency level (1)	.155	1	.694
		English proficiency level (2)	1.032	1	.310
		Major at UWB	10.424	10	.404
		Major at UWB (1)	.139	1	.710
		Major at UWB (2)	2.133	1	.144
		Major at UWB (3)	.368	1	.544
		Major at UWB (4)	.000	1	1.000
		Major at UWB (5)	2.133	1	.144
		Major at UWB (6)	1.032	1	.310
		Major at UWB (7)	2.133	1	.144

	Major at UWB (8)	1.032	1	.310
	Major at UWB (9)	1.032	1	.310
	Major at UWB (10)	1.032	1	.310
	Race	.069	1	.793
	Overall Statistics	13.939	16	.603

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	19.553	16	.241
	Block	19.553	16	.241
	Model	19.553	16	.241

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	24.809 ^a	.457	.610

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	9.876	8	.274

Contingency Table for Hosmer and Lemeshow Test

		Second designed ballot = No		Second designed ballot = Yes		Total
		Observed	Expected	Observed	Expected	
Step 1	1	3	3.000	0	.000	3
	2	3	3.000	0	.000	3
	3	3	2.157	0	.843	3
	4	2	1.935	1	1.065	3
	5	1	.531	0	.469	1

6	2	2.621	3	2.379	5
7	0	1.370	3	1.630	3
8	1	1.228	2	1.772	3
9	1	.157	1	1.843	2
10	0	.000	6	6.000	6

Classification Table^a

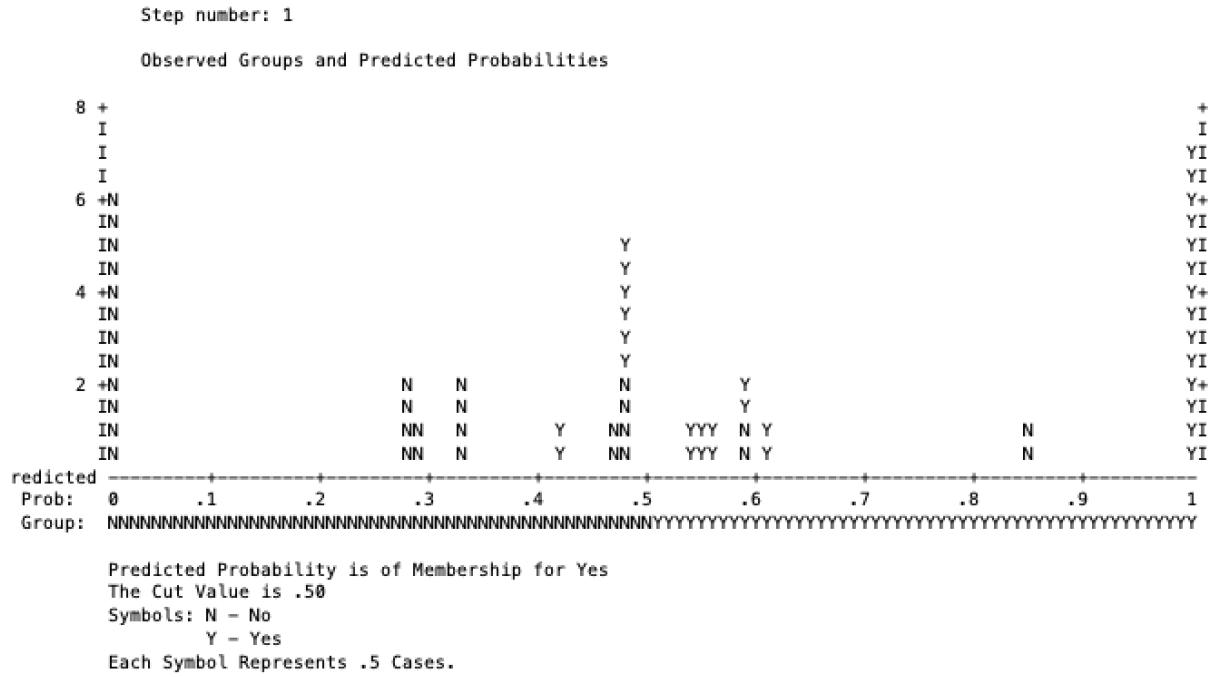
Observed	Second designed ballot	Predicted		Percentage Correct	
		No	Yes		
Step 1	Second designed ballot	No	14	2	87.5
		Yes	4	12	75.0
Overall Percentage					81.3

a. The cut value is .500

Variables in the Equation

Step 1 ^a	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Student's year of education entrolled			.000	3	1.000			
Student's year of education entrolled(1)	21.986	58086.958	.000	1	1.000	3.534E+9	.000	.
Student's year of education entrolled(2)	.126	41935.902	.000	1	1.000	1.134	.000	.
Student's year of education entrolled(3)	-20.430	48666.492	.000	1	1.000	.000	.000	.
English profecency level			.431	2	.806			
English profecency level (1)	-.858	1.308	.431	1	.512	.424	.033	5.499
English profecency level (2)	21.678	40192.969	.000	1	1.000	2.598E+9	.000	.
Major at UWB			1.095	10	1.000			
Major at UWB (1)	20.132	24694.239	.000	1	.999	553576401	.000	.
Major at UWB (2)	-21.125	39325.223	.000	1	1.000	.000	.000	.
Major at UWB (3)	21.909	24694.239	.000	1	.999	3.274E+9	.000	.
Major at UWB (4)	1.161	41935.902	.000	1	1.000	3.194	.000	.
Major at UWB (5)	21.226	39325.219	.000	1	1.000	1.654E+9	.000	.
Major at UWB (6)	-20.774	58086.959	.000	1	1.000	.000	.000	.
Major at UWB (7)	-20.557	24694.231	.000	1	.999	.000	.000	.
Major at UWB (8)	.000	56841.443	.000	1	1.000	1.000	.000	.
Major at UWB (9)	21.253	40192.969	.000	1	1.000	1.699E+9	.000	.
Major at UWB (10)	21.380	58086.958	.000	1	1.000	1.928E+9	.000	.
Race	-.126	.282	.200	1	.654	.881	.507	1.532
Constant	.328	41935.902	.000	1	1.000	1.388		

a. Variable(s) entered on step 1: Student's year of education entrolled, English profecency level, Major at UWB , Race.



Casewise List^b

Case	Selected Status ^a	Observed Second designed ballot	Temporary Variable				
			Predicted	Predicted Group	Resid	ZResid	SResid
14	S	N**	.843	Y	-.843	-2.317	-2.538

- a. S = Selected, U = Unselected cases, and ** = Misclassified cases.
- b. Cases with studentized residuals greater than 2.000 are listed.

Logistic Regression

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	32	94.1
	Missing Cases	2	5.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding	
Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding									
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Major at UWB	Biology	6	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	MAPS	11	1.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Media and Communication Studies	2	.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000
	Master in Cultural Studies	3	.000	.000	1.000	.000	.000	.000	.000	.000	.000	.000
	Psychology	2	.000	.000	.000	1.000	.000	.000	.000	.000	.000	.000
	Mathematical thinking and visualization	2	.000	.000	.000	.000	1.000	.000	.000	.000	.000	.000
	Business Administration	1	.000	.000	.000	.000	.000	1.000	.000	.000	.000	.000
	Health Studies	2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
	Accounting	1	.000	.000	.000	.000	.000	.000	.000	1.000	.000	.000
	Environmental Studies	1	.000	.000	.000	.000	.000	.000	.000	.000	1.000	.000
	Premajor	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000
Student's year of education enrolled	Year 2	6	.000	.000	.000							
	Year 3	2	1.000	.000	.000							
	Year 4	8	.000	1.000	.000							
	Year 5+	16	.000	.000	1.000							
English proficiency level	Native	22	.000	.000								
	Mastery	9	1.000	.000								
	Advanced	1	.000	1.000								

Block 0: Beginning Block

Classification Table^{a,b}

Observed		Predicted		Percentage Correct	
		Third designed ballot No	Third designed ballot Yes		
Step 0	Third designed ballot	No	0	3	.0
		Yes	0	29	100.0
Overall Percentage					90.6

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	2.269	.606	13.993	1	<.001	9.667

Variables not in the Equation

	Score	df	Sig.
Step 0 Variables Student's year of education enrolled	1.103	3	.776
Student's year of education enrolled (1)	.221	1	.639
Student's year of education enrolled (2)	.123	1	.726
Student's year of education enrolled (3)	.368	1	.544
English proficiency level	2.456	2	.293
English proficiency level (1)	2.433	1	.119
English proficiency level (2)	.107	1	.744
Major at UWB	3.645	10	.962
Major at UWB (1)	.002	1	.968
Major at UWB (2)	.221	1	.639
Major at UWB (3)	2.236	1	.135
Major at UWB (4)	.221	1	.639
Major at UWB (5)	.221	1	.639
Major at UWB (6)	.107	1	.744
Major at UWB (7)	.221	1	.639
Major at UWB (8)	.107	1	.744
Major at UWB (9)	.107	1	.744
Major at UWB (10)	.107	1	.744
Race	.666	1	.415
Overall Statistics	8.387	16	.937

Block 1: Method = Enter**Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	10.649	16	.831
	Block	10.649	16	.831
	Model	10.649	16	.831

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	9.263 ^a	.283	.611

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.802	5	.977

Contingency Table for Hosmer and Lemeshow Test

		Third designed ballot = No		Third designed ballot = Yes		Total
		Observed	Expected	Observed	Expected	
		Step 1	1	1	1.575	
	2	2	1.425	2	2.575	4
	3	0	.000	3	3.000	3
	4	0	.000	3	3.000	3
	5	0	.000	6	6.000	6
	6	0	.000	2	2.000	2
	7	0	.000	11	11.000	11

Classification Table^a

Observed

Predicted

		Third designed ballot		Percentage Correct	
		No	Yes		
Step 1	Third designed ballot	No	0	3	.0
		Yes	1	28	96.6
Overall Percentage					87.5

a. The cut value is .500

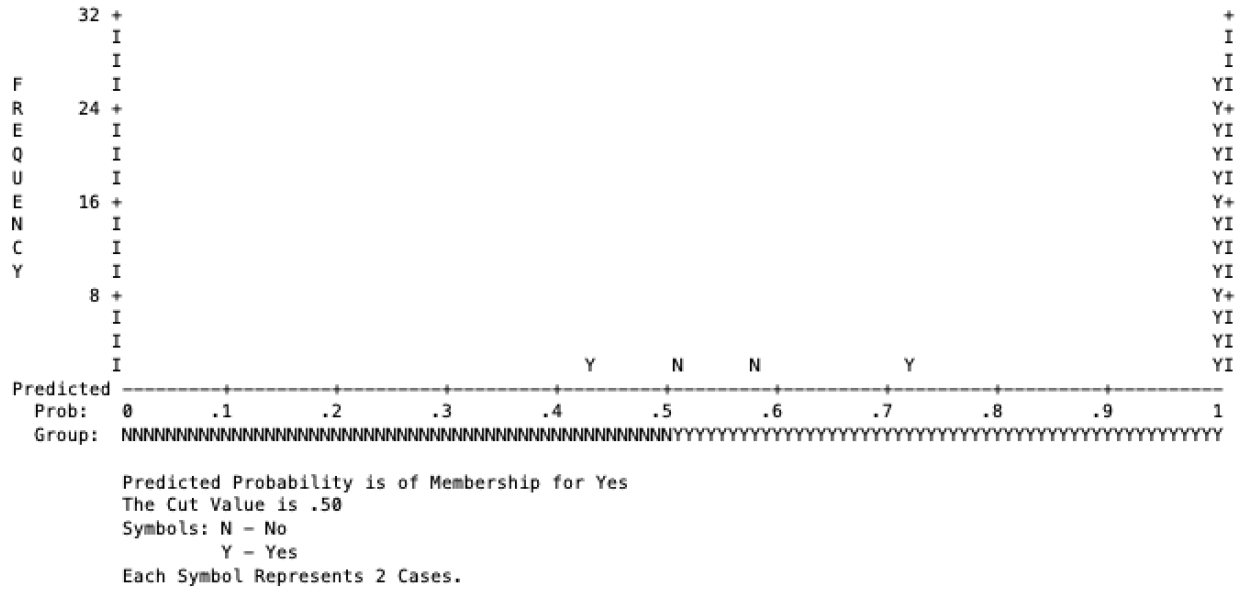
Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a			.000	3	1.000			
Student's year of education entrolled								
Student's year of education entrolled(1)	98.843	29019170.1	.000	1	1.000	8.454E+42	.000	.
Student's year of education entrolled(2)	47.242	29019137.8	.000	1	1.000	3.287E+20	.000	.
Student's year of education entrolled(3)	66.467	29019146.8	.000	1	1.000	7.353E+28	.000	.
English profeciency level			.000	2	1.000			
English profeciency level (1)	-46.657	10174.549	.000	1	.996	.000	.000	.
English profeciency level (2)	-71.506	45050.645	.000	1	.999	.000	.000	.
Major at UWB			.000	10	1.000			
Major at UWB (1)	26.524	25649.191	.000	1	.999	3.304E+11	.000	.
Major at UWB (2)	66.470	29019147.3	.000	1	1.000	7.371E+28	.000	.
Major at UWB (3)	-19.831	23544.842	.000	1	.999	.000	.000	.
Major at UWB (4)	67.243	29019149.1	.000	1	1.000	1.597E+29	.000	.
Major at UWB (5)	19.228	23574.557	.000	1	.999	224280473	.000	.
Major at UWB (6)	-9.216	29019161.2	.000	1	1.000	.000	.000	.
Major at UWB (7)	19.226	23544.841	.000	1	.999	223715444	.000	.
Major at UWB (8)	.000	56841.443	.000	1	1.000	1.000	.000	.
Major at UWB (9)	-25.756	41460.780	.000	1	1.000	.000	.000	.
Major at UWB (10)	21.485	29019161.8	.000	1	1.000	2.142E+9	.000	.
Race	15.351	3391.516	.000	1	.996	4641874.28	.000	.
Constant	-61.685	29019139.8	.000	1	1.000	.000		

a. Variable(s) entered on step 1: Student's year of education entrolled, English profeciency level, Major at UWB , Race.

Step number: 1

Observed Groups and Predicted Probabilities



Casewise List^b

Case	Selected Status ^a	Observed Third designed ballot	Temporary Variable				
			Predicted	Predicted Group	Resid	ZResid	SResid
12	S	Y**	.425	N	.575	1.163	2.479
14	S	N**	.575	Y	-.575	-1.163	-2.471
29	S	N**	.575	Y	-.575	-1.163	-2.252

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.

Logistic Regression

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	32	94.1
	Missing Cases	2	5.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

**Dependent Variable
Encoding**

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding									
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Major at UWB	Biology	6	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	MAPS	11	1.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	Media and Communication Studies	2	.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000
	Master in Cultural Studies	3	.000	.000	1.000	.000	.000	.000	.000	.000	.000	.000
	Psychology	2	.000	.000	.000	1.000	.000	.000	.000	.000	.000	.000
	Mathematical thinking and visualization	2	.000	.000	.000	.000	1.000	.000	.000	.000	.000	.000
	Business Administration	1	.000	.000	.000	.000	.000	1.000	.000	.000	.000	.000
	Health Studies	2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
	Accounting	1	.000	.000	.000	.000	.000	.000	.000	1.000	.000	.000
	Environmental Studies	1	.000	.000	.000	.000	.000	.000	.000	.000	1.000	.000
	Premajor	1	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000
Student's year of education enrolled	Year 2	6	.000	.000	.000							
	Year 3	2	1.000	.000	.000							
	Year 4	8	.000	1.000	.000							
	Year 5+	16	.000	.000	1.000							
English proficiency level	Native	22	.000	.000								
	Mastery	9	1.000	.000								
	Advanced	1	.000	1.000								

Block 0: Beginning Block

Classification Table^{a,b}

Observed	Predicted		Percentage Correct
	Fourth designed ballot No	Yes	

Step 0	Fourth designed ballot	No	0	10	.0
		Yes	0	22	100.0
Overall Percentage					68.8

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	.788	.381	4.274	1	.039	2.200

Variables not in the Equation

	Score	df	Sig.
Step 0 Variables Student's year of education enrolled	1.358	3	.716
Student's year of education enrolled (1)	.970	1	.325
Student's year of education enrolled (2)	.194	1	.660
Student's year of education enrolled (3)	.582	1	.446
English proficiency level	.476	2	.788
English proficiency level (1)	.025	1	.874
English proficiency level (2)	.469	1	.493
Major at UWB	8.516	10	.579
Major at UWB (1)	.204	1	.652
Major at UWB (2)	.349	1	.555
Major at UWB (3)	1.933	1	.164
Major at UWB (4)	.970	1	.325
Major at UWB (5)	.970	1	.325
Major at UWB (6)	2.271	1	.132
Major at UWB (7)	.349	1	.555
Major at UWB (8)	.469	1	.493
Major at UWB (9)	.469	1	.493
Major at UWB (10)	.469	1	.493

	Race	.040	1	.841
	Overall Statistics	12.963	16	.675

Block 1: Method = Enter**Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	18.691	16	.285
	Block	18.691	16	.285
	Model	18.691	16	.285

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	21.059 ^a	.442	.622

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1.759	8	.988

Contingency Table for Hosmer and Lemeshow Test

		Fourth deisgned balot = No		Fourth deisgned balot = Yes		Total
		Observed	Expected	Observed	Expected	
		Step 1	1	3	3.000	
	2	2	2.578	2	1.422	4
	3	2	1.400	1	1.600	3
	4	1	.802	1	1.198	2
	5	2	1.642	3	3.358	5
	6	0	.578	3	2.422	3
	7	0	.000	3	3.000	3
	8	0	.000	1	1.000	1
	9	0	.000	5	5.000	5

10	0	.000	3	3.000	3
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Classification Table^a

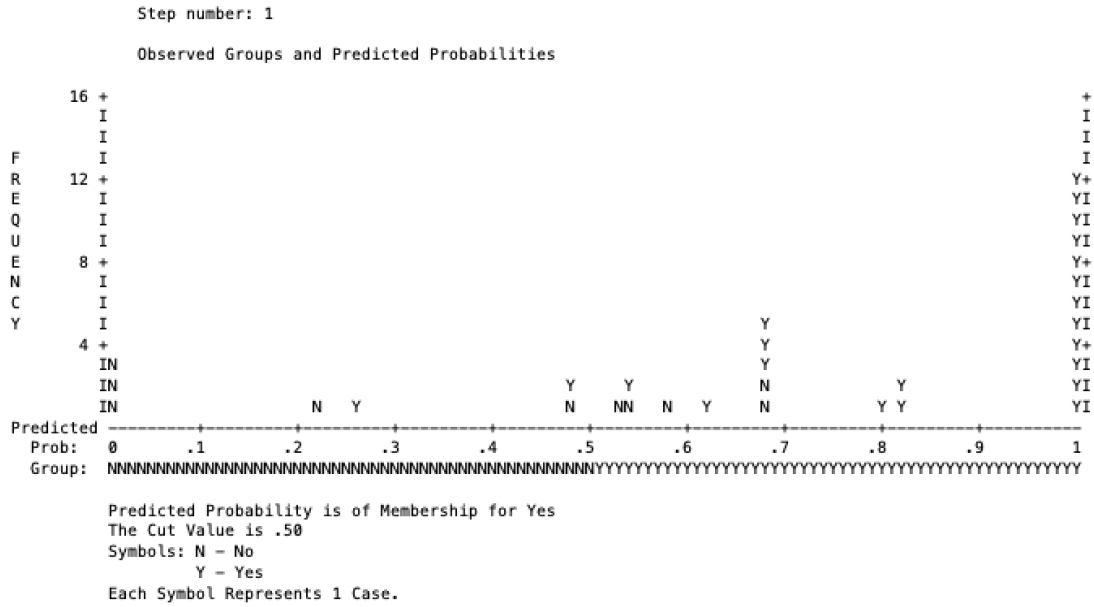
Observed	Predicted	Fourth deisgned balot		Percentage Correct
		No	Yes	
Step 1 Fourth deisgned balot	No	5	5	50.0
	Yes	2	20	90.9
Overall Percentage				78.1

a. The cut value is .500

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Student's year of education entrolled			.000	3	1.000			
Student's year of education entrolled(1)	61.428	51269.817	.000	1	.999	4.764E+26	.000	.
Student's year of education entrolled(2)	40.765	31829.536	.000	1	.999	5.057E+17	.000	.
Student's year of education entrolled(3)	81.436	46465.139	.000	1	.999	2.330E+35	.000	.
English profeciency level			.463	2	.793			
English profeciency level (1)	-.820	1.204	.463	1	.496	.440	.042	4.668
English profeciency level (2)	20.827	40192.969	.000	1	1.000	1.109E+9	.000	.
Major at UWB			.162	10	1.000			
Major at UWB (1)	-41.429	33851.009	.000	1	.999	.000	.000	.
Major at UWB (2)	19.249	22506.877	.000	1	.999	229036628	.000	.
Major at UWB (3)	-42.042	33851.009	.000	1	.999	.000	.000	.
Major at UWB (4)	61.764	42581.281	.000	1	.999	6.667E+26	.000	.
Major at UWB (5)	59.788	38983.051	.000	1	.999	9.238E+25	.000	.
Major at UWB (6)	18.655	51269.817	.000	1	1.000	126397447	.000	.
Major at UWB (7)	-21.638	23936.281	.000	1	.999	.000	.000	.
Major at UWB (8)	.000	56841.443	.000	1	1.000	1.000	.000	.
Major at UWB (9)	20.070	40192.969	.000	1	1.000	520322800	.000	.
Major at UWB (10)	60.835	51269.817	.000	1	.999	2.631E+26	.000	.
Race	-.113	.274	.170	1	.680	.893	.522	1.528
Constant	-39.179	31829.536	.000	1	.999	.000		

a. Variable(s) entered on step 1: Student's year of education entrolled, English profeciency level, Major at UWB , Race .



Casewise List^b

Case	Selected Status ^a	Observed Fourth deigned balot	Temporary Variable				
			Predicted	Predicted Group	Resid	ZResid	SResid
12	S	Y**	.258	N	.742	1.697	2.061

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.

Binomial Logistical Regression with Major recoded as Major_R

Ballot 1

Logistic Regression

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	32	94.1
	Missing Cases	2	5.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding		
			(1)	(2)	(3)
Student's year of education enrolled	Year 2	6	.000	.000	.000
	Year 3	2	1.000	.000	.000
	Year 4	8	.000	1.000	.000
	Year 5+	16	.000	.000	1.000
English profeciency level	Native	22	.000	.000	
	Mastery	9	1.000	.000	
	Advanced	1	.000	1.000	

Block 0: Beginning Block

Classification Table^{a,b}

Observed		Predicted		Percentage Correct	
		First designed ballot No	Yes		
Step 0	First designed ballot	No	0	16	.0
		Yes	0	16	100.0
Overall Percentage					50.0

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.000	.354	.000	1	1.000	1.000

Variables not in the Equation

		Score	df	Sig.	
Step 0	Variables	Student's year of education enrolled	6.917	3	.075
		Student's year of education enrolled(1)	2.133	1	.144
		Student's year of education enrolled(2)	2.667	1	.102
		Student's year of education enrolled(3)	.500	1	.480
		English profeciency level	1.111	2	.574
		English profeciency level (1)	.155	1	.694
		English profeciency level (2)	1.032	1	.310
		major recoded into 3 catagories	2.205	1	.138
		Race	.191	1	.662
		Overall Statistics		9.325	7

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	11.057	7	.136
	Block	11.057	7	.136
	Model	11.057	7	.136

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	33.304 ^a	.292	.390

- a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	7.069	8	.529

Contingency Table for Hosmer and Lemeshow Test

		First designed ballot = No		First designed ballot = Yes		Total
		Observed	Expected	Observed	Expected	
Step 1	1	2	2.659	1	.341	3
	2	3	3.165	1	.835	4
	3	2	2.086	1	.914	3
	4	6	3.764	0	2.236	6
	5	1	1.656	2	1.344	3
	6	1	1.060	2	1.940	3
	7	0	.551	2	1.449	2
	8	1	.666	2	2.334	3
	9	0	.393	3	2.607	3
	10	0	.000	2	2.000	2

Classification Table^a

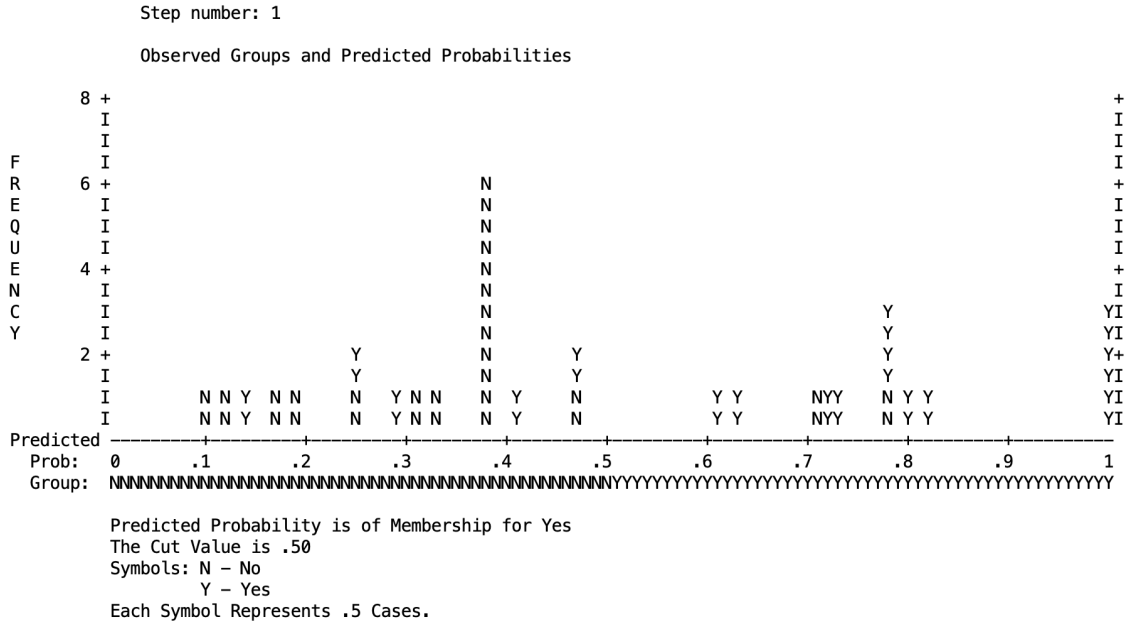
	Observed		Predicted		Percentage Correct
			First designed ballot No	Yes	
Step 1	First designed ballot	No	14	2	87.5
		Yes	5	11	68.8
Overall Percentage					78.1

a. The cut value is .500

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a			2.986	3	.394			
Student's year of education enrolled								
Student's year of education enrolled(1)	23.279	28073.022	.000	1	.999	1.289E+10	.000	.
Student's year of education enrolled(2)	2.378	1.475	2.599	1	.107	10.786	.599	194.341
Student's year of education enrolled(3)	2.068	1.620	1.630	1	.202	7.913	.331	189.426
English profeciency level			.343	2	.842			
English profeciency level (1)	-.622	1.063	.343	1	.558	.537	.067	4.308
English profeciency level (2)	21.490	40192.969	.000	1	1.000	2.153E+9	.000	.
major recoded into 3 catagories	-.732	.861	.724	1	.395	.481	.089	2.597
Race	.078	.214	.133	1	.716	1.081	.711	1.644
Constant	-.471	2.001	.055	1	.814	.624		

a. Variable(s) entered on step 1: Student's year of education enrolled, English profeciency level, major recoded into 3 catagories , Race.



Casewise List ^b							
Case	Selected Status ^a	Observed First designed ballot	Predicted	Predicted Group	Temporary Variable		
					Resid	ZResid	SResid
4	S	Y**	.135	N	.865	2.531	2.266

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.
 b. Cases with studentized residuals greater than 2.000 are listed.

Ballot 2

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	32	94.1
	Missing Cases	2	5.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding		
			(1)	(2)	(3)
Student's year of education enrolled	Year 2	6	.000	.000	.000
	Year 3	2	1.000	.000	.000
	Year 4	8	.000	1.000	.000
	Year 5+	16	.000	.000	1.000
English proficiency level	Native	22	.000	.000	
	Mastery	9	1.000	.000	
	Advanced	1	.000	1.000	

Block 0: Beginning Block**Classification Table^{a,b}**

Observed		Predicted		Percentage Correct
		Second designed ballot No	Yes	
Step 0	Second designed ballot	No	16	.0
		Yes	16	100.0
Overall Percentage				50.0

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.000	.354	.000	1	1.000	1.000

Variables not in the Equation

		Score	df	Sig.	
Step 0	Variables	Student's year of education enrolled	2.250	3	.522
		Student's year of education enrolled(1)	2.133	1	.144
		Student's year of education enrolled(2)	.000	1	1.000
		Student's year of education enrolled(3)	.500	1	.480
		English profeciency level	1.293	2	.524
		English profeciency level (1)	.155	1	.694
		English profeciency level (2)	1.032	1	.310
		major recoded into 3 catagories	.405	1	.524
		Race	.069	1	.793
		Overall Statistics	3.736	7	.810

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4.905	7	.672
	Block	4.905	7	.672
	Model	4.905	7	.672

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	39.456 ^a	.142	.189

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	10.727	7	.151

Contingency Table for Hosmer and Lemeshow Test

		Second designed ballot = No		Second designed ballot = Yes		Total
		Observed	Expected	Observed	Expected	
Step 1	1	2	1.961	1	1.039	3
	2	1	1.833	2	1.167	3
	3	3	1.764	0	1.236	3
	4	3	3.518	3	2.482	6
	5	3	1.573	0	1.427	3
	6	2	1.526	1	1.474	3
	7	0	1.485	3	1.515	3
	8	1	1.881	3	2.119	4
	9	1	.458	3	3.542	4

Classification Table^a

	Observed	Second designed ballot	Predicted		Percentage Correct
			No	Yes	
Step 1	Second designed ballot	No	14	2	87.5
		Yes	9	7	43.8
Overall Percentage					65.6

a. The cut value is .500

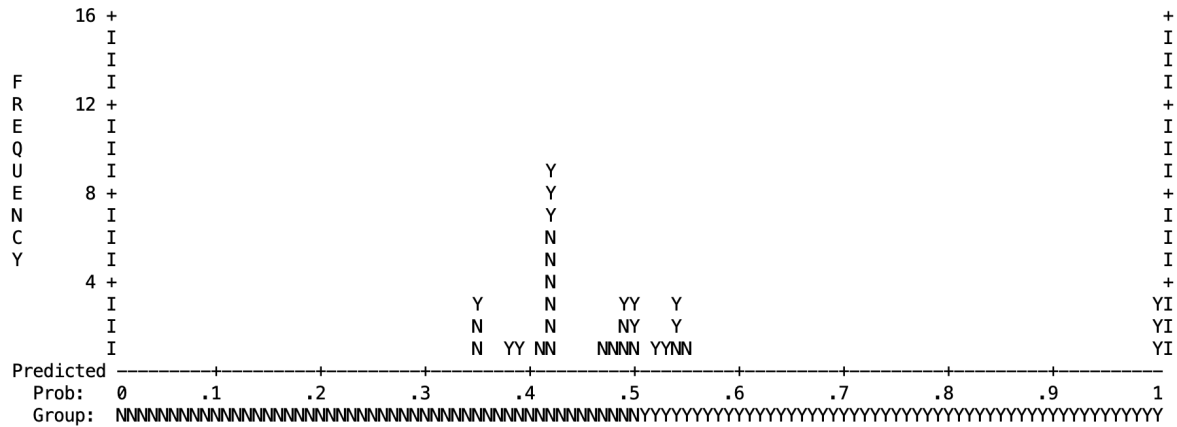
Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Student's year of education enrolled			.084	3	.994			
	Student's year of education enrolled(1)	21.023	28403.620	.000	1	.999	1.350E+9	.000	.
	Student's year of education enrolled(2)	-.186	1.208	.024	1	.878	.830	.078	8.856
	Student's year of education enrolled(3)	-.366	1.311	.078	1	.780	.694	.053	9.062
	English profeciency level			.000	2	1.000			
	English profeciency level (1)	-.003	.920	.000	1	.997	.997	.164	6.055
	English profeciency level (2)	21.723	40192.969	.000	1	1.000	2.719E+9	.000	.
	major recoded into 3 catagories	-.150	.788	.036	1	.849	.861	.184	4.033
	Race	-.057	.197	.084	1	.772	.944	.642	1.390
	Constant	.523	1.766	.088	1	.767	1.687		

a. Variable(s) entered on step 1: Student's year of education enrolled, English profeciency level, major recoded into 3 catagories , Race.

Step number: 1

Observed Groups and Predicted Probabilities



Predicted Probability is of Membership for Yes
 The Cut Value is .50
 Symbols: N - No
 Y - Yes
 Each Symbol Represents 1 Case.

Ballot 3

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	32	94.1
	Missing Cases	2	5.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding		
			(1)	(2)	(3)
Student's year of education enrolled	Year 2	6	.000	.000	.000
	Year 3	2	1.000	.000	.000
	Year 4	8	.000	1.000	.000
	Year 5+	16	.000	.000	1.000
English proficiency level	Native	22	.000	.000	
	Mastery	9	1.000	.000	
	Advanced	1	.000	1.000	

Block 0: Beginning Block**Classification Table^{a,b}**

Observed		Predicted		Percentage Correct
		Third designed ballot No	Third designed ballot Yes	
Step 0	Third designed ballot	No	3	.0
		Yes	29	100.0
Overall Percentage				90.6

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	2.269	.606	13.993	1	<.001	9.667

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Student's year of education enrolled	1.103	3	.776
		Student's year of education enrolled(1)	.221	1	.639
		Student's year of education enrolled(2)	.123	1	.726
		Student's year of education enrolled(3)	.368	1	.544
		English profeciency level	2.456	2	.293
		English profeciency level (1)	2.433	1	.119
		English profeciency level (2)	.107	1	.744
		major recoded into 3 cataories	.150	1	.699
		Race	.666	1	.415
		Overall Statistics		6.320	7

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	6.785	7	.452
	Block	6.785	7	.452
	Model	6.785	7	.452

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	13.127 ^a	.191	.412

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	2.800	8	.946

Contingency Table for Hosmer and Lemeshow Test

Step 1		Third designed ballot = No		Third designed ballot = Yes		Total
		Observed	Expected	Observed	Expected	
Step 1	1	2	1.625	1	1.375	3
	2	0	.490	3	2.510	3
	3	0	.342	3	2.658	3
	4	0	.074	1	.926	1
	5	1	.332	5	5.668	6
	6	0	.106	3	2.894	3
	7	0	.031	4	3.969	4
	8	0	.000	3	3.000	3
	9	0	.000	3	3.000	3
	10	0	.000	3	3.000	3

Classification Table^a

Step 1	Observed	Third designed ballot	Predicted		Percentage Correct
			No	Yes	
Step 1	Third designed ballot	No	1	2	33.3
		Yes	1	28	96.6
Overall Percentage					90.6

a. The cut value is .500

Casewise List^b

Case	Selected Status ^a	Observed Third designed ballot	Predicted	Predicted Group	Temporary Variable		
					Resid	ZResid	SResid
14	S	N**	.945	Y	-.945	-4.129	-2.536
29	S	N**	.567	Y	-.567	-1.145	-2.156

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.

Ballot 4

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	32	94.1
	Missing Cases	2	5.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

**Dependent Variable
Encoding**

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding		
			(1)	(2)	(3)
Student's year of education enrolled	Year 2	6	.000	.000	.000
	Year 3	2	1.000	.000	.000
	Year 4	8	.000	1.000	.000
	Year 5+	16	.000	.000	1.000
English proficiency level	Native	22	.000	.000	
	Mastery	9	1.000	.000	
	Advanced	1	.000	1.000	

Block 0: Beginning Block**Classification Table^{a,b}**

Observed		Predicted		Percentage Correct
		Fourth deisgned ballot No	Yes	
Step 0	Fourth deisgned ballot	No	10	.0
		Yes	22	100.0
Overall Percentage				68.8

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.788	.381	4.274	1	.039	2.200

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Student's year of education enrolled	1.358	3	.716
		Student's year of education enrolled(1)	.970	1	.325
		Student's year of education enrolled(2)	.194	1	.660
		Student's year of education enrolled(3)	.582	1	.446
		English profeciency level	.476	2	.788
		English profeciency level (1)	.025	1	.874
		English profeciency level (2)	.469	1	.493
		major recoded into 3 catagories	2.475	1	.116
		Race	.040	1	.841
		Overall Statistics			5.005

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	6.783	7	.452
	Block	6.783	7	.452
	Model	6.783	7	.452

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	32.966 ^a	.191	.269

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	6.735	8	.565

Contingency Table for Hosmer and Lemeshow Test

Step 1		Fourth deisgned ballot = No		Fourth deisgned ballot = Yes		Total
		Observed	Expected	Observed	Expected	
1	2	1.752	1	1.248	3	
2	0	.961	2	1.039	2	
3	3	2.820	3	3.180	6	
4	2	1.305	1	1.695	3	
5	0	1.172	3	1.828	3	
6	2	.999	1	2.001	3	
7	1	.616	3	3.384	4	
8	0	.317	3	2.683	3	
9	0	.058	3	2.942	3	
10	0	.000	2	2.000	2	

Classification Table^a

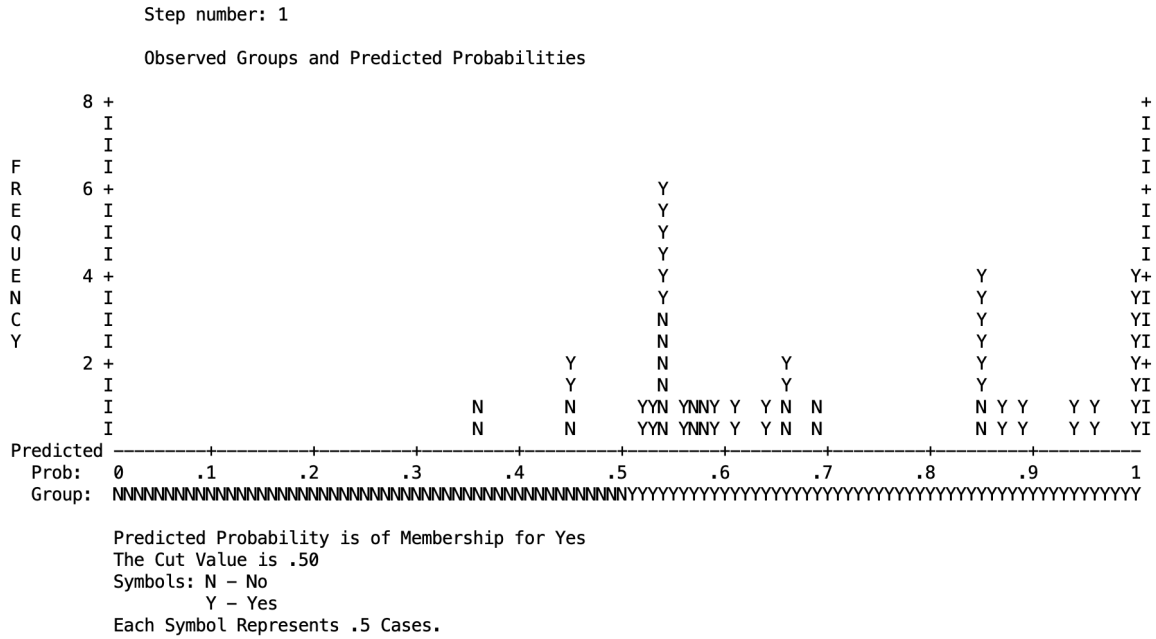
Step 1	Observed	Fourth deisgned ballot	Predicted		Percentage Correct
			Fourth deisgned ballot No	Fourth deisgned ballot Yes	
		No	2	8	20.0
		Yes	1	21	95.5
	Overall Percentage				71.9

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Student's year of education enrolled			1.343	3	.719			
	Student's year of education enrolled(1)	20.456	26524.835	.000	1	.999	765116616	.000	.
	Student's year of education enrolled(2)	-.830	1.575	.278	1	.598	.436	.020	9.557
	Student's year of education enrolled(3)	2.166	1.968	1.212	1	.271	8.725	.184	412.651
	English profeciency level			.122	2	.941			
	English profeciency level (1)	-.341	.975	.122	1	.726	.711	.105	4.803
	English profeciency level (2)	20.763	40192.969	.000	1	1.000	1.041E+9	.000	.
	major recoded into 3 catagories	-2.293	1.549	2.192	1	.139	.101	.005	2.101
	Race	.107	.208	.262	1	.609	1.112	.740	1.673
	Constant	4.726	3.177	2.212	1	.137	112.840		

a. Variable(s) entered on step 1: Student's year of education enrolled, English profeciency level, major recoded into 3 catagories , Race.



Casewise List^b

Case	Selected Status ^a	Observed Fourth deisgned ballot	Predicted	Predicted Group	Temporary Variable		
					Resid	ZResid	SResid
29	S	N**	.844	Y	-.844	-2.325	-2.228

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.

Hypothesis 2 – results

Crosstabs

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
First designed ballot * Student's year of education enrolled	33	97.1%	1	2.9%	34	100.0%
Second designed ballot * Student's year of education enrolled	33	97.1%	1	2.9%	34	100.0%
Third designed ballot * Student's year of education enrolled	33	97.1%	1	2.9%	34	100.0%
Fourth designed ballot * Student's year of education enrolled	33	97.1%	1	2.9%	34	100.0%

First designed ballot * Student's year of education enrolled

Crosstab

Count		Student's year of education enrolled				Total
		Year 2	Year 3	Year 4	Year 5+	
First designed ballot	No	5	0	2	9	16
	Yes	1	3	6	7	17
Total		6	3	8	16	33

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.894 ^a	3	.048
Likelihood Ratio	9.383	3	.025
Linear-by-Linear Association	.199	1	.655
N of Valid Cases	33		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is 1.45.

Second designed ballot * Student's year of education enrolled

Crosstab

Count		Student's year of education enrolled				Total
		Year 2	Year 3	Year 4	Year 5+	
Second designed ballot	No	3	0	4	9	16
	Yes	3	3	4	7	17
Total		6	3	8	16	33

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.223 ^a	3	.359
Likelihood Ratio	4.379	3	.223
Linear-by-Linear Association	.572	1	.450
N of Valid Cases	33		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is 1.45.

Third designed ballot * Student's year of education enrolled**Crosstab**

Count		Student's year of education enrolled				Total
		Year 2	Year 3	Year 4	Year 5+	
Third designed ballot	No	0	0	1	2	3
	Yes	6	3	7	14	30
Total		6	3	8	16	33

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.237 ^a	3	.744
Likelihood Ratio	2.021	3	.568
Linear-by-Linear Association	.995	1	.318
N of Valid Cases	33		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .27.

Fourth deisgned ballot * Student's year of education enrolled

Crosstab

Count

		Student's year of education enrolled				Total
		Year 2	Year 3	Year 4	Year 5+	
Fourth deisgned ballot	No	2	0	2	6	10
	Yes	4	3	6	10	23
Total		6	3	8	16	33

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.829 ^a	3	.609
Likelihood Ratio	2.680	3	.444
Linear-by-Linear Association	.308	1	.579
N of Valid Cases	33		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .91.

Multinomial logistical regression

Ballot 1

Logistic Regression

Warnings

Due to redundancies, degrees of freedom have been reduced for one or more variables.

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	33	97.1
	Missing Cases	1	2.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
Understood	0
Did not understand	1

Categorical Variables Codings

		Frequency	Parameter coding		
			(1)	(2)	(3)
Student's year of education enrolled	Year 2	6	.000	.000	.000
	Year 3	3	1.000	.000	.000
	Year 4	8	.000	1.000	.000
	Year 5+	16	.000	.000	1.000
First designed ballot	No	16	.000		
	Yes	17	1.000		

Block 0: Beginning Block

Classification Table^{a,b}

Observed		Predicted	
		Comprehension recoded into 2 categories	
		Understood	Did not understand
Step 0	Comprehension recoded into 2 categories	Understood	30
		Did not understand	3
Overall Percentage			

Classification Table^{a,b}

Observed		Predicted	
		Percentage Correct	
		Understood	Did not understand
Step 0	Comprehension recoded into 2 categories	Understood	100.0
		Did not understand	.0
Overall Percentage			90.9

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-2.303	.606	14.460	1	<.001	.100

Variables not in the Equation^a

Step 0	Variables	Score	df	Sig.
	Student's year of education enrolled	.985	3	.805
	Student's year of education enrolled(1)	.330	1	.566
	Student's year of education enrolled(2)	.148	1	.700
	Student's year of education enrolled(3)	.303	1	.582
	First designed ballot(1)	.303	1	.582
	First designed ballot * Student's year of education enrolled	1.157	3	.763
	First designed ballot(1) by Student's year of education enrolled(1)	.330	1	.566
	First designed ballot(1) by Student's year of education enrolled(2)	.509	1	.475
	First designed ballot(1) by Student's year of education enrolled(3)	.290	1	.590

a. Residual Chi-Squares are not computed because of redundancies.

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

Step 1		Chi-square	df	Sig.
	Step	3.954	6	.683
	Block	3.954	6	.683
	Model	3.954	6	.683

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	16.152 ^a	.113	.247

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	5	1.000

Contingency Table for Hosmer and Lemeshow Test

		Comprehension recoded into 2 categories = Understood		Comprehension recoded into 2 categories = Did not understand		Total
		Observed	Expected	Observed	Expected	
Step 1	1	1	1.000	0	.000	1
	2	9	9.000	0	.000	9
	3	3	3.000	0	.000	3
	4	2	2.000	0	.000	2
	5	6	6.000	1	1.000	7
	6	5	5.000	1	1.000	6
	7	4	4.000	1	1.000	5

Classification Table^a

	Observed		Predicted Comprehension recoded into 2 categories	
			Understood	Did not understand
Step 1	Comprehension recoded into 2 categories	Understood	30	0
		Did not understand	3	0
Overall Percentage				

Classification Table^a

	Observed		Predicted
			Percentage Correct
Step 1	Comprehension recoded into 2 categories	Understood	100.0
		Did not understand	.0
Overall Percentage			90.9

a. The cut value is .500

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Student's year of education enrolled			.000	3	1.000			
	Student's year of education enrolled(1)	.000	46410.848	.000	1	1.000	1.000	.000	.
	Student's year of education enrolled(2)	-19.817	28420.721	.000	1	.999	.000	.000	.
	Student's year of education enrolled(3)	-19.817	13397.657	.000	1	.999	.000	.000	.
	First designed ballot(1)	-19.817	40192.975	.000	1	1.000	.000	.000	.
	First designed ballot * Student's year of education enrolled			.000	2	1.000			
	First designed ballot(1) by Student's year of education enrolled(2)	39.410	49226.138	.000	1	.999	1.305E+17	.000	.
	First designed ballot(1) by Student's year of education enrolled(3)	39.228	42367.115	.000	1	.999	1.087E+17	.000	.
	Constant	-1.386	1.118	1.537	1	.215	.250		

a. Variable(s) entered on step 1: Student's year of education enrolled, First designed ballot, First designed ballot * Student's year of education enrolled .

Casewise List^b

Case	Selected Status ^a	Observed Comprehension recoded into 2 categories	Predicted	Predicted Group	Temporary Variable		
					Resid	ZResid	SResid
15	S	D**	.200	U	.800	2.000	2.006
18	S	D**	.143	U	.857	2.449	2.131
30	S	D**	.167	U	.833	2.236	2.074

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.

Ballot 2

Logistic Regression

Warnings

Due to redundancies, degrees of freedom have been reduced for one or more variables.

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	33	97.1
	Missing Cases	1	2.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
Understood	0
Did not understand	1

Categorical Variables Codings

		Frequency	Parameter coding		
			(1)	(2)	(3)
Student's year of education enrolled	Year 2	6	.000	.000	.000
	Year 3	3	1.000	.000	.000
	Year 4	8	.000	1.000	.000
	Year 5+	16	.000	.000	1.000
Second designed ballot	No	16	.000		
	Yes	17	1.000		

Block 0: Beginning Block

Classification Table^{a,b}

Observed		Predicted		
		recoded into 2 categories		
		Understood	Did not understand	
Step 0	recoded into 2 categories	Understood	23	0
		Did not understand	10	0
Overall Percentage				

Classification Table^{a,b}

Observed		Predicted		
		Percentage Correct		
		Understood	Did not understand	
Step 0	recoded into 2 categories	Understood	100.0	.0
		Did not understand		
Overall Percentage			69.7	

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.833	.379	4.835	1	.028	.435

Variables not in the Equation^a

			Score	df	Sig.
Step 0	Variables	Student's year of education enrolled	3.013	3	.390
		Student's year of education enrolled(1)	1.435	1	.231
		Student's year of education enrolled(2)	1.940	1	.164
		Student's year of education enrolled(3)	.414	1	.520
		Second designed ballot (1)	5.705	1	.017
		Second designed ballot * Student's year of education enrolled	6.336	3	.096
		Second designed ballot (1) by Student's year of education enrolled(1)	1.435	1	.231
		Second designed ballot (1) by Student's year of education enrolled(2)	.836	1	.361
		Second designed ballot (1) by Student's year of education enrolled(3)	3.863	1	.049

a. Residual Chi-Squares are not computed because of redundancies.

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	13.210	6	.040
	Block	13.210	6	.040
	Model	13.210	6	.040

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	27.275 ^a	.330	.467

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	3	1.000

Contingency Table for Hosmer and Lemeshow Test

		recoded into 2 categories = Understood		recoded into 2 categories = Did not understand		Total
		Observed	Expected	Observed	Expected	
Step 1	1	10	10.000	0	.000	10
	2	3	3.000	0	.000	3
	3	5	5.000	4	4.000	9
	4	4	4.000	4	4.000	8
	5	1	1.000	2	2.000	3

Classification Table^a

	Observed		Predicted	
			recoded into 2 categories Understood	recoded into 2 categories Did not understand
Step 1	recoded into 2 categories	Understood	18	5
		Did not understand	4	6
Overall Percentage				

Classification Table^a

	Observed		Percentage Correct
Step 1	recoded into 2 categories	Understood	78.3
		Did not understand	60.0
Overall Percentage			72.7

a. The cut value is .500

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Student's year of education enrolled			.431	3	.934			
	Student's year of education enrolled(1)	.000	32817.422	.000	1	1.000	1.000	.000	.
	Student's year of education enrolled(2)	-.693	1.581	.192	1	.661	.500	.023	11.088
	Student's year of education enrolled(3)	-.916	1.396	.431	1	.512	.400	.026	6.176
	Second designed ballot (1)	-21.896	23205.421	.000	1	.999	.000	.000	.
	Second designed ballot * Student's year of education enrolled			.000	2	1.000			
	Second designed ballot (1) by Student's year of education enrolled(2)	21.896	23205.421	.000	1	.999	3.231E+9	.000	.
	Second designed ballot (1) by Student's year of education enrolled(3)	.916	27735.784	.000	1	1.000	2.500	.000	.
	Constant	.693	1.225	.320	1	.571	2.000		

a. Variable(s) entered on step 1: Student's year of education enrolled, Second designed ballot , Second designed ballot * Student's year of education enrolled .

Ballot 3

Logistic Regression

Warnings

Due to redundancies, degrees of freedom have been reduced for one or more variables.

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	33	97.1
	Missing Cases	1	2.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
Understood	0
Did not understand	1

Step 0	Variables			
	Student's year of education enrolled	.533	3	.911
	Student's year of education enrolled(1)	.455	1	.500
	Student's year of education enrolled(2)	.001	1	.970
	Student's year of education enrolled(3)	.004	1	.948
	Third designed ballot (1)	9.217	1	.002
	Third designed ballot * Student's year of education enrolled	5.507	3	.138
	Third designed ballot (1) by Student's year of education enrolled(1)	.455	1	.500
	Third designed ballot (1) by Student's year of education enrolled(2)	1.225	1	.268
	Third designed ballot (1) by Student's year of education enrolled(3)	.566	1	.452

a. Residual Chi-Squares are not computed because of redundancies.

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	8.992	5	.109
	Block	8.992	5	.109
	Model	8.992	5	.109

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	15.384 ^a	.239	.457

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	3	1.000

Contingency Table for Hosmer and Lemeshow Test

		recoded into 2 categories = Understood		recoded into 2 categories = Did not understand		Total
		Observed	Expected	Observed	Expected	
Step 1	1	3	3.000	0	.000	3
	2	7	7.000	0	.000	7
	3	13	13.000	1	1.000	14
	4	5	5.000	1	1.000	6
	5	1	1.000	2	2.000	3

Classification Table^a

	Observed		Predicted	
			Understood	Did not understand
Step 1	recoded into 2 categories	Understood	29	0
		Did not understand	3	1
Overall Percentage				

Classification Table^a

	Observed		Percentage Correct
Step 1	recoded into 2 categories	Understood	100.0
		Did not understand	25.0
Overall Percentage			90.9

a. The cut value is .500

		Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Student's year of education enrolled			.401	3	.940			
	Student's year of education enrolled(1)	-19.593	23205.422	.000	1	.999	.000	.000	.
	Student's year of education enrolled(2)	20.247	40192.970	.000	1	1.000	621336478	.000	.
	Student's year of education enrolled(3)	-.956	1.509	.401	1	.527	.385	.020	7.404
	Third designed ballot (1)	-2.565	1.754	2.138	1	.144	.077	.002	2.394
	Third designed ballot * Student's year of education enrolled			.000	1	.999			
	Third designed ballot (1) by Student's year of education enrolled(2)	-39.841	42968.092	.000	1	.999	.000	.000	.
	Constant	.956	2.068	.213	1	.644	2.600		

a. Variable(s) entered on step 1: Student's year of education enrolled, Third designed ballot , Third designed ballot * Student's year of education enrolled .

Casewise List^b

Case	Selected Status ^a	Observed recoded into 2 categories	Temporary Variable				
			Predicted	Predicted Group	Resid	ZResid	SResid
15	S	D**	.167	U	.833	2.236	2.074
32	S	D**	.071	U	.929	3.606	2.384

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.

Ballot 4

Casewise List^b

Case	Selected Status ^a	Observed recoded into 2 categories	Predicted	Predicted Group	Temporary Variable		
					Resid	ZResid	SResid
15	S	D**	.167	U	.833	2.236	2.074
32	S	D**	.071	U	.929	3.606	2.384

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.

Logistic Regression**Warnings**

Due to redundancies, degrees of freedom have been reduced for one or more variables.

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	33	97.1
	Missing Cases	1	2.9
	Total	34	100.0
Unselected Cases		0	.0
Total		34	100.0

a. If weight is in effect, see classification table for the total number of cases.

**Dependent Variable
Encoding**

Original Value	Internal Value
1.00	0
2.00	1

Variables not in the Equation^a

			Score	df	Sig.
Step 0	Variables	Student's year of education enrolled	4.204	3	.240
		Student's year of education enrolled(1)	.888	1	.346
		Student's year of education enrolled(2)	.480	1	.489
		Student's year of education enrolled(3)	.113	1	.737
		Fourth deisgned ballot(1)	7.115	1	.008
		Fourth deisgned ballot * Student's year of education enrolled	7.100	3	.069
		Fourth deisgned ballot(1) by Student's year of education enrolled(1)	.888	1	.346
		Fourth deisgned ballot(1) by Student's year of education enrolled(2)	1.974	1	.160
		Fourth deisgned ballot(1) by Student's year of education enrolled(3)	1.079	1	.299

a. Residual Chi-Squares are not computed because of redundancies.

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	12.695	6	.048
	Block	12.695	6	.048
	Model	12.695	6	.048

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	21.411 ^a	.319	.496

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	4	1.000

Contingency Table for Hosmer and Lemeshow Test

		recoded into 2 catagories = 1.00		recoded into 2 catagories = 2.00		Total
		Observed	Expected	Observed	Expected	
Step 1	1	3	3.000	0	.000	3
	2	6	6.000	0	.000	6
	3	9	9.000	1	1.000	10
	4	3	3.000	1	1.000	4
	5	4	4.000	2	2.000	6
	6	1	1.000	3	3.000	4

Classification Table^a

Observed		Predicted		Percentage Correct
		recoded into 2 catagories 1.00	2.00	
Step 1	recoded into 2 catagories 1.00	25	1	96.2
	2.00	4	3	42.9
Overall Percentage				84.8

a. The cut value is .500

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Student's year of education enrolled			.175	3	.982			
	Student's year of education enrolled(1)	-20.104	23205.422	.000	1	.999	.000	.000	.
	Student's year of education enrolled(2)	-21.203	28420.729	.000	1	.999	.000	.000	.
	Student's year of education enrolled(3)	-21.896	28420.729	.000	1	.999	.000	.000	.
	Fourth deisgnd ballot (1)	-22.302	28420.729	.000	1	.999	.000	.000	.
	Fourth deisgnd ballot * Student's year of education enrolled			.000	2	1.000			
	Fourth deisgnd ballot (1) by Student's year of education enrolled(2)	1.099	32817.429	.000	1	1.000	3.000	.000	.
	Fourth deisgnd ballot (1) by Student's year of education enrolled(3)	20.797	28420.729	.000	1	.999	1.077E+9	.000	.
	Constant	21.203	28420.729	.000	1	.999	1.615E+9		

a. Variable(s) entered on step 1: Student's year of education enrolled, Fourth deisgnd ballot, Fourth deisgnd ballot * Student's year of education enrolled .

Casewise List^b

Case	Selected Status ^a	Observed recoded into 2 catagories	Predicted	Predicted Group	Temporary Variable		
					Resid	ZResid	SResid
18	S	2**	.100	1	.900	3.000	2.262

- a. S = Selected, U = Unselected cases, and ** = Misclassified cases.
- b. Cases with studentized residuals greater than 2.000 are listed.