RICE UNIVERSITY

The Usability Implications of Long Ballot Content for Paper, Electronic, and Mobile Voting Systems

by

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ABSTRACT

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In the 2008 United States presidential election over 131 million ballots were cast. A substantial fraction of those ballots, approximately 23 million (17.5%), were cast as absentee ballots either domestically or by overseas and military citizens (EAC, 2008). These numbers demonstrate that a demand exists in the United States for less centralized voting procedures. One potential solution, allowing voters to cast ballots on Internet-enabled mobile devices, could potentially increase voter participation, reduce election administration costs, increase election flexibility, and provide the ability for voters to interact with familiar technology.

Two experiments were conducted to examine the efficacy of a custom-designed mobile voting system as compared to more traditional voting technologies such as direct recording electronic and paper ballot voting systems. The results from experiment one suggest that displaying long ballot content as a single scrollable list may have distinct negative consequences on the effectiveness of electronic voting systems. Further, experiment one showed that candidates appearing below the fold, or not immediately visible without additional action from the voter are at a higher risk of being mistakenly voted against. The results from experiment two are largely consistent with experiment one in that they showed that a scrollable review screen led to more voting errors and that those candidates below the fold were at a distinct disadvantage.

ACKNOWLEDGEMENTS

This dissertation is dedicated first and foremost to my family: Donald, Susan, and Caitlyn Campbell, along with Katherine Ramos, without whose love, support, and guidance over these last six years I would not have been able to make this incredible journey. I cannot begin to thank you all enough, but know that I will always treasure your presence in my life.

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To the other members of the CHIL Voting Team: Sarah Everett, whose work helped me develop a starting place for my own, Kristen Greene, who helped guide me and never hesitated to offer her own ideas, Nicole Howie, whose unwavering encouragement kept me going, and Jill Piner, who helped extend our work to the domain of accessibility, thank you all for your support.

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ACRONYMS

DOD: United States Department of Defense

DRE: Direct recording electronic

DVBM: Digital vote by mail

EAC: Election assistance commission

HAVA: Help America vote act of 2002

MOVE: Military and overseas voter empowerment act of 2009

MVROB: Multi-vote race overvote behavior

MVS: Mobile voting system

SCP: Slate candidate positions

SERVE: Secure electronic registration and voting experiment

SUS: System usability scale

TBVC: To-be-voted for candidate

UI: User interface

UOCAVA: Uniformed and overseas citizens absentee voting act of 1986

CHAPTER 1: BACKGROUND

INTRODUCTION

In the 2008 United States presidential election over 131 million ballots were cast. A substantial fraction of those ballots, approximately 23 million (17.5%), were cast as absentee ballots either domestically or by overseas and military citizens (EAC, 2008). These numbers demonstrate that a demand exists in the United States for less centralized voting procedures. As voters become increasingly mobile it is not unreasonable to expect that demand for mobile access to more traditionally location-specific services will increase. In the United States, the voting process is one service that has traditionally been very location specific; voters are generally required to travel to polling places to cast their votes. Currently, the only alternative for U.S. voters who are unwilling or unable to travel to a polling place is to cast an absentee ballot.

One potential solution is using Internet-enabled devices as voting platforms. Motived in part by recent advances in smartphones (cellular telephones enhanced with relatively large screens and full Internet browsing capabilities), technology is evolving to enable users to become increasingly mobile. As of 2012, one estimate put United States smartphone penetration at nearly 50% (Sharma, 2012), meaning that nearly half of all U.S. residents owned a smartphone. Allowing voters to cast ballots on these devices could potentially increase voter participation, reduce election administration costs, increase election flexibility, and provide the ability for voters to interact with familiar technology.

The research reported here is twofold and focuses primarily on the last point: providing the ability for voters to interact with familiar technology. A majority of the

U.S. electorate only casts a ballot once every four years during a national presidential election (EAC, 2008). In that regard, most U.S. voters never have the opportunity to become truly familiar with voting technology or election procedures. Further complicating the matter is the fact the U.S. does not have a federalized voting system and thus voting systems and election procedures vary greatly from state to state or county to county. Thus, expert voters are quite few and far between and even the most experienced voters may not be considered expert voters when crossing state lines. Mobile voting technologies (e.g., smartphones or tablet computers) may enhance voting system usability by allowing voters to cast ballots with familiar technology. Designing effective and usable ballots for mobile voting systems, however, will undoubtedly be more challenging as the screen real estate is at a premium. It is currently unclear how best to display ballot content that is too long to be displayed in its entirety on small-screen mobile devices. The research presented here focuses on how long ballot content interacts with or perhaps even influences the usability of mobile voting systems.

VOTING USABILITY

Recent advances in smartphone technologies have made these devices much easier to interact with. Smartphones now offer advanced functionality for improved efficiency and have opened up new ways for users to retrieve and use information (Matthews et al., 2009). Mobile content, optimized for small screen viewing and data entry, is now more commonplace across the Internet. While still not as efficient as the PC, this content has significantly enhanced usability for a number of tasks. For example, Internet navigation on optimized content yields significantly reduced network wait-time and increased efficiency compared to non-mobile sites (Tossell, Kortum, Shepard,

Rahmati & Zhong, 2010). Nevertheless, for a task as complex and important as voting to successfully take place on a smartphone, specific usability requirements, some of which may be unique to the medium, will have to be established.

The usability of any voting system, including mobile or Internet technologies, is critical to election integrity. The infamous Palm Beach County (PBC), FL, U.S. presidential election debacle in 2000 caused many U.S. election officials to adopt more technologically advanced voting systems as a means to help safeguard election integrity. Supporting this effort, in 2002 the United States Congress passed the Help America Vote Act (HAVA) with the goal of replacing legacy voting systems with newer voting technologies. The underlying problem with the 2000 PBC presidential election, however, was not that the voting technology was too antiquated. Rather, the ballot's format (a.k.a. the "butterfly ballot") led to a substantial decrease in usability for many voters. In particular, the awkward positioning of candidates and imprecise positioning of arrows, meant to be visual aids, led many voters to make a selection other than their intended one. Exacerbating this problem was the fact that punch card system itself made it very difficult for voters (especially older or visually impaired voters) to confirm the selections they had made.

While the PBC election is the most well-known example, there are many cases where usability issues are likely to have determined the outcome of an election (e.g., see Norden et al., 2008). Prior to 2002's HAVA and the upswing in adoption of electronic voting systems, little usability research existed on efficacy of these systems or how they compared to legacy voting systems (Laskowski et al., 2004). As a result, many electronic voting systems may actually serve to reduce the effectiveness of the voting process.

In 2007, Everett studied review screen anomalies (i.e., cases in which the review screen did not reflect the voter's actual votes) on an electronic voting system, known as a direct recording electronic (DRE) voting system, and found that approximately two-thirds of voters did not notice up eight review screen anomalies in a 27-contest ballot. In a further replication and expansion of the review screen anomaly work, Campbell and Byrne (2009) showed that even with user interface improvements and explicit mention of review screen importance, approximately half of voters were still likely to miss up to eight review screen anomalies in a 27 contest ballot. In 2008, Greene showed that intentional undervotes (i.e., purposeful abstentions from voting) increase dramatically with a direct access navigation model as compared to a sequential access navigation model. Finally, comparing DRE voting machines to paper ballots and punch cards, in 2008 Everett, et al. showed that voters were overwhelmingly more satisfied with the DRE experience despite the DRE showing little to no improvement in efficiency or effectiveness, and in some cases, showing worse performance.

These studies highlight the critical role that usability research will play if the U.S. is to have a successful transition towards mobile Internet voting capabilities. The last time our nation tried to upgrade its election technology, after the 2000 presidential election debacle, the transition did not go well. States and counties rushed to spend billions of dollars on computerized voting systems that turned out to be inadequate to solve their problems. By the 2006 presidential election, electronic voting was the most common form of voting in the U.S. (Brace, 2008). Unfortunately, the technology was not ready, and the human factors and computer science communities were not prepared to participate effectively in its implementation, nor in the related policy debates. As a

consequence, many jurisdictions have since abandoned their computerized voting systems in favor of optical scan voting systems (Brace, 2008). Therefore, if the trend towards Internet (and by extension smartphone) voting continues there exists a relatively small window of opportunity to learn as much as we can about how newer remote voting technologies can and should support voters in their goal of easily, and securely, submitting a remote ballot.

INTERNET VOTING SECURITY

The security of any mobile voting system will also be paramount to election integrity and voter trust. Gibson (2001) divides mobile voting security concerns into three general areas: authentication, privacy, and integrity. Authentication refers to the ability to correctly determine that the ballot being received is from the same person who sent the votes. Without proper authentication it would possible for a single person to cast multiple votes. Traditionally this task is carried out at the polling place where poll workers verify the identity of the person standing before them against pre-generated voter registration lists. Internet voting has the potential to complicate this process by disassociating physical means of voter authentication (e.g., state issued ID cards) from the place where the votes are collected.

Gibson (2001) describes privacy as the notion that is it unknown to anyone but the voter what his or her votes were. Privacy is extremely important to election integrity for two reasons. First, it helps prevent the purchasing of votes. Currently, once a voter enters the voting booth, they are the only one able to identify exactly whom they actually voted for. Second, for the same reason, privacy helps prevent voter coercion. Internet voting has the potential to complicate this process by requiring identifying information to be

transmitted alongside the ballot. It could be argued that voting via the Internet has the potential to break down the protections already in place against vote buying and voter coercion. Currently, however, the only protections in place to dissuade this type of behavior exist solely within polling places where polices and procedures to ensure privacy are explicitly maintained. While it may be true that Internet voting would remove these protections the same can be said about current absentee ballot procedures. Typically an absentee ballot is mailed to the voter who in turn fills it out and mails it back. As a result, there are currently no protections in U.S. elections against vote buying or voter coercion when voting an absentee ballot. Given the number of absentee ballots submitted in the 2008 presidential election it is unclear how or even if Internet voting would alter this dynamic.

According to Gibson (2001), integrity is the notion that the voter's ballot has not been tampered with. This is likely the most salient component of election security. In order to ensure election integrity it is critical that voters' intentions are accurately reflected in the final tallies. Internet voting complicates the requirement of vote integrity by introducing new vectors in which the integrity of a vote can be compromised. For example, the hardware used to vote over the Internet is not necessarily under the control of the election administration. Voters themselves may be using outdated, broken, modified or otherwise unsuitable equipment to vote with.

Further, Internet voting presents the opportunity for malicious forces to compromise vote integrity on a large scale. While it may not be necessarily difficult given current voting equipment policies and procedures for an attacker to manipulate election outcomes, the results of such manipulations are generally limited to the precinct

or postal level; it would be extremely difficult to perpetrate large scale attacks across an entire state or even multiple precincts. The individualistic nature of today's polling places can be seen as an inherent protection against large-scale attacks. Though nothing in current vote-by-mail absentee voting processes necessarily protects against integrity compromises; they too enjoy a modicum of protection in that compromises are generally limited in scope. Internet voting, however, has the potential to make this issue widespread (Mohen & Glidden, 2001). In a centralized voting system such as that which would undoubtedly be necessary to enable Internet voting, an attacker needs only to compromise a single source (likely a computer) in order to manipulate ballots across any number of precincts or voters.

Thus, given the same the same security requirements as traditional voting methods while introducing a host of new security vulnerabilities, some researchers believe that voting via the Internet is an insurmountable challenge. In 2000 the U.S. Department of Defense's Secure Electronic Registration and Voting Experiment (SERVE) allowed "84 citizens located in 21 states and 11 countries" to cast ballots in four different state-level jurisdictions (DOD, 2003). After reviewing SERVE, Jefferson, Rubin, Simons, and Wagner (2004) concluded that this particular initiative, and by extension Internet voting in general, "cannot be made secure for use in real elections for the foreseeable future." While the authors describe many of the fundamental security vulnerabilities attributable to SERVE, and Internet voting, their primary concern was that the hardware used to cast those ballots was not in the control of election officials; thereby opening an array of potential security vulnerabilities.

Voter controlled hardware, however, is not the only concern. As demonstrated by their attack on Washington D.C.'s pilot Internet voting project, called Digital Vote-by-Mail (DVBM), even "small, seemingly minor engineering mistakes in practically any layer of the software stack can result in total system compromise" (Wolchok, Wustrow, Isabel, & Halderman, 2012). The DVBM system was designed to allow military and overseas voters to cast their ballots electronically and was slated to go live in the November 2010 election. Prior to its implementation, however, Washington D.C. initiated a public trial, using a mock election, of the DVBM that included a call for security experts to evaluate its defenses. Wolchok et al. (2012) were not only able to gain access to the system, changing votes and hiding their tracks along the way, but were also able to gain access to peripherally related systems connected to D.C.'s election administration systems (e.g., networked cameras that allowed the researcher to observe election administrators in real time). Like Jefferson et al. (2004), Wolchok et al. (2012) caution against Internet voting due to inherent security vulnerabilities.

Despite these security concerns, using the Internet as a voting platform is not a novel idea; it is already occurring. There is evidence that a trend toward Internet voting is already underway. Congress, through the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) of 1986 and the Military and Overseas Voter Empowerment (MOVE) Act of 2009, has directed the U.S. military to enable some form of electronic remote voting for soldiers and overseas citizens as postal ballots are both slow and unreliable. The Federal Voting Assistance Program interprets these acts as requiring immediate development of Internet voting standards and pilot projects.

Outside the U.S., in 2011, the Republic of Estonia became the first democracy to allow mobile phone voting in a national election (Alvarez, Hall & Trechsel, 2009). As a result, some form of Internet voting seems inevitable and it follows then that smartphones or other Internet-capable mobile technologies will likely play a role. Higher familiarity with mobile phones could also lead to increased voter satisfaction and opportunities to vote. Nevertheless, over the past 10 or so years, there has been a sizable amount of research on the challenges associated with designing for mobile phones. Much of this research has shown the difficulties involved with human-computer interfaces on previous-generation mobile phones. Specifically, these devices have noted usability problems with small-screen displays (e.g., Duchnicky & Kolers, 1983), data entry (Smordal & Gregory, 2005), slower network speeds (Kukulska-Hulme, 2007), and a lack of optimized mobile content. Other problems associated with the user experience include low battery life and wireless network reliability. What is lacking then, is research focused on the usability of voting systems designed for small-screen mobile devices.

MOBILE VOTING RESEARCH

Towards this end, in 2011 Campbell, Tossell, Byrne, and Kortum gathered baseline usability data on the efficacy of a voting system designed for a smartphone. Utilizing sequential navigation, touch-based interaction, and scrolling content models the mobile voting system (MVS) they designed was implemented as a Javascript Internet application with ballot content optimized for display on a small-screen smartphone. The authors evaluated their MVS and two legacy voting systems, a DRE and a paper ballot, against three usability metrics: efficiency, effectiveness, and user satisfaction. These usability metrics were adopted from the International Organization for Standardization's

(ISO) general usability standard (ISO 9241-11, 1998) and were first applied to the context of voting by Laskowski et al. (2008).

In Campbell et al. (2011), efficiency was operationalized as the time it takes a voter to complete their ballot. Effectiveness was defined as how many error per ballot the voting systems produced and subjective user satisfaction was expressed as how well-liked the voting systems were measured via a usability assessment questionnaire. Irrespective of voter age or education, the authors reported that their MVS was nearly as efficient as the two legacy voting systems. User satisfaction ratings were also on par with the legacy voting systems, all of which where relatively high. They noted that the effectiveness of the MVS, however, was highly dependent on the whether or not the subject currently owned a smartphone. Voters who owned smartphones yielded error rates that were lower on the MVS than when they were voting on one of the legacy voting systems. Primarily this was a reduction in the number of accidental mis-touches by voters; a leading cause of voter error (Campbell & Byrne, 2009).

The authors suggest that this result reinforces the notion that enabling Internet voting, and by extension smartphone voting, carries the potential to increase voting effectiveness by allowing voters to vote using technology they are already familiar with. It is true that many U.S. voters only vote only once every two to four years and thus never get the opportunity to become completely comfortable with the technology. Thus, the situation has been made worse in the last decade by the relatively recent nationwide transition to DREs and subsequent transition back to paper ballots (Brace, 2008). Nevertheless, the magnitude of this effect is difficult to determine, as it is unclear if the

increase in effectiveness would necessarily scale with more realistic smartphone ballot conditions.

While the work by Campbell et al. (2011) was an important first step towards establishing a baseline set of usability data, their experiment did not address a crucial aspect of the voting-on-a-smartphone experience. In the U.S., rules and regulations vary widely by state and jurisdiction, however, there is virtually no upper limit on the number of candidates that can be represented in a single race; it is not uncommon for a single race to contain upwards of 10 or more candidates. The PBC ordeal has shown how this can create usability problems on traditional voting equipment. These problems, however, become much more complicated when designing a ballot for a small screen, touch-based, handheld mobile phone.

To address these concerns, two experiments are reported below that will extend and replicate this prior work. In addition to verifying the baseline usability data gathered by Campbell et al. (2011), the first experiment examined the effects of long ballot content when viewed on a modified version of Campbell et al.'s (2011) MVS, a DRE, and a paper ballot. Additionally, described in greater detail below, the second experiment replicated the first as well as examined the effects of multi-page review screens and races in which more than one candidate can be selected.

CHAPTER 2: EXPERIMENT 1

METHOD

In the U.S., currently, there is not upper limit on the number of candidates that can run for any particular office provided they meet the minimum requirements of election authority whose ballot they are trying to enlist on. As such, the primary goal of experiment one was two-fold. The first objective was to identify how best to display long ballot content (i.e., content that is too long to display in its entirety) on a voting system optimized for a small-screen handheld mobile device. Further, a trend Internet voting, and by extension mobile voting, is already underway both in the U.S. and abroad. In an effort to stay ahead of the curve, the second objective of this research was to produce research that further extends the baseline usability analysis by Campbell et al. (2011) of mobile voting systems.

Subjects

One hundred fifty-two subjects (91 female) from the greater Houston area were recruited as subjects for this experiment. There were two overall requirements for participation: subjects were required to be 18 years of age or older (i.e., eligible to vote in the U.S.) and native English speakers. Recruitment of subjects took place via local online and print advertising and subjects were paid $25 for their time, regardless of voting performance.

In order to obtain a more representative sample of the general Houston area voting population, subjects were not recruited on the basis of smartphone ownership or level of education. Nevertheless, 81 subjects (53%) reported owning a smartphone at the time of the experiment. Shown in Table 1, smartphone ownership was approximately

evenly distributed while subjects' level of education was concentrated around a two- or four-year degree. There was, however, no evidence of a relationship between the two: $X^2(1, 152) = 5.99, p = .11$

Table 1. Distribution of subjects by level of education and smartphone ownership.

Smartphone Ownership	High School or Less	Associates Degree	Bachelor's Degree	Graduate Degree	Total
Non-Owners	11	28	16	16	71
Owners	12	39	23	7	81
Total	23	67	39	23	152

Subjects ranged in age from 18 to 73 years old with a mean age of 42.3 (*SD* = 14.6) and had a fairly diverse range of voting histories. Thirty-nine subjects had voted in 10 or more national elections and 42 had voted in 10 or more non-national (i.e., state and local) elections. The vast majority of subjects, however, had voted in fewer than 10 national (74%) and non-national (72%) elections.

Experimental Procedure

Upon arrival, subjects completed an informed consent form. Subjects were then given a set of experiment instructions explaining to them the procedure and what was expected of them. Experiment instructions were provided both via script, to minimize variations, and in writing. Following the experiment instructions, subjects were given a list of candidates to vote for. Once subjects had a chance to read, understand, and ask questions about all materials provided to that point, subjects were directed to a voting station. Subjects then voted on three voting technologies, being asked to vote exactly the same way and to the best of their ability on all three ballots. Directly following each individual voting system's use, subjects were given a SUS questionnaire (Brooke, 1996)

to complete about the voting system they had just used. After the voting sessions were complete, subjects were given an in-depth interview depending on the particular conditions to which they have been assigned. Subjects were then given a demographic and voting experience questionnaire (see Appendix A) to complete following which subjects were debriefed and paid for their time.

Experimental Design

The experimental design was mixed, including several between- and within-subjects variables. In addition to the independent and dependent variables described below, the demographic variables education, and smartphone ownership were included as independent variables in all analyses. Subjects' age was also included as a covariate in all analyses.

Independent Variables

Voting System (3 levels; within-subjects): Subjects voted on the same ballot across three voting technologies; once on the MVS (Figure 1), once on the Flash VoteBox DRE (Figure 2), and once on a paper ballot (Figure 3). Voting system order was counterbalanced and subjects were instructed to vote exactly the same way and to the best of their ability on all three voting technologies.

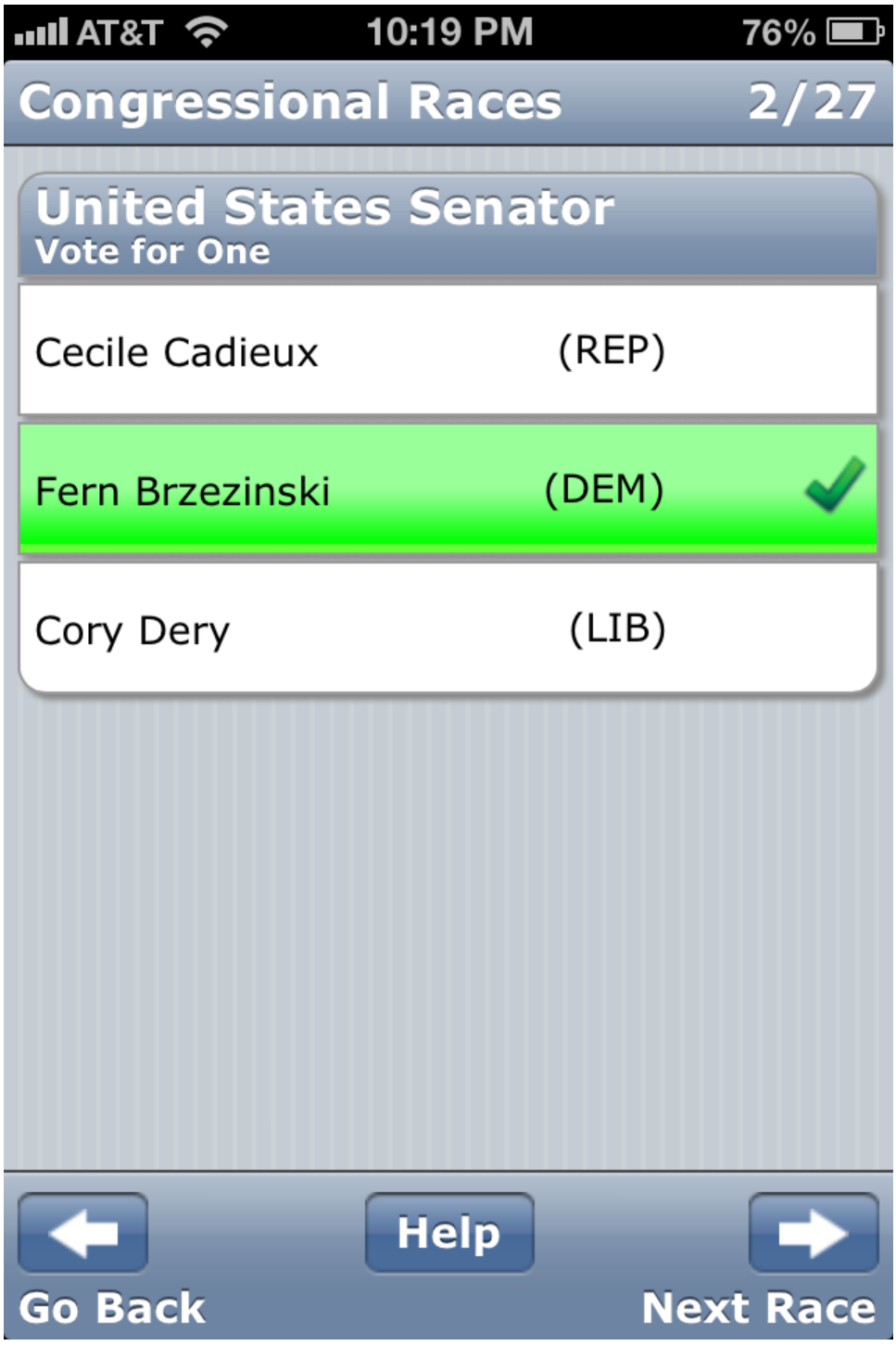


Figure 1. An example of the presidential race screen on the MVS.

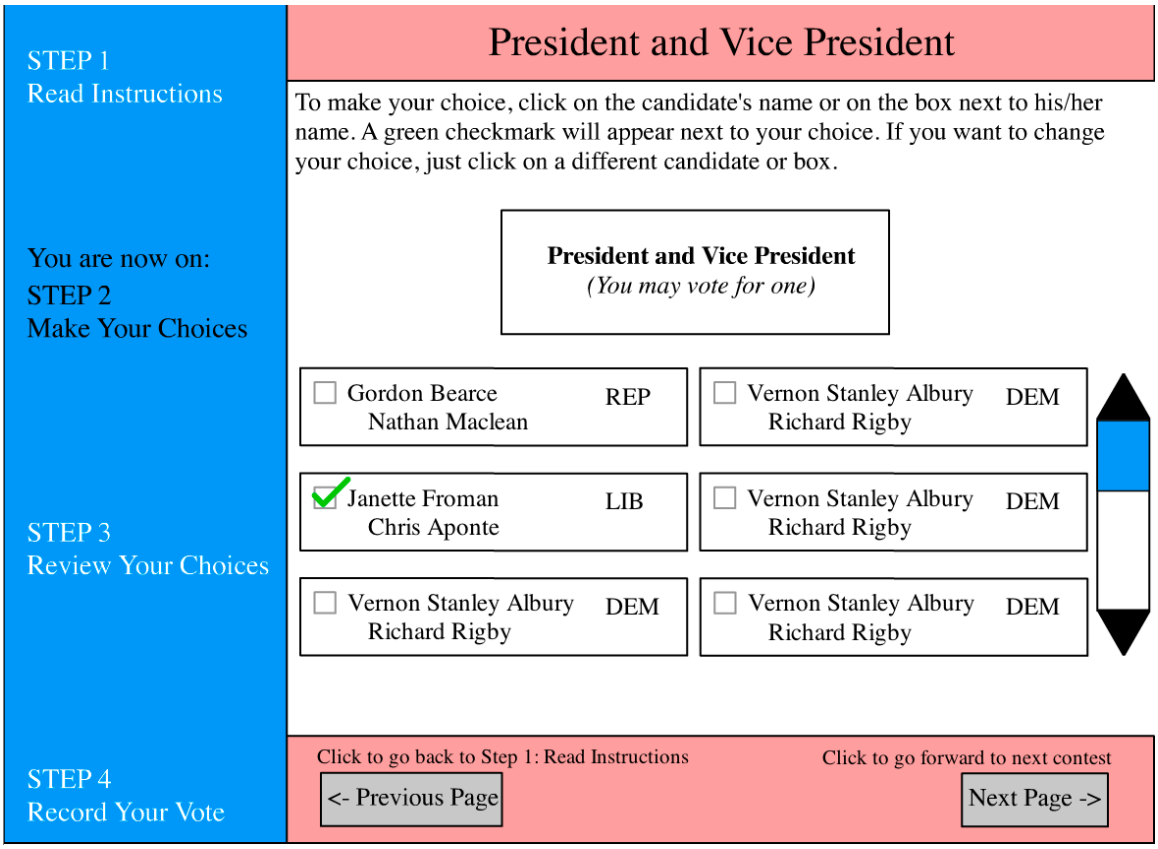
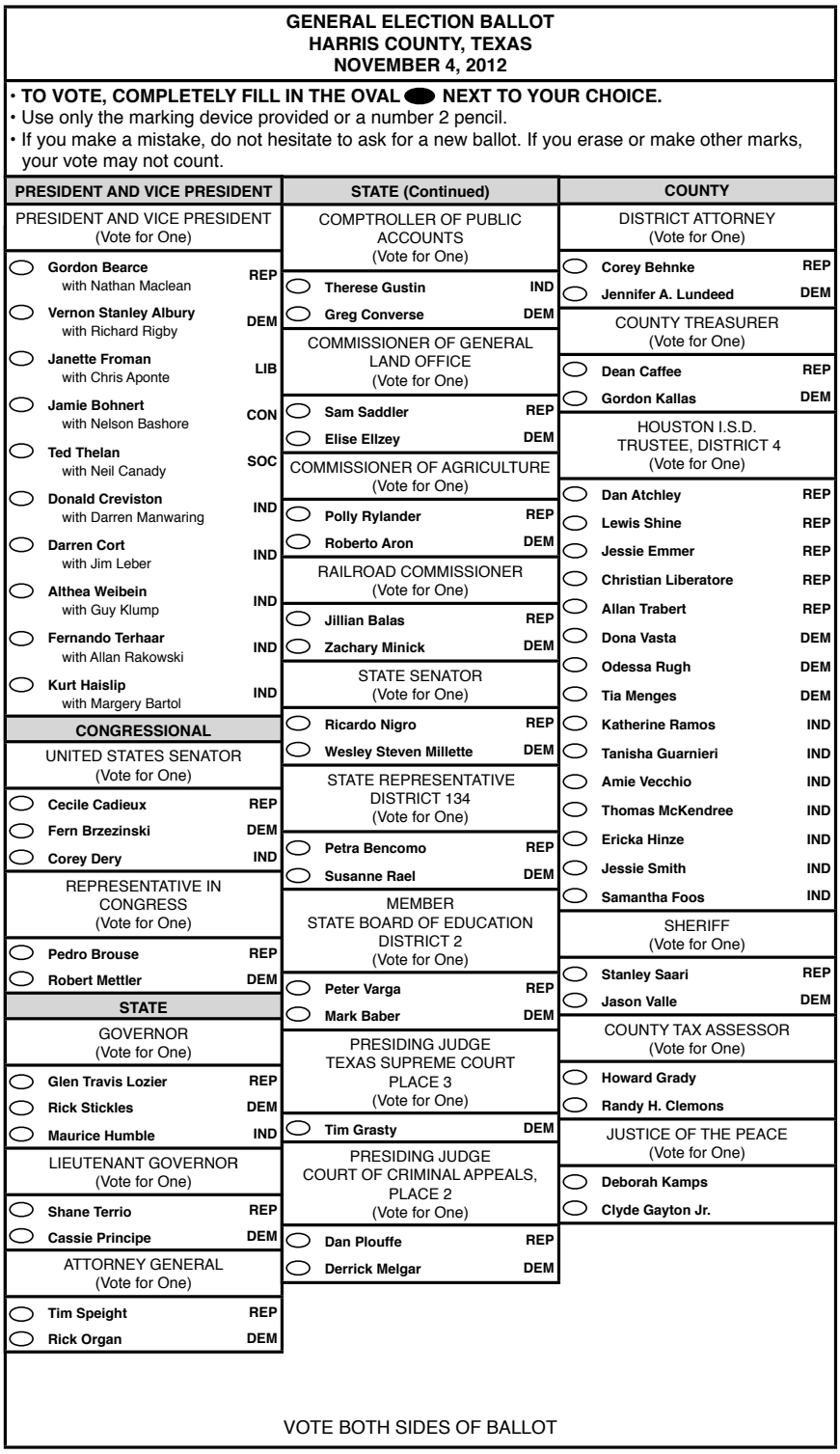


Figure 2. An example of the presidential race screen on the DRE.



GENERAL ELECTION BALLOT
HARRIS COUNTY, TEXAS
NOVEMBER 4, 2012

- **TO VOTE, COMPLETELY FILL IN THE OVAL ⬬ NEXT TO YOUR CHOICE.**
- Use only the marking device provided or a number 2 pencil.
- If you make a mistake, do not hesitate to ask for a new ballot. If you erase or make other marks, your vote may not count.

PRESIDENT AND VICE PRESIDENT

PRESIDENT AND VICE PRESIDENT (Vote for One)

- ◯ **Gordon Bearce** with Nathan Maclean — REP
- ◯ **Vernon Stanley Albury** with Richard Rigby — DEM
- ◯ **Janette Froman** with Chris Aponte — LIB
- ◯ **Jamie Bohnert** with Nelson Bashore — CON
- ◯ **Ted Thelan** with Neil Canady — SOC
- ◯ **Donald Creviston** with Darren Manwaring — IND
- ◯ **Darren Cort** with Jim Leber — IND
- ◯ **Althea Weibein** with Guy Klump — IND
- ◯ **Fernando Terhaar** with Allan Rakowski — IND
- ◯ **Kurt Haislip** with Margery Bartol — IND

CONGRESSIONAL

UNITED STATES SENATOR (Vote for One)

- ◯ **Cecile Cadieux** — REP
- ◯ **Fern Brzezinski** — DEM
- ◯ **Corey Dery** — IND

REPRESENTATIVE IN CONGRESS (Vote for One)

- ◯ **Pedro Brouse** — REP
- ◯ **Robert Mettler** — DEM

STATE

GOVERNOR (Vote for One)

- ◯ **Glen Travis Lozier** — REP
- ◯ **Rick Stickles** — DEM
- ◯ **Maurice Humble** — IND

LIEUTENANT GOVERNOR (Vote for One)

- ◯ **Shane Terrio** — REP
- ◯ **Cassie Principe** — DEM

ATTORNEY GENERAL (Vote for One)

- ◯ **Tim Speight** — REP
- ◯ **Rick Organ** — DEM

STATE (Continued)

COMPTROLLER OF PUBLIC ACCOUNTS (Vote for One)

- ◯ **Therese Gustin** — IND
- ◯ **Greg Converse** — DEM

COMMISSIONER OF GENERAL LAND OFFICE (Vote for One)

- ◯ **Sam Saddler** — REP
- ◯ **Elise Ellzey** — DEM

COMMISSIONER OF AGRICULTURE (Vote for One)

- ◯ **Polly Rylander** — REP
- ◯ **Roberto Aron** — DEM

RAILROAD COMMISSIONER (Vote for One)

- ◯ **Jillian Balas** — REP
- ◯ **Zachary Minick** — DEM

STATE SENATOR (Vote for One)

- ◯ **Ricardo Nigro** — REP
- ◯ **Wesley Steven Millette** — DEM

STATE REPRESENTATIVE DISTRICT 134 (Vote for One)

- ◯ **Petra Bencomo** — REP
- ◯ **Susanne Rael** — DEM

MEMBER STATE BOARD OF EDUCATION DISTRICT 2 (Vote for One)

- ◯ **Peter Varga** — REP
- ◯ **Mark Baber** — DEM

PRESIDING JUDGE TEXAS SUPREME COURT PLACE 3 (Vote for One)

- ◯ **Tim Grasty** — DEM

PRESIDING JUDGE COURT OF CRIMINAL APPEALS, PLACE 2 (Vote for One)

- ◯ **Dan Plouffe** — REP
- ◯ **Derrick Melgar** — DEM

COUNTY

DISTRICT ATTORNEY (Vote for One)

- ◯ **Corey Behnke** — REP
- ◯ **Jennifer A. Lundeed** — DEM

COUNTY TREASURER (Vote for One)

- ◯ **Dean Caffee** — REP
- ◯ **Gordon Kallas** — DEM

HOUSTON I.S.D. TRUSTEE, DISTRICT 4 (Vote for One)

- ◯ **Dan Atchley** — REP
- ◯ **Lewis Shine** — REP
- ◯ **Jessie Emmer** — REP
- ◯ **Christian Liberatore** — REP
- ◯ **Allan Trabert** — REP
- ◯ **Dona Vasta** — DEM
- ◯ **Odessa Rugh** — DEM
- ◯ **Tia Menges** — DEM
- ◯ **Katherine Ramos** — IND
- ◯ **Tanisha Guarnieri** — IND
- ◯ **Amie Vecchio** — IND
- ◯ **Thomas McKendree** — IND
- ◯ **Ericka Hinze** — IND
- ◯ **Jessie Smith** — IND
- ◯ **Samantha Foos** — IND

SHERIFF (Vote for One)

- ◯ **Stanley Saari** — REP
- ◯ **Jason Valle** — DEM

COUNTY TAX ASSESSOR (Vote for One)

- ◯ **Howard Grady**
- ◯ **Randy H. Clemons**

JUSTICE OF THE PEACE (Vote for One)

- ◯ **Deborah Kamps**
- ◯ **Clyde Gayton Jr.**

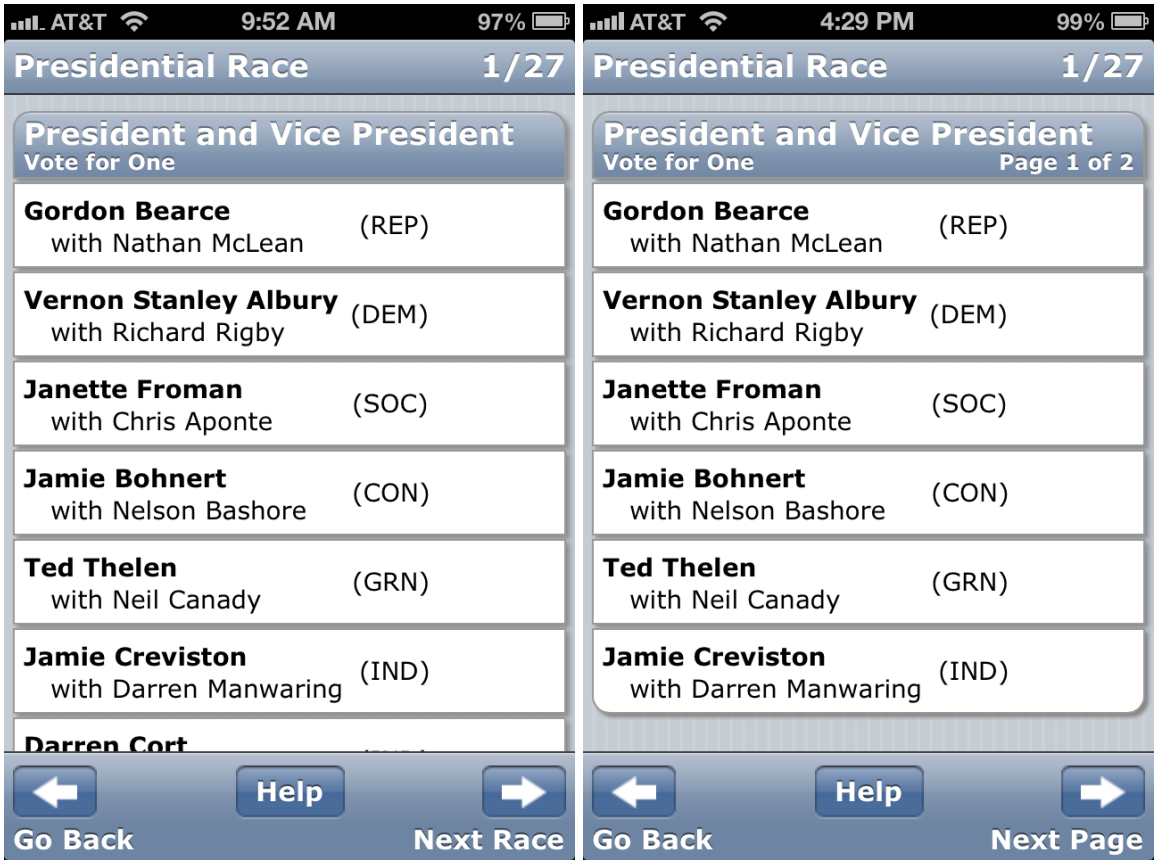
VOTE BOTH SIDES OF BALLOT

Figure 3. An example of the paper ballot.

Race Type (4 levels; within-subjects): There were two long-content races, 17 two- or three-candidate races, two non-partisan races, and six ballot referenda on each ballot. On each ballot, the first long-content race was the very first race, the presidential race, and contained seven candidates with the following political affiliations (listed in the order they appeared): Republican, Democratic, Socialist, Constitutionalist, Independent, Libertarian, Green Party. The second long-content race was the 18th race, for Houston I.S.D. Trustee, and contained ten candidates with the following political affiliations (listed in the order they appeared): 4 x Republican, 2 x Democratic, 4 x Independent. The first three of these race types can be seen in the paper ballot shown in Figure 3.

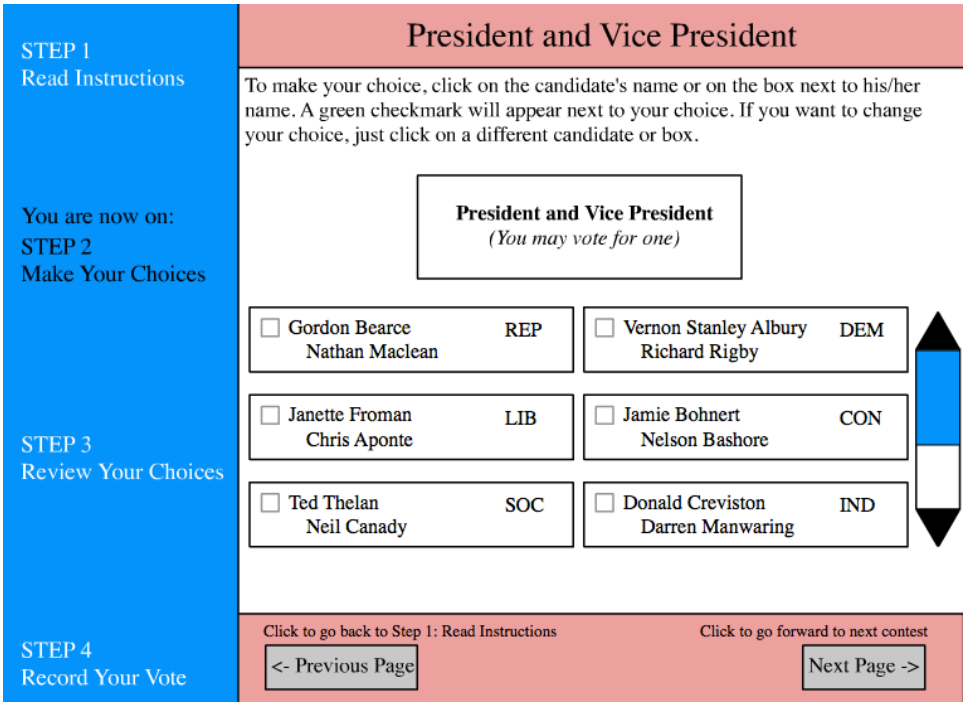
Error Type (4 levels; within-subjects): Subjects had the potential to make one of four mutually exclusive errors per race. The first error type, wrong choice errors, was defined as making a selection other than the one intended (e.g., voting for Bob instead of Jill). The second error type, overvote errors, was defined as making more then the allowed number of selections within a single race (e.g., voting for Bob and Jill when only one vote is allowed). It is important to note, however, that both the MVS and Flash VoteBox voting system, like most commercially available DREs today, did not allow this type of error. It was, however, possible to make this type of error on the paper ballot. The third error type, omission errors, was defined as not voting in a contest when the intent was to do so (e.g., forgetting to vote in the race for "County Dog Catcher"). Finally, the fourth error type, extra vote errors, was defined as the opposite of omission errors. When a vote was cast in a contest in which the intent was an omission, that vote was considered an error.

Display Method (2 levels; between-subjects): Two methods of displaying the long ballot content were used on each electronic voting system. The first method, scrolling, required subjects to scroll the current page up or down to view content that is displayed below the fold. The second method, pagination, required subjects to navigate to a new screen to view content that was too long for one screen. Both display methods were as similar as possible across both electronic voting systems (see Figure 4 and Figure 5) and subjects were randomly assigned to a display method.

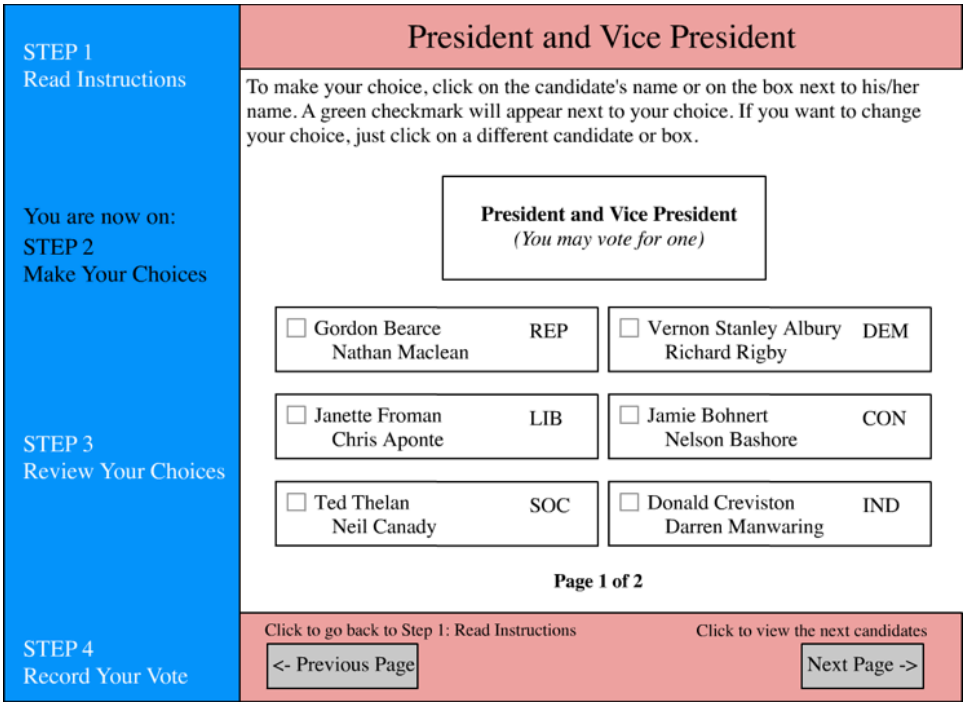


(A) Scrolling (B) Paginated

Figure 4. The (a) scrolling display method (shown is the top 2/3 of the presidential race) and (b) paginated display method as seen on the MVS



(A)



(B)

Figure 5. The (a) scrolling display method (shown is the top 2/3 of the presidential race) and (b) paginated display method as seen on the DRE voting system.

Slate Affiliation (2 levels; between-subjects): All subjects in experiment one received one of two lists of candidates to vote for; also known as a slate (for example slates used in this experiment, see Appendix B). The first list directed votes primarily for Democratic candidates (85% of the time) while the second list directed votes primarily for Republican candidates (85% of the time). Subjects were randomly assigned to a slate affiliation.

Slate Candidate Position (2 levels; between-subjects): All subjects were directed to vote for a candidate, in both of the long-content races that were either above or below the fold meaning they were either immediately visible on the screen to the subject (above the fold) or were not immediately visible on the screen to the subject (below the fold). Subjects were randomly assigned to a slate candidate position. Sample slates can be found in

Dependent Variables

Effectiveness: The measurement of voting system effectiveness was accomplished through the examination of ballot errors tabulated by contest, by ballot, and by error type. All errors were defined as deviations from the slate provided to the subjects.

Efficiency: The measurement of voting system efficiency was accomplished through the recording of ballot completion times. Ballot completion times, for all three voting technologies, were measured using a stopwatch beginning when subjects entered the voting booth and ending when subjects exited the voting booth.

Satisfaction: Satisfaction was measured through the administration of the System Usability Scale (SUS; Brooke, 1996). The SUS is a 10-question usability assessment

using Likert scales. The SUS was administered directly following the use of each voting system in order to capture subjects' immediate impressions.

Materials

Two electronic voting technologies were used in this experiment. The first electronic voting technology, the MVS, was a custom-built mobile Internet application developed entirely in JavaScript. The user interface (UI) was designed to provide voters the capability to vote in a mock election with an experience similar to that of commercially available DREs (see Figure 6 & Figure 7). The MVS required voters to view every race sequentially as direct navigation models have been shown to substantially increase voting omission (Greene, 2008). Subjects navigated the ballot page by touching arrows at the bottom of the screen corresponding to the direction they wish to move. In addition, subjects were able to navigate backwards, view additional on-screen instructions, and change votes as needed using the touchscreen interface. While navigating the MVS's ballot, subjects were able to make voting selections by touching anywhere within the white box that contains the candidate's name. After participants had seen every race, a review screen was presented with their choices made in each race as well as orange highlighting of any race in which there was an omission. The review screen allowed participants to go directly to skipped races (or races they made a mistake in) by touching anywhere in the orange section. On the review screen, subjects had to scroll down to the bottom of the screen, past all their selections, to finally submit their votes.

Figure 6. Series of screen shots of the MVS. Panel (A) is the initial instruction screen, panel (B) is the first candidate race, panel (C) is the fifth candidate race, panel (D) is the sixth candidate race, panel (E) is the 20th candidate race with a selection made, and panel (F) is the top of the first ballot proposition (22nd race).

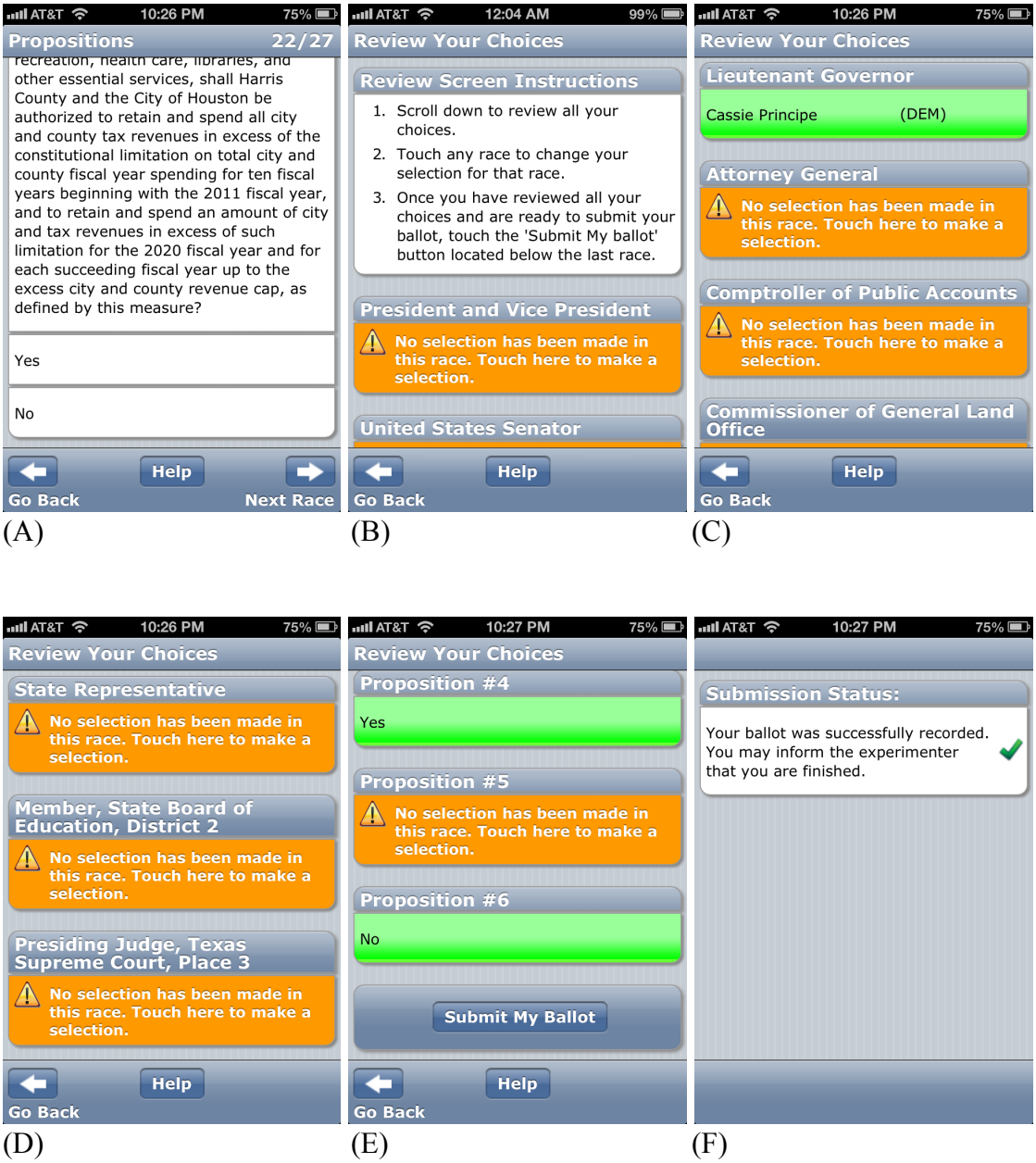


Figure 7. Series of screen shots of the MVS. Panel (A) is the bottom of the first ballot proposition (22nd race), panel (B) is the top of the review screen (28th screen), panel (C) is the middle of the review screen showing a previously made selection, panel (D) is the middle of the review screen, panel (E) is the submission button and panel (F) is the submission confirmation screen (30th screen).

Ballots

The ballots used in this experiment resembled the ballots used in previous research (Campbell & Byrne, 2009; Everett et al., 2008), featuring 21 single-selection

candidate races and six yes-no propositions. There were two fundamental changes, however, made to the ballots used in this research. The 21 partisan single-selection candidate races used previously were divided into 19 partisan single-selection candidate races, seen first, and two nonpartisan single-selection candidate races, seen last. Additionally, the ballots used in this experiment included two long-content races. The first long-content race was the very first race; the race for United States president. The second long-content race was the 18th race; the race for Houston I.S.D. trustee.

Candidate names on the ballot used in this experiment were fictional, as this has been shown not to affect voting performance whilst at the same time preventing recognition effects (Greene et al., 2006). Additionally, this ballot also featured real party names (e.g., Democrat, Republican, and Independent) to preserve a degree of realism in the face of conducting a mock election in a laboratory setting. Lastly, there was no straight-party voting ballot option and the propositions were fictional yet representative of those seen recently in Houston area elections. The full ballot, in paper form, can be found in Appendix C.

RESULTS

Outliers

In the analysis of error rates below 14 subjects who produced more than four errors on all three voting systems were considered outliers and removed from this analysis. Anecdotal evidence from subjects' verbal comments suggests that some of these subjects refused to vote according to the slate provided to them and instead voted along their political ideologies. One additional subject was excluded from the analysis of error due to a technical error that prevented the recording of data from the mobile voting system.

Similarly, in the analysis of ballot completion times, three different subjects were removed from the analysis of ballot completion times for having at least one ballot completion time that exceeded three inter-quartile ranges from either above the upper hinge or below the lower hinge relative to their own mean ballot completion time across all three ballots.

Effectiveness

Two ANCOVAs were used to analyze voting system error rates. The first ANCOVA was a 3 (voting system) X 4 (error type) X 3 (race type) X 4 (education) X 2 (slate candidate position) mixed-design ANCOVA, with age as a covariate, used with only those factors which applied to all three voting systems (i.e., voting system, slate candidate position, and education). The covariate, subjects' age, was not a statistically reliable predictor of ballot errors and thus will not be discussed further.

Nevertheless, as shown in Table 2, the vast majority of voting errors occurred when subjects were voting on one the electronic voting systems. Subjects committed half

as many voting errors voting on the paper ballot than when voting on the DRE voting system and nearly a third as many voting errors than when voting on the MVS.

Table 2. Distribution of errors per voting system.

Voting System	Ballots Cast	Total Errors	Ballots w/ at least 1 error	Mean # Errors	Std. Dev.
Mobile	138	121	19	.88	3.54
DRE	138	110	23	.80	3.04
Paper	138	43	12	.31	1.34
Total	414	274	54		

Although comparable to each other, shown in Figure 8, across all other factors, there was a main effect of voting system such that the electronic voting systems elicited the highest error rates from subjects, $F(2, 256) = 3.74$, $p = .032$, $MSE = .01$, $\eta^2_p = .03$. Subjects' levels of education moderated this relationship between voting system and error rate such that subjects who reported the lowest level of education committed the largest majority of the errors (see Figure 9), $F(6, 256) = 2.16$, $p = .048$, $MSE = .01$, $\eta^2_p = .05$. Across levels of education and voting systems, there was also a main effect of race type indicating that the long-content races were a sizable source of voting errors (see Figure 10), $F(2, 256) = 5.08$, $p = .007$, $MSE = .01$, $\eta^2_p = .04$.

Similar to the interaction with voting system, subjects' levels of education moderated error rates per race type. Shown in Figure 11, subjects who reported the lowest level of education produced error rates in the long-content races that were twice as large as any other race type and education combination, $F(6, 256) = 3.36$, $p = .003$, $MSE = .01$, $\eta^2_p = .07$. The three-way interaction between voting system, race type, and subjects' levels of education was also statistically reliable confirming that when the lower educated subjects voted on the electronic voting systems they incurred especially high error rates

in the long-content races (see Figure 12), $F(12, 512) = 2.16$, $p = .012$, $MSE = .003$, $\eta^2_p = .05$.

Subjects' level of education also had and effect on the type of error that they made. Shown in Figure 13, subjects with the lowest level of education made substantially more wrong choice voting errors when using either of the electronic voting systems then they did when using the paper voting system, $F(18, 768) = 3.00$, $p < .001$, $MSE = .01$, $\eta^2_p = .07$. Finally, shown in Figure 14, subjects who reported the lowest level of education made substantially more wrong choice voting errors in the long-content races compared to the propositions or standard races, $F(18, 768) = 3.99$, $p < .001$, $MSE = .01$, $\eta^2_p = .09$.

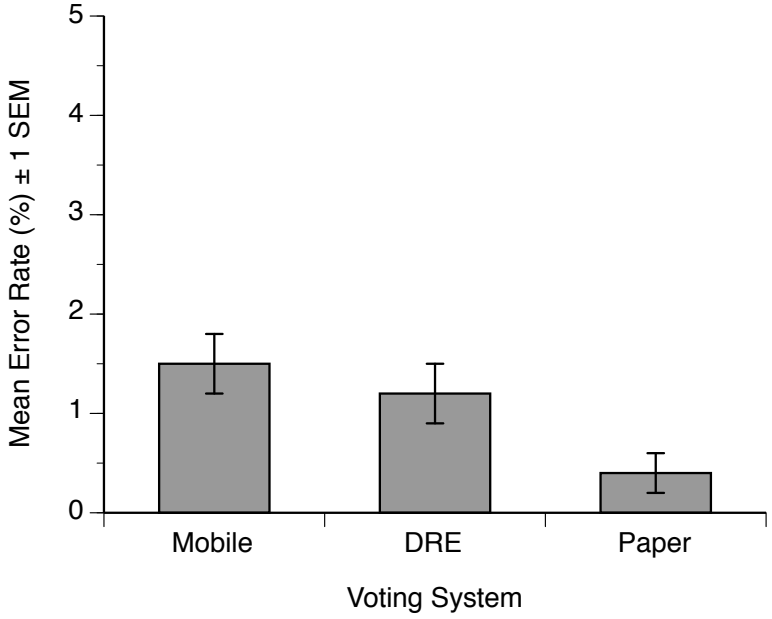


Figure 8. Mean error rate (%) as a function of voting system.

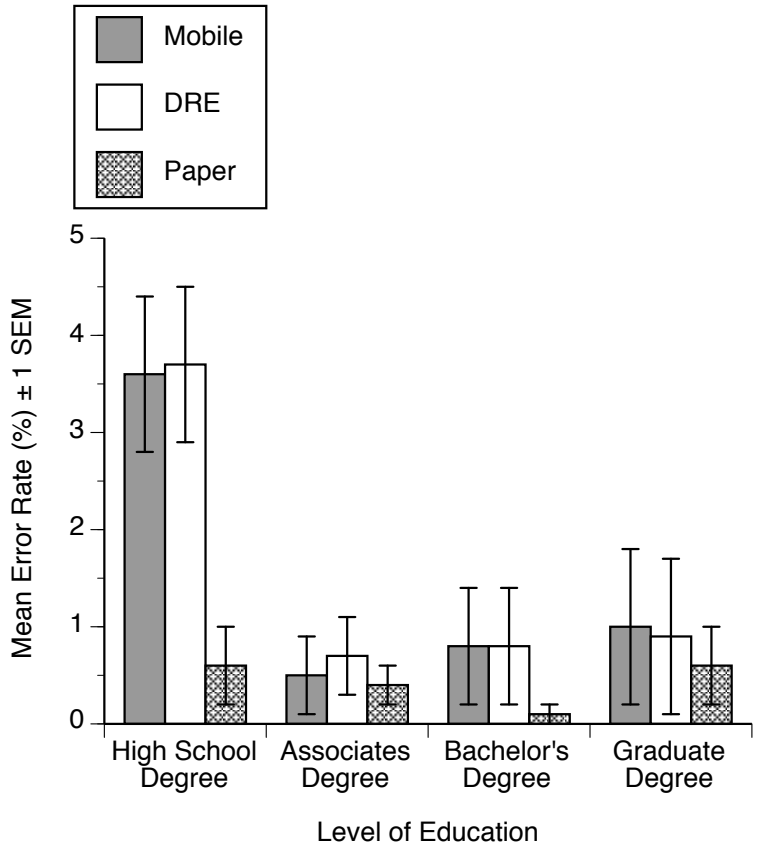


Figure 9. Mean error rate (%) as a function of subjects' self-reported level of education and voting system.

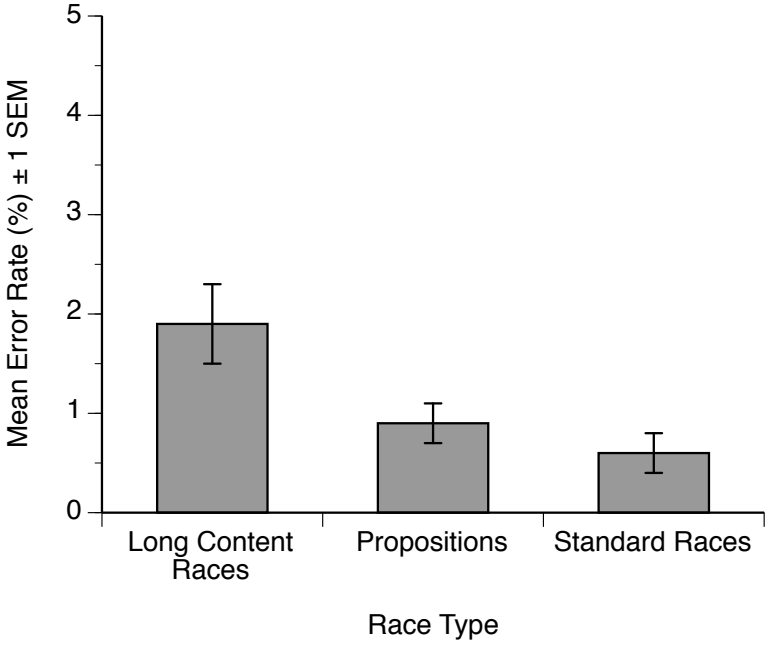


Figure 10. Mean error rate (%) as a function of race type.

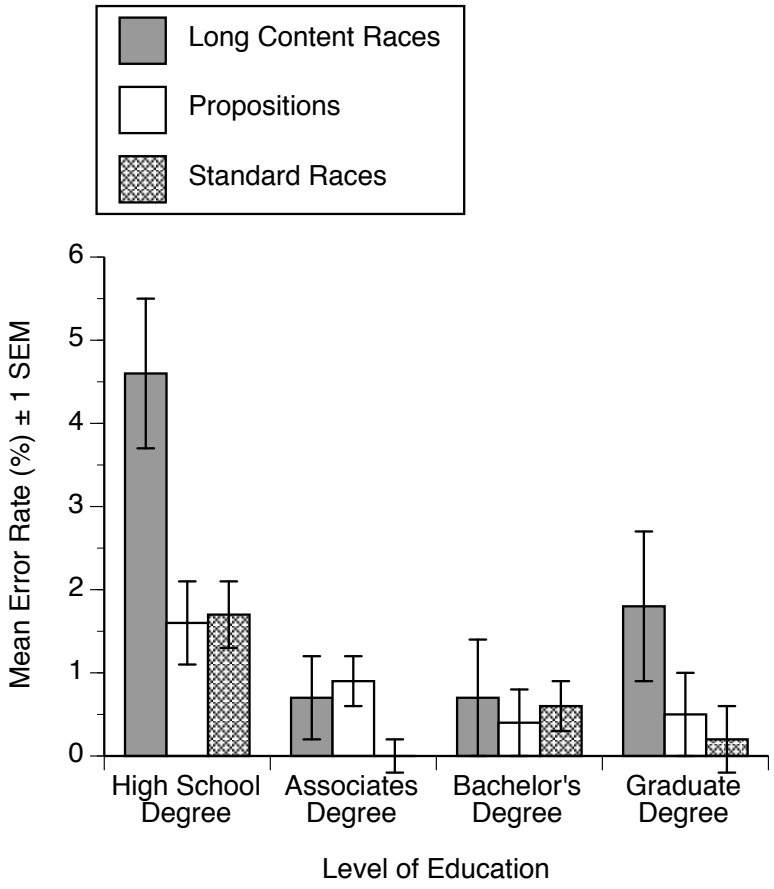
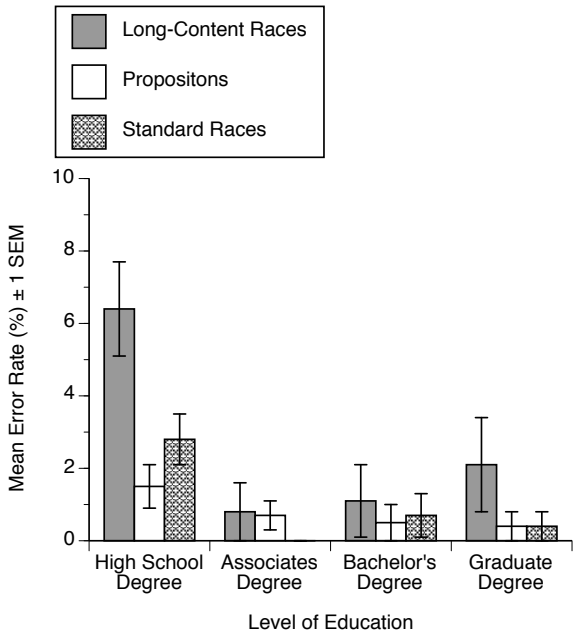
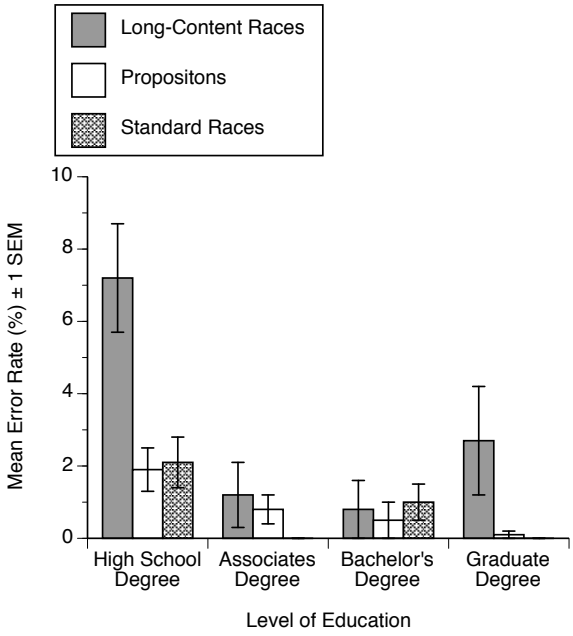


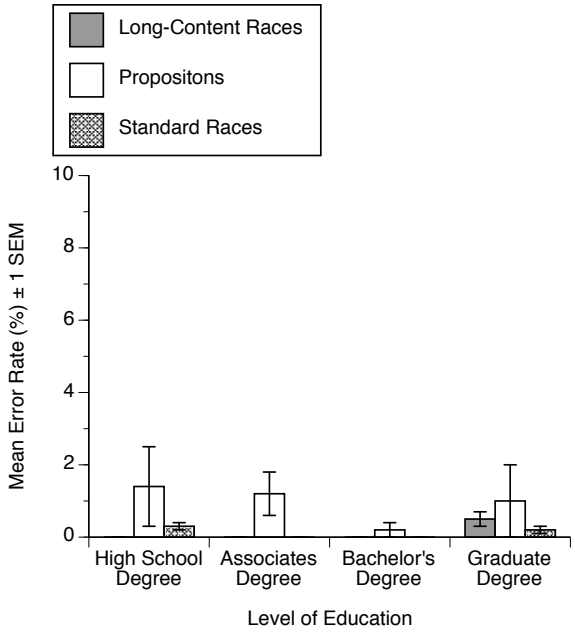
Figure 11. Mean error rate (%) as a function of subjects' self-reported level of education and race type.



(A) MVS

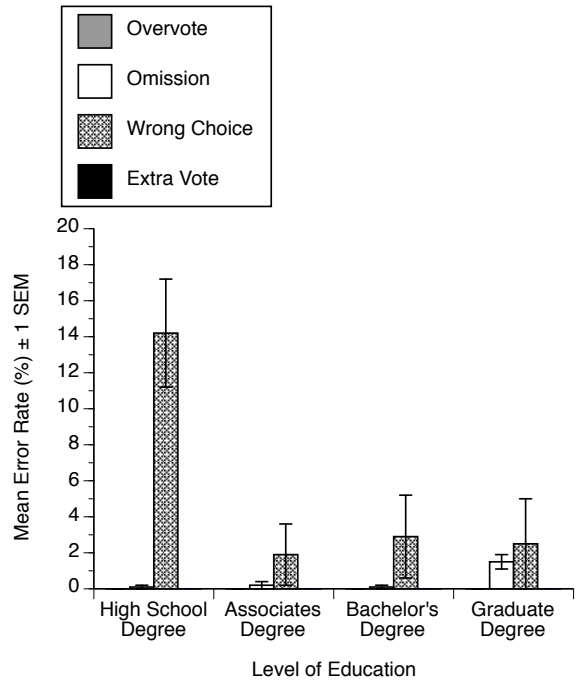


(B) DRE

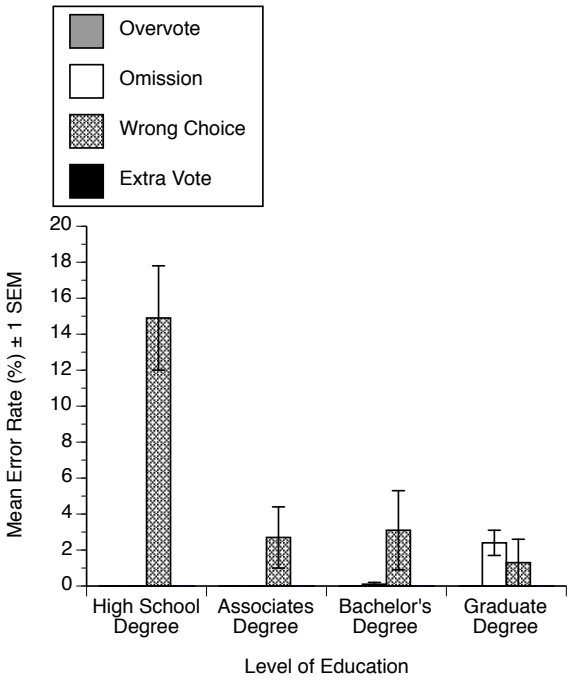


(C) Paper

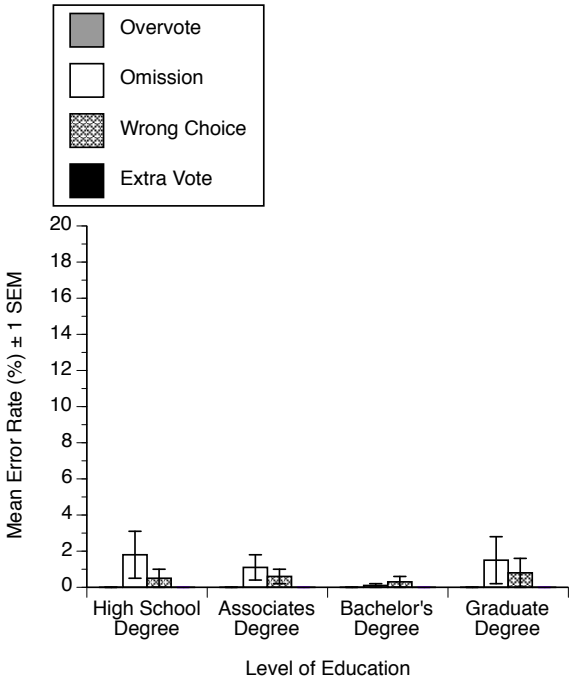
Figure 12. Mean error rate (%) as a function of subjects' level of education and race type for (a) the MVS, (b) the DRE voting system and, (c) the paper voting system.



(A) MVS

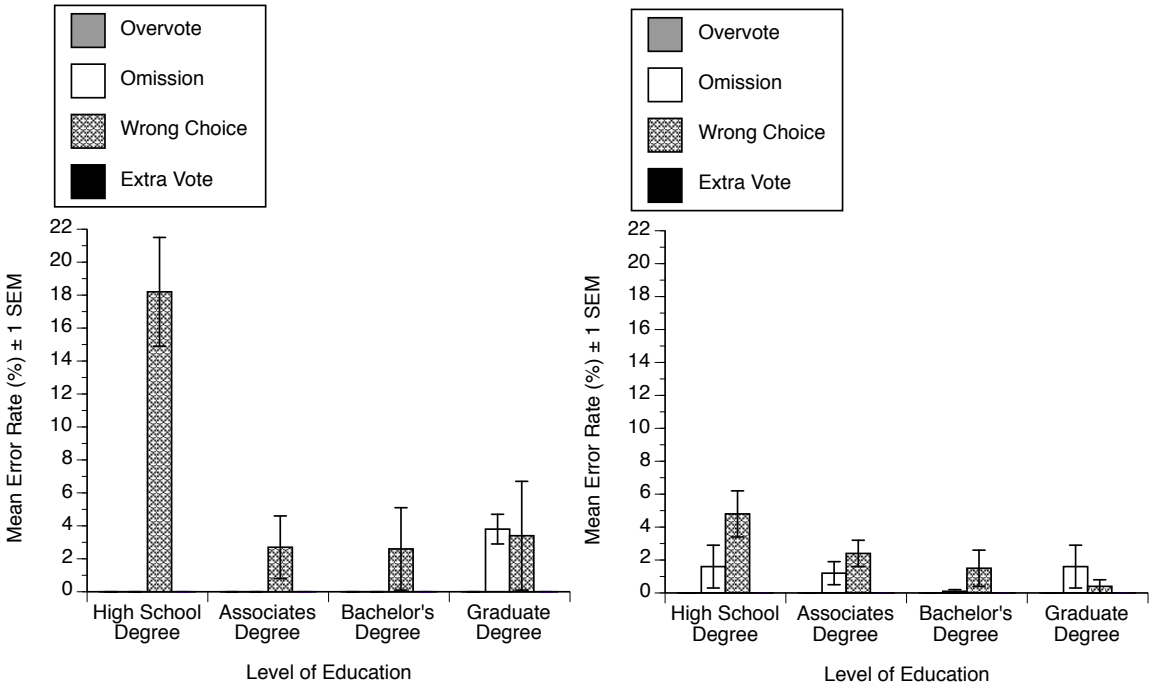


(B) DRE

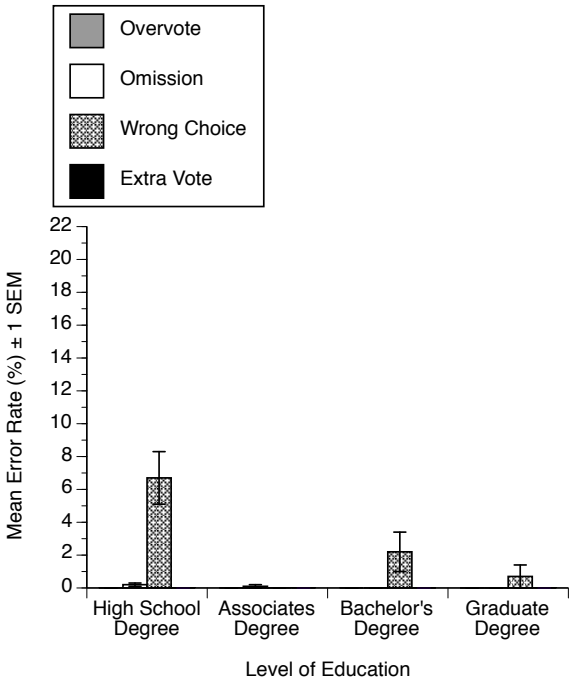


(C) Paper

Figure 13. Mean error rate (%) as a function of subjects' level of education and error type for (a) the MVS, (b) the DRE voting system and, (c) the paper voting system.



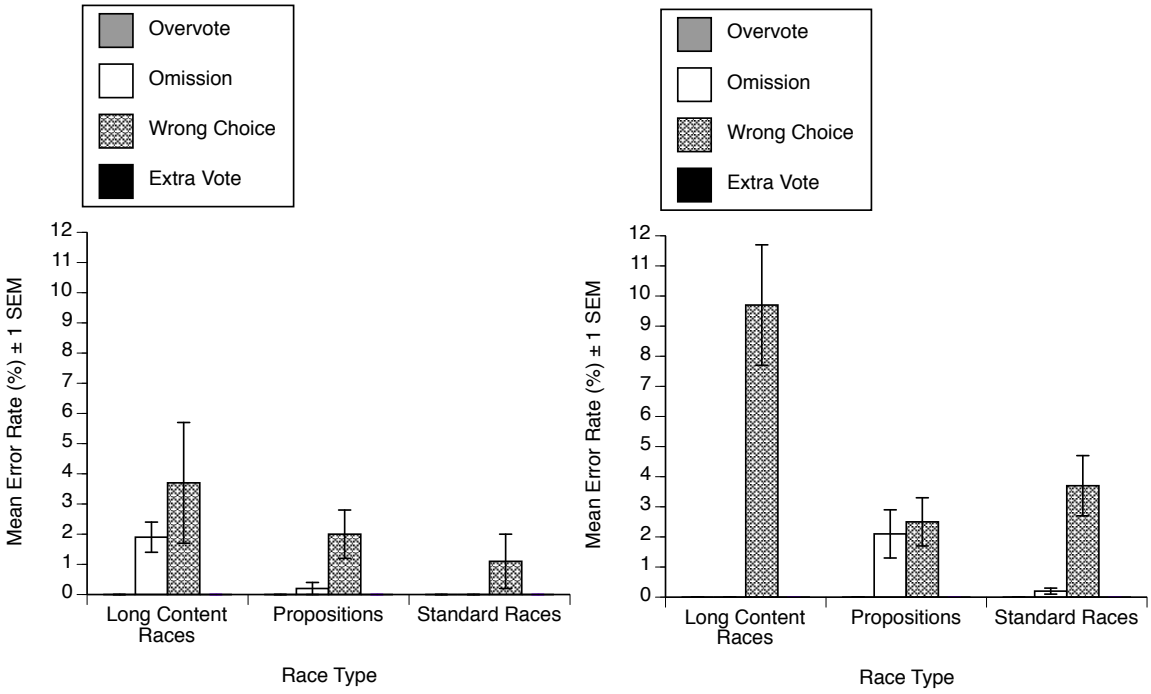
(A) Long-content races (B) Propositions



(C) Standard races

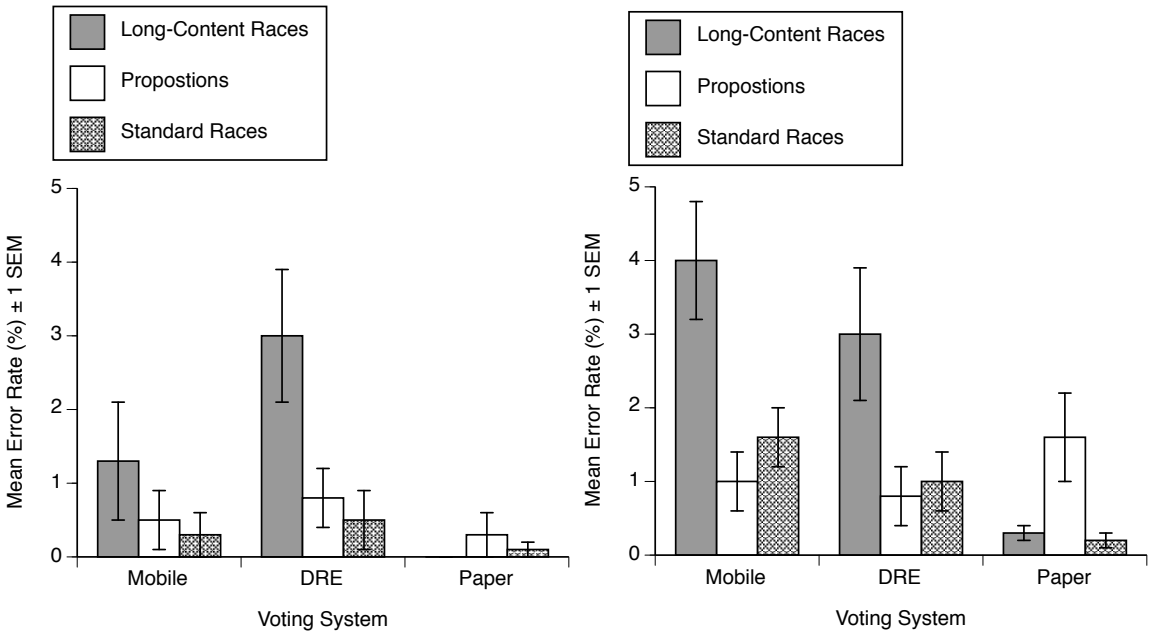
Figure 14. Mean error rate (%) as a function of subjects' level of education and error type for (a) the long-content races, (b) the propositions and, (c) the standard races.

Across levels of education and voting systems, the long-content races generated substantially higher error wrong choice voting error rates when the to-be-voted-for candidate (TBVC) was positioned at the bottom of the races as compared to when it was positioned at the top of the races, (see Figure 15), $F(18, 768) = 3.99$, $p < .001$, $MSE = .01$, $\eta^2_p = .09$. Across all error types and levels of education, the MVS generated more voting errors when subjects encountered the long-content races and the TBVC was positioned at the bottom of the races than either the DRE or paper voting systems did though, when the TBVC was positioned at the top of the long-content races the MVS outperformed either of the other voting systems (see Figure 16), $F(4, 512) = 3.03$, $p = .024$, $MSE = .003$, $\eta^2_p = .02$. Similarly, across race types, though likely driven by the presence of the long-content races, wrong choice errors were substantially more prevalent for both the MVS and the DRE voting system when the TBVC was positioned at the bottom of the long-content races than when it was positioned at the top of the long-content races (see Figure 17), $F(6, 768) = 2.44 = .021$, $MSE = .008$, $\eta^2_p = .02$.



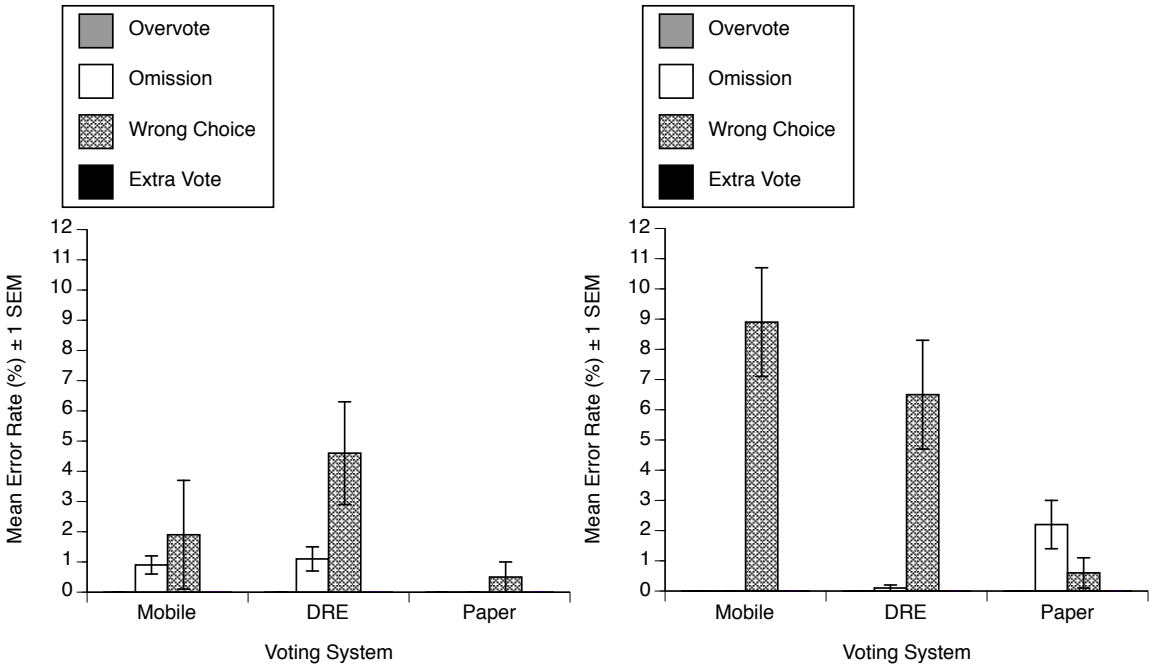
(A) Top (B) Bottom

Figure 15. Mean error rate (%) as a function of race type and error type when the TBVC was (a) at the top of the race and (b) at the bottom of the race. Note: the notion of a TBVC does not apply to the standard races or propositions, as in those races all candidates were visible immediately.



(A) Top (B) Bottom

Figure 16. Mean error rate (%) as a function of voting system and race type when the TBVC was (a) at the top of the race and (b) at the bottom of the race. Note: the notion of a TBVC does not apply to the standard races or propositions, as in those races all candidates were visible immediately.



(A) Top (B) Bottom

Figure 17. Mean error rate (%) as a function of voting system and error type when the TBVC was (a) at the top of the race and (b) at the bottom of the race.

The second ANCOVA was a 3 (voting system) X 4 (error type) X 3 (race type) X 4 (education) X 2 (slate candidate position) mixed-design ANCOVA, with age as a covariate, incorporating those factors that applied only to the electronic voting systems (i.e., voting system, display method, and smartphone ownership). Across all other factors, both the MVS and the DRE voting system were highly susceptible to wrong choice errors (see Figure 18), $F(3, 396) = 4.93$, $p = .002$, $MSE = .02$, $\eta^2_p = .04$, and, shown in Figure 19, the long-content races were particularly problematic for both electronic voting systems, $F(2, 264) = 3.69$, $p = .031$, $MSE = .01$, $\eta^2_p = .03$, incurring error rates that were twice as high, on average, than those for either the proposition or standard races. This relationship was also moderated by the way in which the long-content races were displayed and whether no not the subjects owned a smartphone at the time of the experiment. Shown in Figure 20a, subjects who did not own a smartphone at the time of the experiment and were shown the long-content races as single scrollable pages committed many more voting errors than other subjects, $F(2, 264) = 9.13$, $p < .001$, $MSE = .01$, $\eta^2_p = .06$.

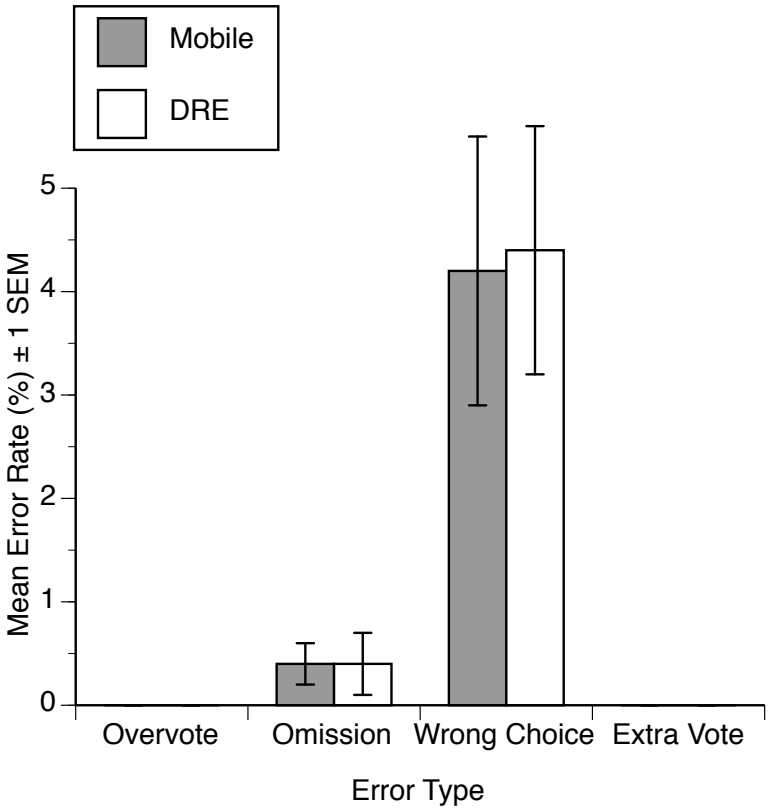


Figure 18. Mean error rate (%) as a function of error type and electronic voting system.

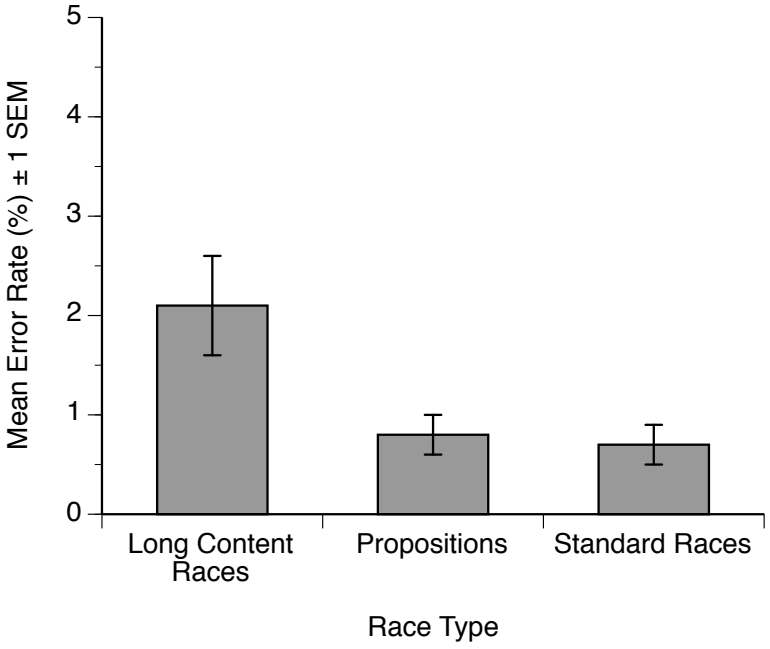
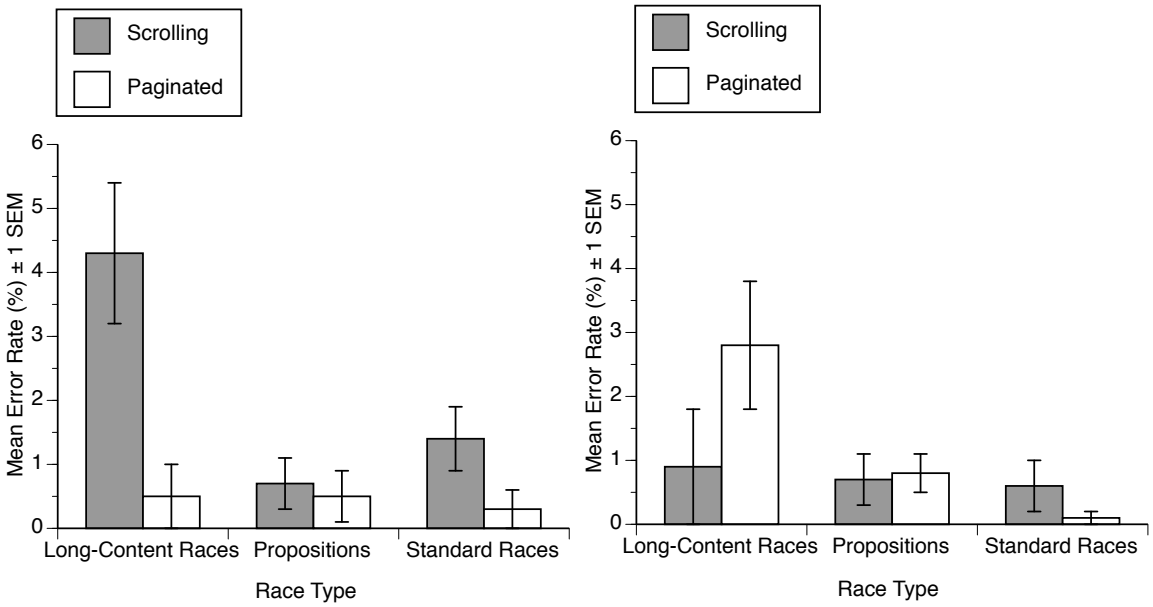


Figure 19. Mean error rate (%) across electronic voting systems as a function of race type.



(A) Smartphone non-owners. (B) Smartphone owners.

Figure 20. Mean error rate (%) across electronic voting systems as a function of race type and long-content display method for (a) smartphone owners and (b) smartphone non-owners. Note: the notions of a scrolling and pagination do not apply to the standard races or propositions, as in those races all candidates were visible immediately.

Efficiency

Two ANCOVAs were used to analyze voting system error rates. The first ANCOVA was a 3 (voting system) X 2 (slate candidate position) X 2 (education) mixed-design ANCOVA[1], with subjects' age as a covariate, incorporating those factors that applied to all three voting systems (i.e., voting system, slate candidate position, and education). As shown in Figure 21, the distributions of ballot completion times were slightly positively skewed for all three voting systems, however, slightly more so for the MVS.

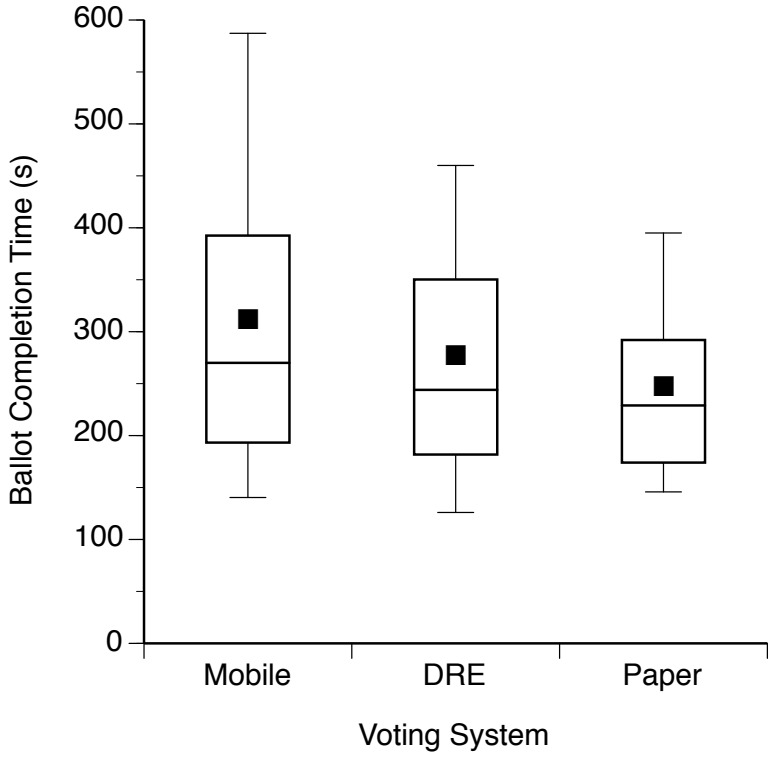


Figure 21. Distribution of ballot completion times, in seconds, by voting system. Squares represent means.

Additionally, the covariate, subjects' age, was statistically reliable, $R^2 = .22$, $F(1, 148) = 41.48$, $p < .001$, $MSE = 9272$, $\eta^2_p = .18$, indicating that as voters age they tend to

[1] There was some evidence non-homogenous slopes such that the paper ballot's slope differed from the electronic voting systems' slopes.

take longer to complete their ballots. There were, however, no main effects or interactions involving slate candidate position and thus this factor will not be discussed further.

Shown in Figure 21, subjects took slightly longer to complete their ballots when using the MVS than any of the other voting systems. The DRE voting closely followed the MVS and the paper ballot was the slowest of the three, $F(2, 280) = 9.41$, $p < .001$, $MSE = 9835$, $\eta^2_p = .06$, however, this effect is likely to be inconsequential as the magnitude of the effect was quite small; approximately 60 seconds between the MVS and the paper ballot. Further, the time lost due to using the MVS would likely be more than compensated for by not needing to travel to a polling place. Subjects' self-reported level of education was also linked to their ballot completion times. Though the causal relationship is not entirely clear, across ages and voting systems subjects who reported the lowest levels of education took longer to complete their ballots (see Figure 22), $F(3, 140) = 8.33$, $p < .001$, $MSE = 24677$, $\eta^2_p = .15$.

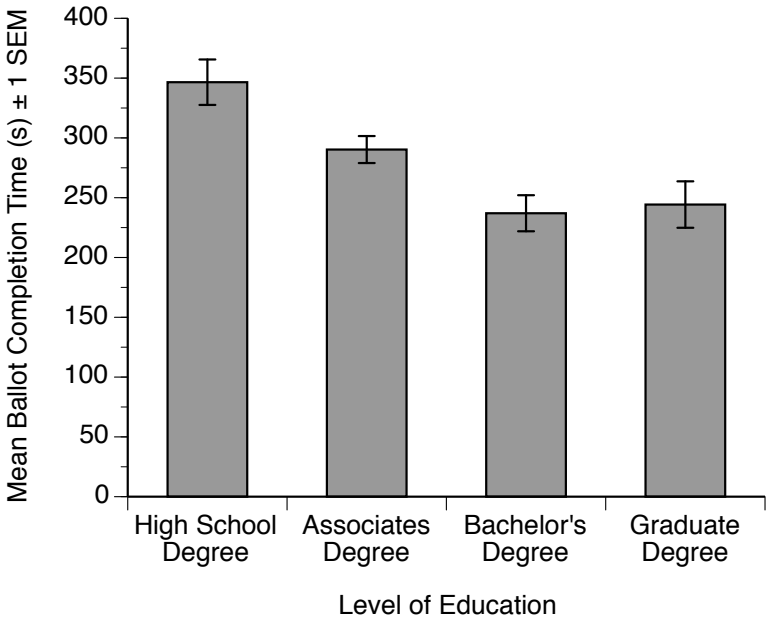


Figure 22. Mean ballot completion times, in seconds, as a function of subjects' level of education.

The second ANCOVA was a 2 (electronic voting system) X 2 (display method) X 2 (smartphone ownership) mixed-design ANCOVA, with subjects' age as a covariate, incorporating those factors, display method and smartphone ownership, which applied only to the electronic voting systems. There were, however, no main effects or interactions involving display method and thus this factor will not be discussed further. Alluded to above, however, subjects were reliably slower when using the MVS than when using the DRE voting system (see Figure 23), $F(1, 144) = 5.49$, $p = .022$, $MSE = 11384$, $\eta^2_p = .04$. Again, this relatively small effect would likely be inconsequential for the reasons discussed above. Smartphone ownership, however, across electronic voting systems, was also a determinant of ballot completion times. Shown in Figure 24, subjects who owned a smartphone at the time of the experiment completed their ballots over 100 seconds faster, on average, than subjects who did not own a smartphone at the time of the experiment, $F(1, 144) = 12.56$, $p = .001$, $MSE = 23810$, $\eta^2_p = .08$, perhaps further indicating a lack of familiarity with the technology lead to longer ballot completion times.

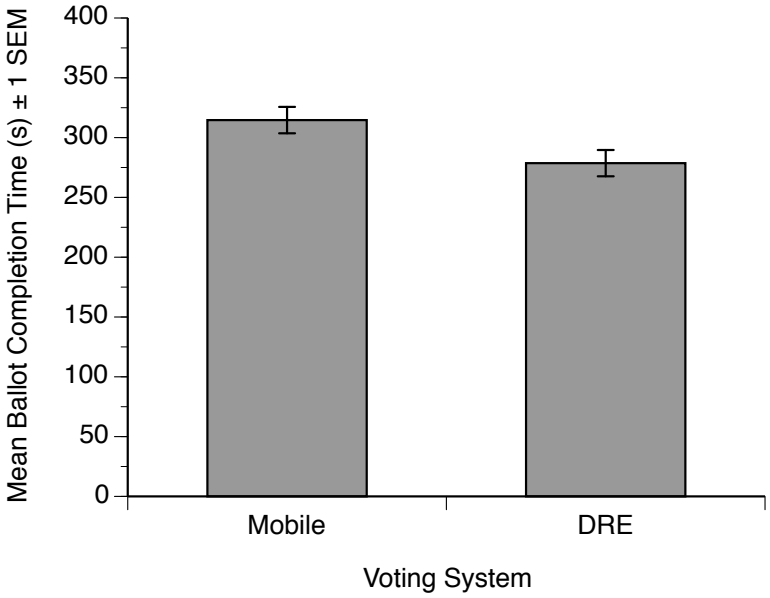


Figure 23. Mean ballot completion time, in seconds, as a function of electronic voting system.

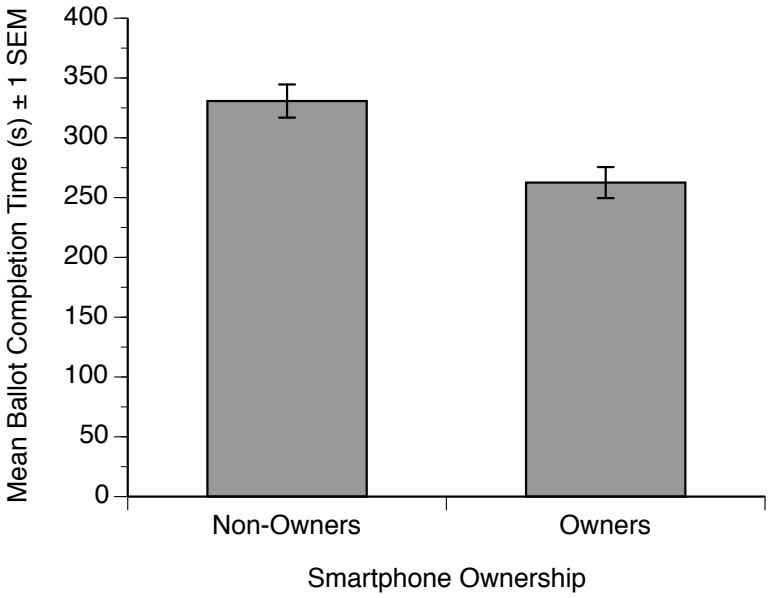


Figure 24. Mean ballot completion time for the electronic voting systems, in seconds, as a function of smartphone ownership

Subjective Satisfaction

Two ANCOVA's were used to analyze voting system SUS ratings. The first ANCOVA was a 3 (voting system) X 2 (slate candidate position) X 2 (education) mixed-design ANCOVA, with subjects' age as a covariate, used to determine the reliability of those factors which applied to all three voting systems (i.e., voting system, slate candidate position, and education). There were, however, no main effects or interactions involving slate candidate position nor education and thus these factors will not be discussed further.

The distributions of SUS ratings were slightly negatively skewed for all three voting systems, however, slightly more so for the MVS. This is likely due to a majority of the SUS ratings falling at or near the maximum score of 100. Furthermore, the covariate, subjects' age, was statistically reliable, accounting for 7% of the variance in SUS ratings across voting systems, $R^2 = .07$, $F(1, 149) = 10.7$, $p = .001$, $MSE = 113$, $\eta^2_p = .07$, indicating that older adults tended to be the most critical raters across all three voting systems. Finally, entirely consistent with previous research, all three voting systems received favorable SUS scores across ages, with the DRE voting system having been rated the highest, the MVS second highest, and the paper ballot a very close behind (see Figure 25), $F(2, 282) = 11.7$, $p < .001$, $MSE = 232$, $\eta^2_p = .08$.

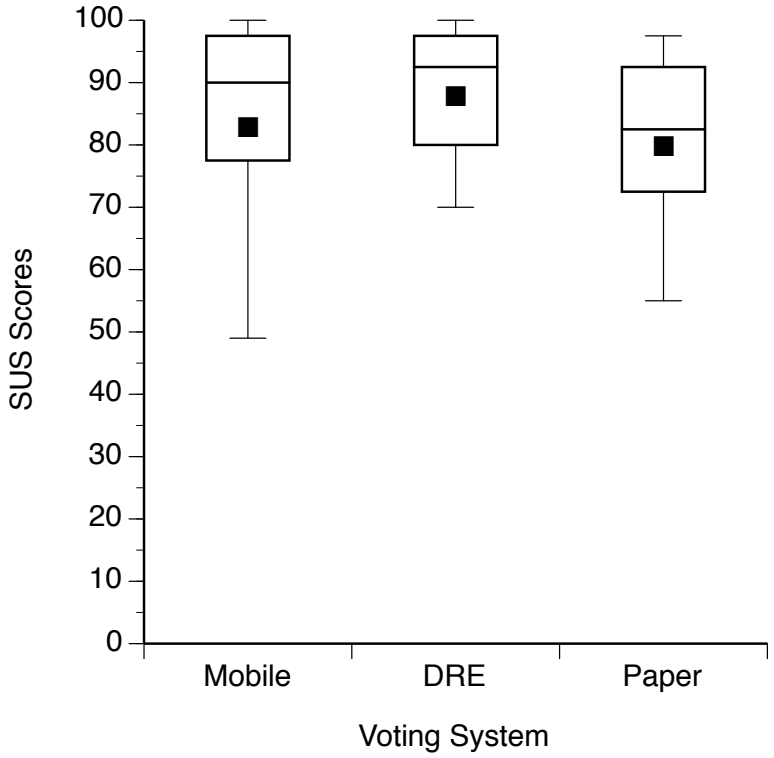


Figure 25. Distribution of SUS scores as a function of voting system. Squares represent means.

The second ANCOVA was a 2 (electronic voting system) X 2 (display method) X 2 (smartphone ownership) mixed-design ANCOVA, with subjects' age as a covariate, incorporating only those factors, display method and smartphone ownership, which applied only to the electronic voting systems. There were, however, no main effects or interactions involving display method and thus this factor will not be discussed further. Nevertheless, shown in Figure 26, subjects who did not own a smartphone were more likely to be dissatisfied with the MVS than subjects who did own a smartphone, $F(1, 146) = 7.68$, $p = .006$, $MSE = 180$, $\eta^2_p = .05$, indicating that subjects were sensitive to their level of familiarity with the voting technology.

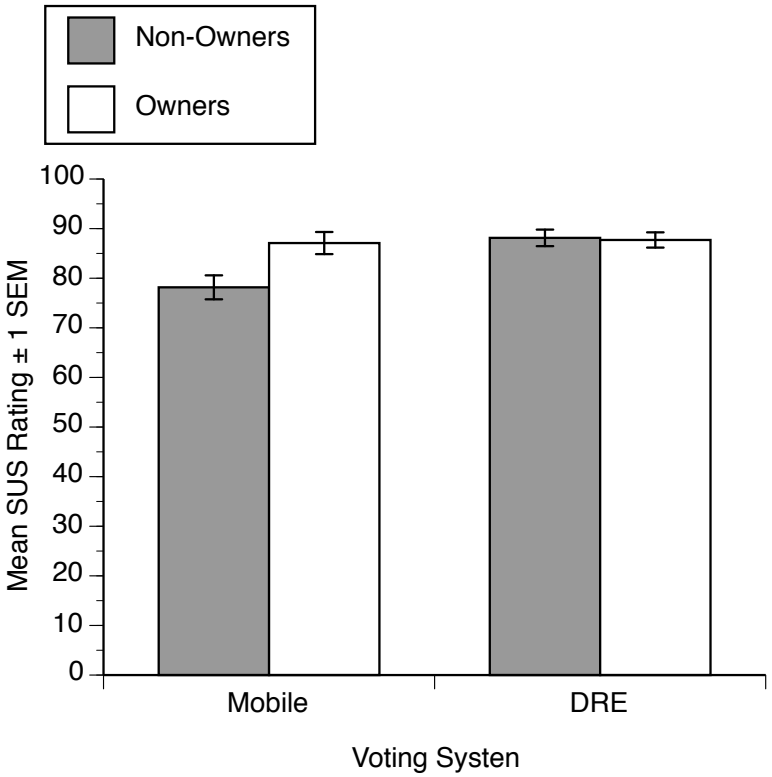


Figure 26. Mean SUS rating as a function of voting system and smartphone ownership.

DISCUSSION

The results from experiment one demonstrate three things clearly. First, low education voters are particularly at risk for making voting errors on the electronic voting systems. Though, it is unclear whether this was a consequence of lower familiarity with the electronic devices used in this experiment or other mitigating factors.

Second, the long-content races elicited substantially higher error rates than either the propositions or standard races. While true primarily for the electronic voting system, candidates below the fold were particularly susceptible to being subject to wrong choice and omission voting errors. This has important implications for candidates who do not align themselves with the major political parties as on most ballots across the U.S. the major political parties are featured at the top of the race. These results suggest that candidates appearing below the fold when the number of candidates in the race is too many to be displayed on a single screen will be at a disadvantage.

Finally, on the electronic voting systems, the scrolling display method for the long-content races was particularly prone to wrong choice voting errors for smartphone non-owners. Anecdotal evidence from the observation of subjects suggests that is likely attributable to a lack of experience or knowledge about how to manipulate the MVS's user interface. Many subjects were observed having difficulty scrolling the individual long-content races up and down to view candidates above or below the fold. It follows then that the MVS would be particularly prone to wrong choice errors in these races because the action sequence required to select a candidate and the action sequence required to scroll the screen up and down share an important step. In other words, the voter has to first touch the screen to do either. When attempting to scroll the screen up

and down, if not timed correctly, it is relatively easy to select an alternate candidate by mistake before the scrolling actually occurs.

It could be argued, however, that the results from experiment one were in part a product of the artificial nature of the voting environment. Subjects in experiment one were in fact given a list of candidates to vote for and 50% of them were directed to vote for candidates that appeared below the fold. While directing subjects who to vote for was a necessity in order to ensure a sizeable portion of subjects actually cast a down-race vote, this is almost certainly a much higher down-race voting rate than would occur in an actual nation election.

It is also possible that many of the errors incurred by lower educated subjects occurred simply because they did not realize they had committed them. In experiment one, the review screen on the mobile voting system was a single scrollable page. On the DRE voting system it was a single page displaying all the races and choices in a smaller font. In this context, it may be just as important how the review screen is displayed to voters as how long ballot content is presented them to them while they are making choices. In this sense, the review screen is simply another form of long ballot content in which the context is slightly different; that is, the context has shifted from making a selection to verifying a selection.

Additional research is needed then to address these concerns and add clarity and context to the results of experiment one. Experiment two, described below, addresses these concerns in the following ways. First, in experiment two voters were allowed to read about, and vote for whomever they wished thereby relieving the artificiality of the slates. Second, in experiment two the display method of the review screens found on the

electronic voting systems was manipulated in the same way the display method for the long-content races was in experiment one.

CHAPTER 3: EXPERIMENT 2

The second experiment was a replication and extension of the first. In experiment two, the display method from experiment one that elicited the highest voting performance (i.e., efficiency, effectiveness, and satisfaction), pagination, was utilized for the entirety of experiment two. In addition to verifying the effects of long ballot content have on voting performance the goals of experiment two were three-fold. First, experiment two examined multi-vote races. In many U.S. elections, particularly local elections, voters have the ability to vote for more than one candidate for in a single race (e.g., multiple school board seats). The second experiment examined how this specific ballot provision, the ability to vote for more than one candidate at a time, affects voting performance. The ability to vote for more than one candidate per race, also known as *k* of *n* voting, has not been previously studied in a controlled laboratory setting and currently it is unknown what effects, if any, this ballot provision has on voting performance.

Second, subjects in experiment two were given free choice as to whom they wished to vote for. Subjects in experiment two were given a voter guide, modeled after the League of Women Voters document (League of Women Voters, 2012), to read and were subsequently allowed to vote for any candidate(s) they wished.

Finally, for the electronic voting systems the candidate selection screens may not be the only place in which long ballot content may be problematic. On ballots with several candidate races and propositions, a single-page review screen has the potential to become visually cluttered. One solution, reducing font sizes to accommodate a large number of contests on a single screen likely makes review screens harder read or scan while also making it more difficult to interact with individual races. In experiment two subjects saw

one of two alternatives. Like the display methods of long-content races in experiment one, subjects in experiment two were shown a review screen that was either paginated (such that content is spread across two or more "pages") or a review screen in which the content was scrollable.

METHOD

The goals of experiment two were separated into three parts. In the U.S. many elections feature races in which more than one candidate at a time. Thus, the first objective of experiment two was to identify the effects these multi-vote races have on the usability of ballots used across voting technologies. Further, in experiment one, subjects were told who to vote for. While this is somewhat necessary in order to observe events that are deemed likely to be low frequency in nature, it certainly adds to the artificiality of voting in a laboratory setting. Thus, the second objective was to allow subjects to vote for whomever they wished. Finally, the review screens found commonly in electronic voting technologies present voters with a unique context in which they are now verifying selections rather than making them. As the number of races and candidates grow the complexity of displaying this information, especially on a small-screen mobile device, grows. Thus, the final objective was to extend the display method results of experiment one to the electronic review screens in experiment two.

Subjects

One hundred forty four subjects (75 female) from the greater Houston area were recruited as subjects for experiment two. Identical to experiment one, there were two overall requirements for participation; subjects were required to be 18 years of age or older (i.e., eligible to vote in the U.S.), and native English speakers. Recruitment of

subjects took place via local online and print advertising and subjects were paid $25 for their time, regardless of voting performance. Finally, like in experiment one, in order to obtain a more representative sample of the general Houston area voting population, subjects were not recruited on the basis of smartphone ownership or level of education. Nevertheless, 94 subjects (65%) reported owning a smartphone at the time of the experiment. Shown in Table 3, smartphone ownership was slightly skewed towards ownership, except for the lowest level of education, however, overall level of education was approximately evenly distributed. There was, however, a relationship between the two such that subjects with the lowest level of education reported not owning a smartphone more often than expected: $X^2(1, 152) = 5.99$, $p = .11$.

Table 3. Distribution of subjects by level of education and smartphone ownership.

Smartphone Ownership	High School or Less	Associates Degree	Bachelor's Degree	Graduate Degree	Total
Non-Owners	14	18	12	6	50
Owners	5	40	32	17	94
Total	19	58	44	23	144

Subjects ranged in age from 19 to 81 years old with a mean age of 39.9 (*SD* = 14.9) and, similar to experiment one, had a fairly diverse range of voting histories. Twenty-two subjects had voted in 10 or more national elections and 28 had voted in 10 or more non-national (i.e., state and local) elections. The vast majority of subjects, however, had voted in fewer than 10 national (85%) and non-national (78%) elections. In order to obtain a more representative sample of the general voting population, subjects were not recruited on the basis of smartphone ownership. Nevertheless, 73 subjects (51%) reported owning a smartphone at the time of the experiment.

Experimental Procedure

The procedure for experiment two was identical to experiment one except that after all voting sessions were complete, subjects were given an exit interview to ascertain for whom they intended to vote.

Experimental Design

Except where noted below, experiment two was similar to experiment one. The design for experiment two was mixed, including several between- and within-subjects variables. As with experiment one, demographic variables such as education and smartphone ownership were also be included as independent variables in all analyses. Further, subjects' age was again included as a covariate in all appropriate analyses.

Independent Variables

The within-subjects variables voting system, race type, and error type from experiment one were included in experiment two. In addition to these within-subjects variables, the following between-subjects variables will be included in experiment two:

Multi-Vote Race Overvote Behavior (3 levels; between-subjects): When a subject attempted to overvote in the 18th race (the race for Houston I.S.D. Trustee) both the MVS and DRE handled this situation in one of three possible ways. In the first condition, the replace last condition, the voting system automatically deselected the last candidate chosen and selected the overvoted candidate in its stead. In the second condition, the fail immediately condition, the voting system warned the subject that they have already made the maximum number of selections in that race immediately. Subjects were then required to manually deselect a previously selected candidate in order to select a new one. In the third condition, the fail on navigation condition, the voting system warned the subject

that they have already made the maximum number of selections in that race as they tried to navigate away from the race.

Review Screen Display Method (2 levels; between-subjects): Two methods of displaying the review screen content were used on each electronic voting system. The first method, scrolling, required subjects to scroll the current page up or down to view content that is displayed below the fold. The second method, pagination, required subjects to navigate to a new page to view content that was too long for one page. Both display methods were as similar as possible across both electronic voting systems. Subjects were also randomly assigned to a display method.

Dependent Variables

The dependent variables for experiment two were identical to experiment one. Effectiveness, however, was calculated slightly differently. Effectiveness was determined using a majority rules scheme. Subjects provided four sources of voting intent: an exit interview (to determine who they intended to vote for), the first technology's ballot, the second technology's ballot, and the third technology's ballot. Any ballot selection that did not match the other three was considered an error.

Materials

With two exceptions (see "Voter Guides" below), the materials used in experiment two were identical to those used in experiment one.

Voter Guides

Unlike experiment one in which subjects were given a slate of candidates to vote for, subjects in experiment two were given a voters guide (modeled after: League of

Women Voters, 2012) to read and were subsequently allowed to vote for whomever they wanted to. The full voters guide can be viewed in Appendix D.

Ballots

The ballots used in experiment two were altered slightly from experiment one. The 18th race, the race for Houston I.S.D. Trustee (shown in Figure 2), was not a single selection race. Instead that race was altered to allow voter to choose up to three candidates (i.e., a k-of-n race).

RESULTS

Outliers

In the analysis of error rates below one subject who produced more than four errors on all three voting systems was considered an outlier and removed from the analysis of error rates.

Similarly, in the analysis of ballot completion times, 10 subjects (separate from those removed in the analysis for error rates) were removed from the analysis of ballot completion times for having at least one ballot completion time that exceeded three inter-quartile ranges from either above the upper hinge or below the lower hinge relative to their own mean ballot completion time across all three ballots. These subjects removed for producing abnormal ballot completion times relative to themselves were all observed reading the voter's guide while casting their ballot. One additional subject was removed from all three analyses due to a failure to report their age precluding them any analysis in which age was used as a covariate.

Effectiveness

Unlike experiment one, error type was not included in the analysis of error rates for study two. This is due to the ambiguous nature of error attribution in multi-vote races and reliance of this analysis on mutually exclusive error types. For example, consider the case in which a subject intends to vote for the top three candidates in the 18th race (i.e., the "choose three" Houston ISD race). If that subject were to accidently select the second candidate first and then simply select the next two candidates down without noticing, that would clearly be a voting error. The type of error it is, however, is ambiguous. In this example, the first candidate, the one missed, would be, by definition, an omission error. The third candidate selected (the fourth candidate down), however, could simultaneously be a wrong choice error. In essence, a reasonable argument could be made for attributing this case as an omission error or a wrong choice error or both. As a result, errors in the 18th race were coded simply as either present or not without attribution of error type in order to alleviate this ambiguity.

Shown in Table 4, nearly as many voting errors occurred on the paper ballot as did on both electronic voting methods combined. The DRE voting system produced the smallest number of voting errors with the MVS producing second highest number of voting errors.

Table 4. Distribution of errors per voting system.

Voting System	Ballots Cast	Total Errors	Ballots w/ at least 1 error	Mean # Errors	Std. Dev.
Mobile	142	100	39	.69	1.69
DRE	142	89	38	.62	1.57
Paper	142	159	44	1.1	2.28
Total	426	348	121		

Cross-System Factors

A 3 (voting system) X 3 (race type) X 4 (education) mixed-design ANCOVA, with age as a covariate and utilizing the data from 142 subjects, incorporating only those factors which applied to all three voting systems. The covariate, subjects' age, was not a statistically reliable predictor of ballot errors nor were there any main effects or interactions involving the within subjects factors of voting system or race type. Shown in Table 5 are the overall mean error rates per level of education. While suggestive that subjects with lower levels of education had trouble with the paper ballot, the main effect of education was not statistically reliable, $F(3, 137) = 2.24$, $p = .09$, $MSE = .04$, $\eta^2_p = .05$.

Table 5. Mean error rate (%) as a function of subjects' self-reported level of education. Percentages in parentheses represent standard errors of the mean.

	Level of Education			
Voting System	High School or Less	Associates Degree	Bachelor's Degree	Graduate Degree
MVS	3.3% (1.8%)	3.4% (1.0%)	3.0% (1.1%)	3.5% (1.6%)
DRE	6.2% (1.8%)	3.3% (1.0%)	2.6% (1.1%)	1.0% (1.5%)
Paper	7.3% (3.5%)	11.0% (1.9%)	4.2% (2.2%)	2.3% (3.0%)

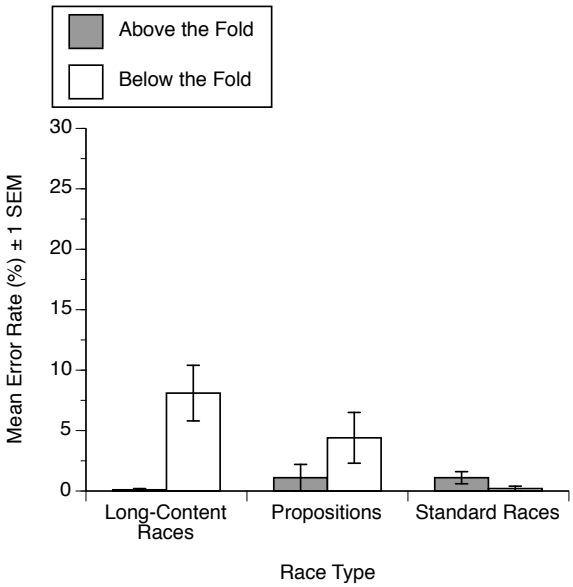
Voting Above or Below the Fold

A 3 (voting system) X 3 (race type) X 2 (candidate position) mixed-design ANCOVA, with age as a covariate was used incorporating only those factors which applied to all voting systems when subjects consistently voted above or below the fold. This ANCOVA was applied to only the 58 subjects who's intent was to vote consistently either above or below the fold in both long-content races across all three voting systems. Education was not included in this ANCOVA as the subset of data used was a small

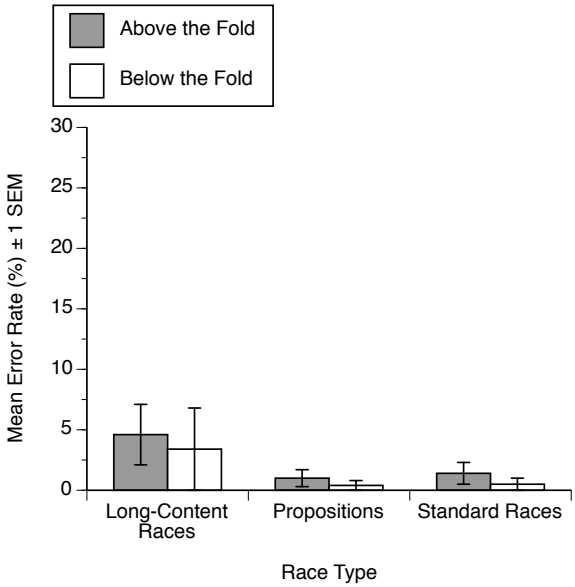
fraction of the full data set and the inclusion of education resulted in several empty cells. The covariate, subjects' age, was not a statistically reliable predictor of ballot errors and will not be discussed further.

Shown in Figure 27, subjects' intention to vote for a candidate below the fold in the long-content races had a considerable negative effect on the observed error rates in those races for both the MVS and the paper voting system, $F(1.9, 104.2)^2 = 3.86$, $p = .031$, $MSE = .02$, $\eta^2_p = .07$.

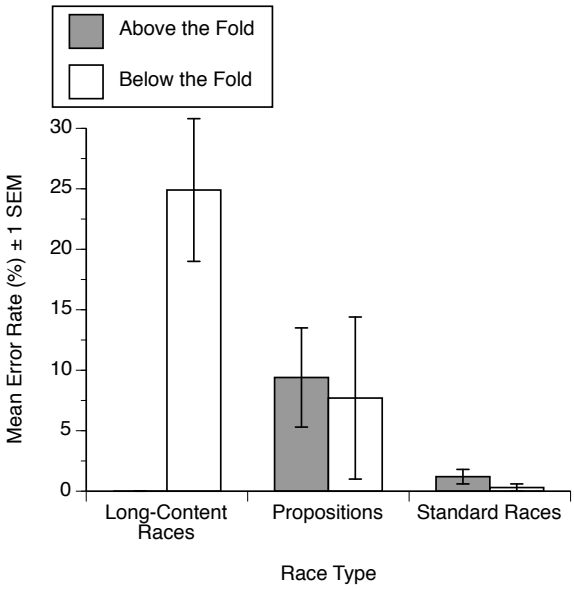
[2] Degrees of freedom adjusted via Greenhouse-Geisser for violations of sphericity.



(A) The MVS.



(B) The DRE voting system.



(C) The paper voting system.

Figure 27. Mean error rate (%) as a function of race type and candidate position for (a) the MVS, (b) the DRE voting system, and (c) the paper voting system. Note: the notions of being above or below the fold do not apply to the standard races or propositions, as in those races all candidates were visible immediately.

Electronic Voting System Factors

A 2 (electronic voting system) X 3 (race type) X 2 (review screen display method) x 2 (smartphone ownership) mixed-design ANCOVA, with age as a covariate, was used to determine the reliability of those factors which applied only to the electronic voting systems. This ANCOVA was applied to all 142 subjects. The covariate, subjects' age, was not a statistically reliable predictor of ballot errors and will not be discussed further.

Shown in Figure 28, when the review screen was displayed as a single scrollable page subjects made more errors on the MVS than the DRE voting system while when the review screen was displayed as a series of paginated screens there was little difference between the MVS and DRE voting system, $F(1, 137) = 4.54$, $p = .044$, $MSE = .01$, $\eta^2_p = .03$. A simple main effects analysis also found evidence that the difference between scrolling and pagination was reliable for the MVS yet not so for the DRE.

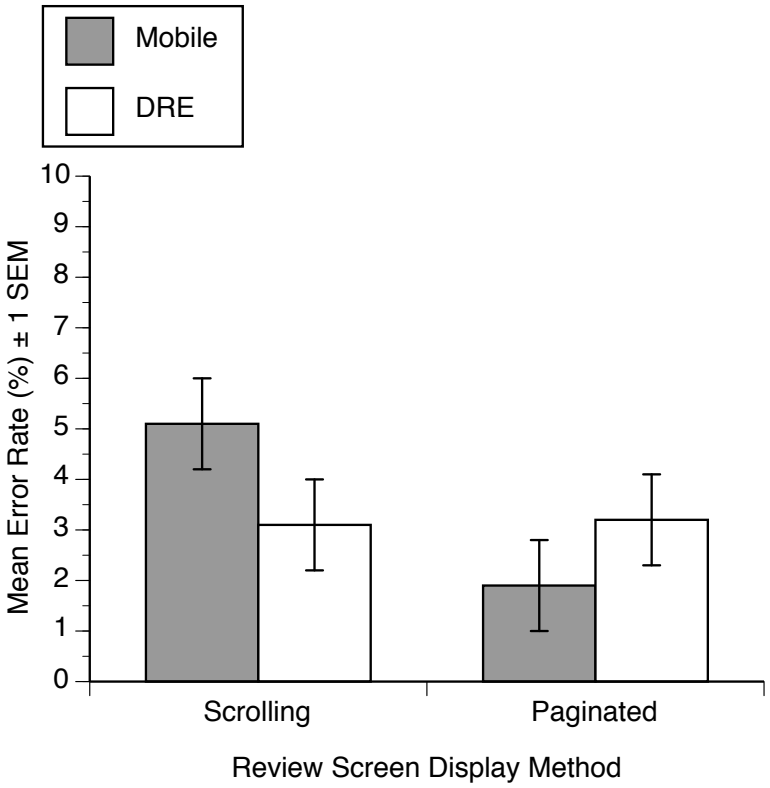


Figure 28. Mean error rate (%) as a function of electronic voting system and review screen display method.

Predicting Errors

Four logistic regressions were performed to determine the reliability of predicting whether or not subjects would make an error or not in both the presidential race and the race for Houston ISD (the long-content race) between both electronic voting systems. The criterion for all four regressions was whether or not any error was made in the relevant race. The predictors for each regression were:

1. The review screen's display method.
2. Subjects' smartphone ownership.
3. Subjects' self-reported level of education.
4. Subjects' age.
5. Subjects' intent to vote either above or below the fold in the relevant race.
6. Race 18 Only: the method with which race 18 failed when an overvote was made.

For race one (see Table 6), the presidential race, none of the predictors were statistically reliable predictors of whether or not subjects would make an error in that race on the MVS. Similarly, on the DRE voting system (see Table 7), none of the predictors were statistically reliable predictors of whether or not subjects would make an error in that race.

Table 6. Logistic regression analysis of errors made in race 1 on the MVS.

Predictor	β	S.E.	Wald's χ^2	*df*	*p*
Review screen display method	1.14	1.18	0.92	1	.34
Smartphone ownership	-0.10	1.30	0.01	1	.93
Level of education	-17.94	9567.08	0.00	3	.99
Age	-0.03	0.04	0.39	1	.53
Above / Below the fold	-0.88	1.17	0.57	1	.45

Table 7. Logistic regression analysis of errors made in race 1 on the DRE voting system.

Predictor	β	S.E.	Wald's χ^2	*df*	*p*
Review screen display method	0.34	0.89	0.15	1	.70
Smartphone ownership	-0.22	1.05	0.04	1	.84
Level of education	1.68	1.31	1.64	3	.20
Age	0.02	0.04	0.27	1	.60
Above / Below the fold	-0.07	0.95	0.01	1	.94

For race 18 (the Houston ISD race), however, subjects' intent to vote either above or below the fold in that race strongly predicted whether or not they would make an error in that race when they voted on the MVS. Shown in Table 8, subjects were much more likely to make an error in the 18th race on the MVS when they attempted to vote for candidate that was below the fold than when they attempted to vote for a candidate above the fold (see also Table 9). Finally, looking at race 18 when subjects were voting on the

DRE voting system, none of the predictors were statistically reliable predictors of whether or not subjects would make an error in that race (see Table 10).

Table 8. Mean error rate (%) when using the MVS as a function of subjects' intent to vote above or below the fold in the 18th race (the race for Houston ISD).

Subjects' Intent	N	Mean	S.E.M.
Above the fold	66	6.1%	2.9%
Below the fold	77	19.5%	4.5%

Table 9. Logistic regression analysis of errors made in race 18 on the MVS.

Predictor	β	S.E.	Wald's χ^2	*df*	*p*
Review screen display method	0.40	0.54	0.55	1	.46
Smartphone ownership	0.25	0.62	0.16	1	.69
Level of education	0.58	1.05	0.30	3	.58
Age	0.03	0.02	2.86	1	.09
Above / Below the fold	-1.41	0.62	5.17	1	.02
Race 18 overvote fail method	0.07	0.69	0.01	2	.91

Table 10. Logistic regression analysis of errors made in race 18 on the DRE voting system.

Predictor	β	S.E.	Wald's χ^2	*df*	*p*
Review screen display method	0.21	0.49	0.18	1	.68
Smartphone ownership	-0.18	0.58	0.10	1	.75
Level of education	0.96	0.89	1.17	3	.28
Age	0.03	0.02	2.94	1	.09
Above / Below the fold	-1.18	0.61	3.74	1	.053
Race 18 overvote fail method	-0.73	0.63	1.34	1	.25

Efficiency

Two ANCOVAs were used to analyze voting system ballot completion times. The first ANCOVA was a 3 (voting system) X 4 (level of education) mixed-design ANCOVA, with subjects' age as a covariate, used to determine the reliability of those factors which applied to all three voting systems (i.e., voting system and education). There were, however, no main effects or interactions involving education and thus it will not be discussed any further.

Shown in Figure 29, similar to experiment one, the distributions of ballot completion times were slightly positively skewed for all three voting systems, however, slightly more so for the MVS. Further, like in experiment one, shown in Figure 30, the covariate, subjects' age, was statistically reliable, $R^2 = .15$, $F(1, 131) = 22.42$, $p < .001$, $MSE = 20843$, $\eta^2_p = .15$, indicating that as voters age they tend to take longer to complete their ballots. Finally, subjects took longer to complete their ballots using one of the electronic voting systems with, like in experiment one, the MVS being the slowest voting system (see Figure 29), $F(2, 256) = 4.32$, $p = .012$, $MSE = 36087$, $\eta^2_p = .03$.

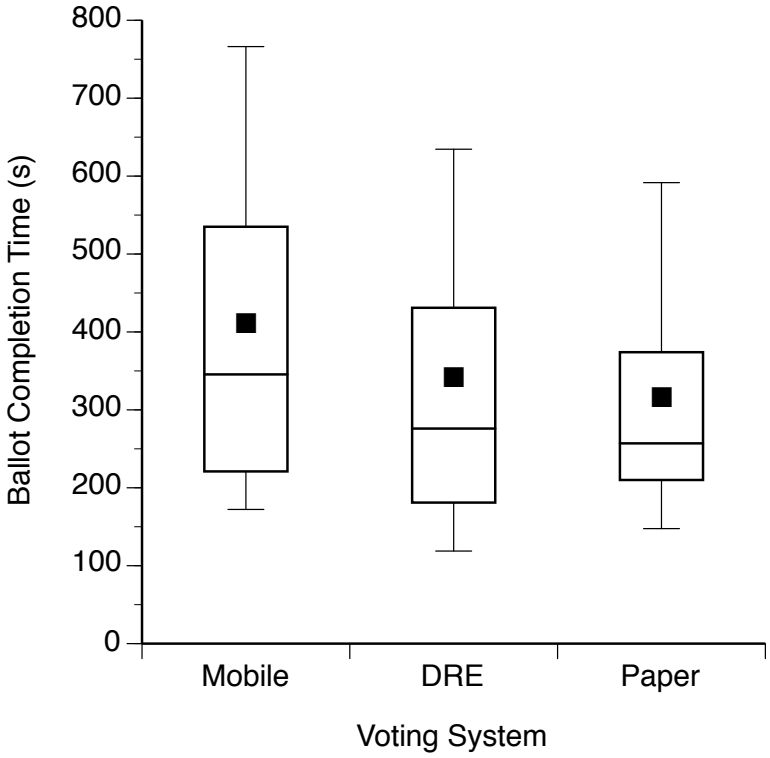


Figure 29. Distribution of ballot completion times as a function of voting system. Squares represent means.

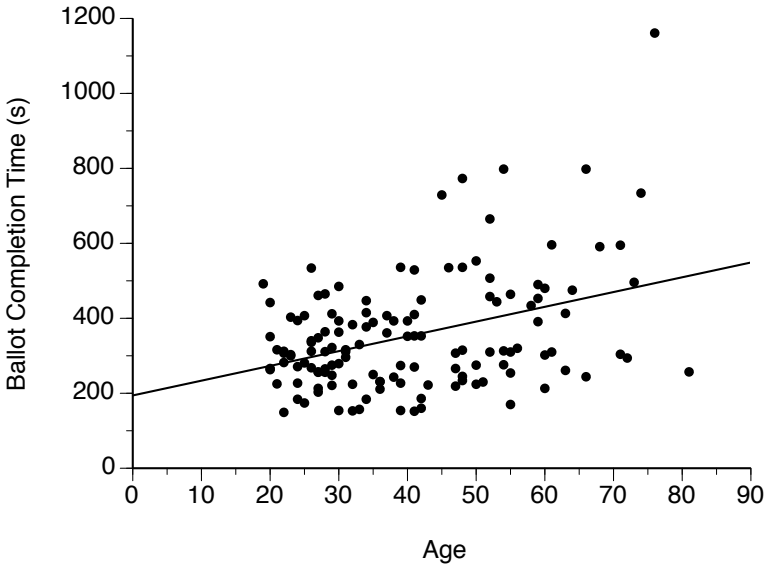


Figure 30. Ballot completion times as a function of age.

The second ANCOVA was a 2 (electronic voting system) X 2 (review screen display method) X 2 (smartphone ownership) X 2 (race 18 overvote fail method) mixed-design ANCOVA[3], with subjects' age as a covariate, incorporating those factors which applied to only the electronic voting systems. There were, however, no main effects or interactions involving voting system, smartphone ownership, or race 18 overvote fail method and thus these factors will not be discussed further.

The method in which the review screen was displayed, however, had an effect on how quickly subjects completed their ballots. Across electronic voting systems, subjects who saw the review screen as a single scrollable page completed their ballots nearly 100 seconds faster than subjects who saw the review screen as a series of pages (see Figure 31), $F(1, 120) = 6.38$, $p = .013$, $MSE = 60468$, $\eta^2_p = .05$.

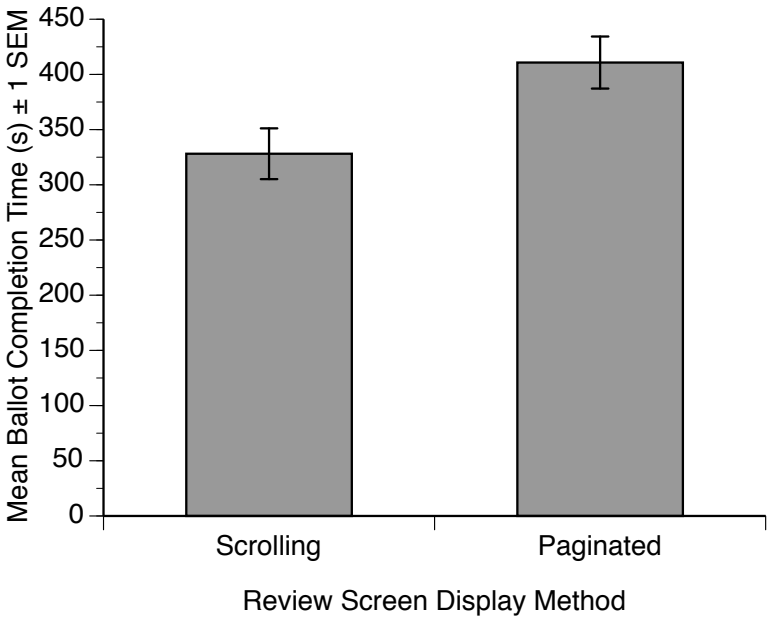


Figure 31. Mean ballot completion time, in seconds, as a function of review screen display method.

[3] There was some evidence non-homogenous slopes such that the paper ballot's slope differed from the electronic voting systems' slopes.

Subjective Satisfaction

Two ANCOVAs were used to analyze voting system SUS scores. The first ANCOVA was a 3 (voting system) X 4 (level of education) mixed-design ANCOVA, with subjects' age as a covariate, incorporating those factors that applied to all three voting systems (i.e., voting system and education). There were, however, no main effects or interactions involving voting system or education and thus these factors will not be discussed any further.

Consistent with experiment one, the distributions of SUS ratings were slightly negatively skewed for all three voting systems. This is likely due to a majority of the SUS ratings falling at or near the maximum score of 100. Furthermore, the covariate, subjects' age, was statistically reliable accounting for 3% of the variance in SUS ratings across voting systems, $R^2 = .03$, $F(1, 141) = 4.95$, $p = .022$, $MSE = 112$, $\eta^2_p = .03$, indicating that older adults tended to be the most critical raters across all three voting systems.

The second ANCOVA was a 2 (electronic voting system) X 2 (review screen display method) X 2 (smartphone ownership) X 2 (race 18 overvote fail method) mixed-design ANCOVA, with subjects' age as a covariate, incorporating those factors which applied to only the electronic voting systems. There were, however, no main effects or interactions involving electronic voting system and thus it will not be discussed any further.

Across electronic voting systems, however, subjects' smartphone ownership influenced their mean rating of the electronic voting systems. Smartphone non-owners rated the electronic voting systems reliably lower than smartphone owners did (see Figure 33), $F(1, 130) = 4.32$, $p = .044$, $MSE = 291$, $\eta^2_p = .03$. Finally, across electronic voting

systems, when overvotes in race 18 failed immediately via a pop-up warning and the review screen was a paginated series of screens subjects rated the electronic voting systems reliably lower (see Figure 34), $F(2, 130) = 3.65$, $p = .032$, $MSE = 291$, $\eta^2_p = .05$.

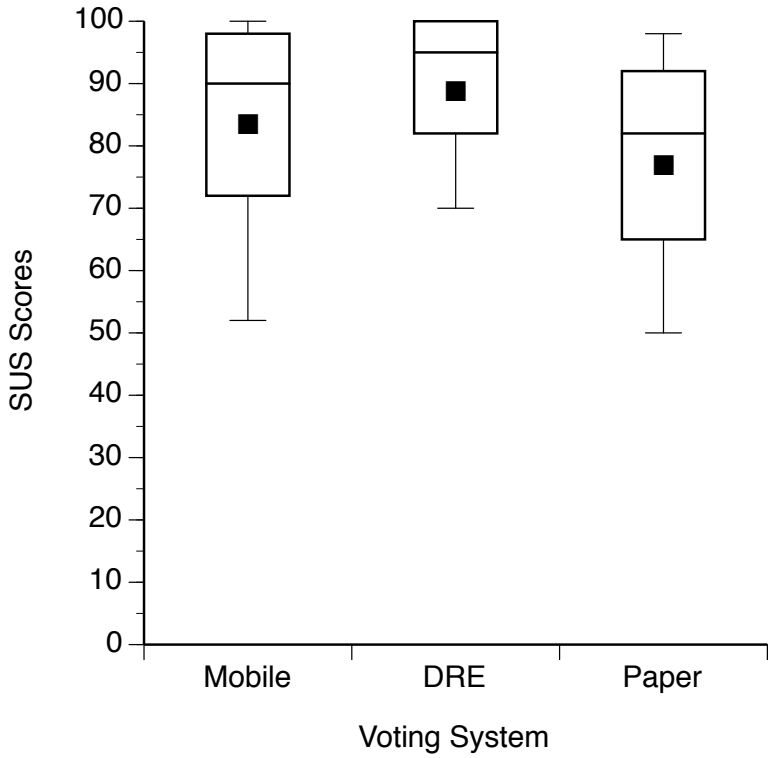


Figure 32. Distribution of SUS ratings as a function of voting system.

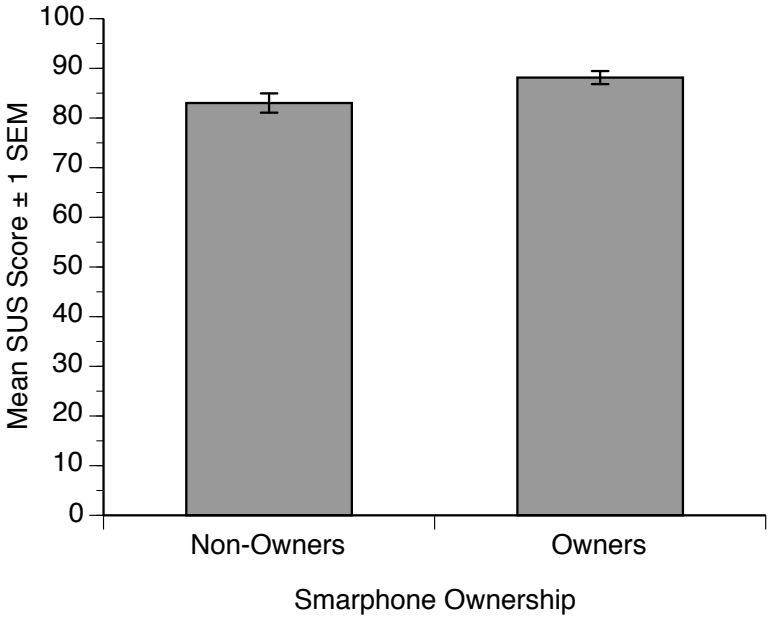


Figure 33. Mean SUS rating across electronic voting systems as a function of smartphone ownership.

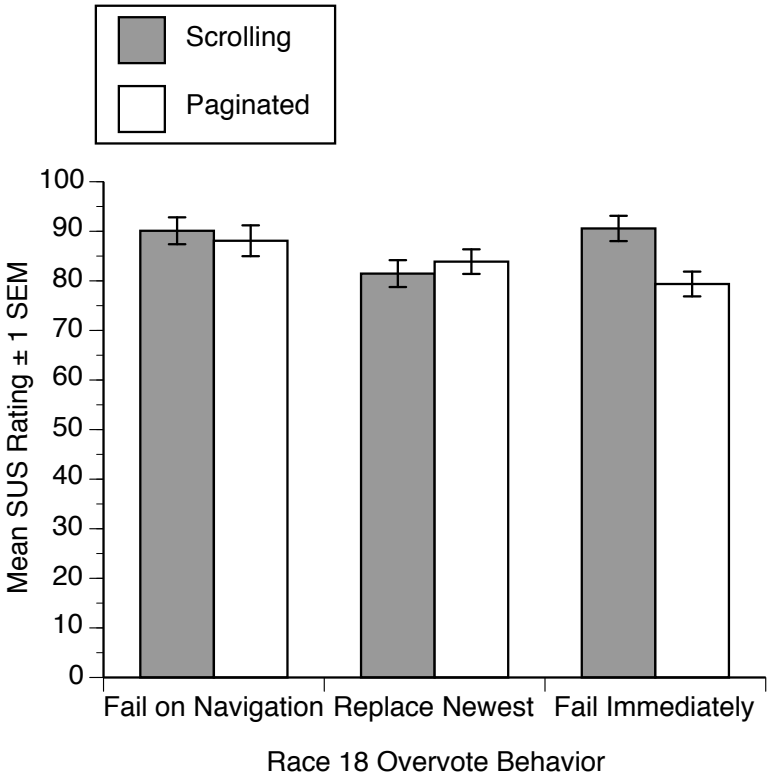


Figure 34. Mean SUS rating across electronic voting systems as a function of race 18 fail method and review screen display method.

DISCUSSION

Experiment two addressed limitations imposed in experiment one due to the artificial nature of the voting requirements and expanded the results to a more realistic voting environment and voting conditions. Chiefly, subjects, instead of being told who to vote for, were allowed to take the time to research the candidates and chose the ones they preferred to vote for. While this certainly complicated the analysis of errors it was necessary in order to be able to distinguish the differences in voting behavior and testing environments. In experiment one there were very strong effects of education such that lower educated voters tended to take much longer to complete their ballots and made more voting errors under a variety of conditions. In experiment two these effects failed to materialize. It is certainly possible that this reflects a difference in the testing scenarios. It may be the case that, despite the multiple avenues of instructional presentation, subjects with lower levels of education did not understand the testing procedures or less inclined to follow them. This has important implications for the testing the voting systems in general and testing labs should be aware that the artificiality of providing a slate of candidates for subjects to vote for might differentially affect subjects with lower levels of education.

Further, experiment two expanded upon the results of experiment one in a few important ways. The results from experiment two clearly demonstrate three important things. First, as discussed in experiment one, candidates positioned below the fold and out of initial view were particularly susceptible to being subject to voting errors. This has extremely important implications for candidates who do not align themselves with the major political parties, as on most ballots across the U.S. the major political parties are

the ones featured at the top of the race. These results suggest that candidates appearing below the fold when the number of candidates in the race is too many to be displayed on a single screen will be at a distinct disadvantage.

Second, entirely consistent with and similar to the long-content races in experiment one, results from experiment two suggest that when the review screen is displayed as a single scrollable page voters are at an increased risk of committing voting errors. These results appear to suggest that the context in which the review screen is displayed (experiment two) may not be all that different then from the context in which long-content races are displayed throughout the ballot (experiment one) from the voters' point of view. In experiment one when the long-content races were displayed as a single scrollable page, subjects were able to navigate away from these long-content races without being forced to view the additional candidates that fell below the fold.

It was suggest then, that perhaps the increase in voting errors was due to some voters simply not recognizing there was content below the fold. In experiment two, however, when the review screen was displayed as a single scrollable page voters were required to scroll to the bottom of the list in order to complete and submit their ballots. Despite this requirement of the scrolling review screen, many fewer voting errors were observed when the review screen was paginated across several screens as opposed to being formatted as a single scrollable page. Further, results from experiment two show that the when review screen was displayed as a single scrollable page voters tended to complete their ballots faster than when the review screen was paginated across several screens. It is perhaps the case that, like in experiment one, voters are less inclined to take the time to review their votes as carefully when presented all at once in a single list as

opposed to being forced to page though multiple screens of choices. In retrospect it is easy to see how this might be the case.

Finally, older voters tended to complete their ballots slower than younger voters and across age groups both of the electronic voting systems were much slower than the paper ballot. In the case of the MVS any moderate increase in the time it takes to complete the ballot, regardless of age group, is likely to be simply inconsequential. Of the several potential benefits to a MVS, the ability and convenience of being able to vote remotely from a location of the voter's choosing is among the top. It is highly likely that any moderate amount of time lost due to using a MVS, like the one described in experiments one and two, in a real election would be offset by not requiring voters to travel to a centralized polling place. In the case of the DRE and paper voting systems these results from experiment two serve to inform election officials and allow them better prepare polling locations in those areas where there are higher concentrations of older voters.

CHAPTER 4: GENERAL DISCUSSION

DISCUSSION

The results from this research clearly demonstrate that candidates who are not immediately visible on the ballot (i.e., below the fold) are at a serious disadvantage when it comes to electronic voting systems. Results from experiment one and experiment two confirmed that these candidates have an increased risk of being mistakenly voted against, or even not voted for at all. This is in comparison to candidates who are immediately visible above the fold. This has carries with it serious implications for candidates who do not align themselves with one of the major political parties, as those candidates are the ones typically featured at or near the top of the ballot.

While experiment one demonstrated this effect across both long-content races (i.e., the 1st and 18th races) experiment two confirmed this effect only in the 18th race. Nevertheless, this is an important result that has serious implications for the placement of candidates on a ballot. These results empirically demonstrate that candidates who are not immediately visible on the ballot are at a distinct disadvantage; providing strong support for the practice of candidate rotation— referring to the practice of alternating which candidates appear first in any given race on the ballot.

To date, only eight U.S. states currently randomize ballots such that each candidate in a particular race appears at or near the top of the race between individual ballots (Winger, 2012). Candidate in the states of Alaska, California, Idaho, Kansas, Montana, New Hampshire, North Dakota, and Ohio, appear an approximately equal number of times both above and below the fold across all ballots given out (Winger, 2012). These states are thus likely not as subject to the effects of below the fold only

placement demonstrated in experiments one and two. Nevertheless, additional research could investigate this hypothesis and further determine the effects of alternate candidate placement schemes, such as the alphabetical listing of major political parties used in Colorado.

In addition to the results of individual candidate placement, the results of these two experiments also clearly demonstrate how long ballot content should be displayed on small-screened mobile devices. Experiment one demonstrated that paginating long ballot content across multiple screens produced fewer voting errors compared to when long ballot content was displayed as a single scrollable list. Experiment two also confirmed that paginated long ballot content was not only better for the actual candidate races, but for electronic review screens as well. This result persisted in experiment two despite the two different contexts between the two experiments. In experiment two the context shifted from selecting the correct choice (i.e., implementing voters' intent in experiment one) to verifying the correct choice had indeed been made (i.e., verification).

These results have important implications for the way in which long ballot content is displayed on smaller-screen devices and for the way in which any content that exceeds the size of the available electronic display should be formatted. These results indicate a point of speed-accuracy trade off. Results from both experiments one and two suggest that content that is too long to fit entirely on a single screen should be paginated when the context, as with voting, is such that the primary concern is effectiveness (i.e., the reduction of errors). This research has demonstrated that paginated content is less likely to produce errors than scrollable content. Conversely, in contexts in which the primary

concern is efficiency this research has demonstrated that scrollable content is more efficient than paginated content.

A question that remains unanswered, based on this research, is how well the practice of paginating long content for use on small screen devices would scale to extreme cases in which the content is quite long. Consider the following example; on October 7, 2003, California held a specific kind of statewide special election known as a recall election. The intent of the election was for voters to determine if the then governor of California should (a) be removed from office and (b), if so, who should be the replacement governor. Given the rarity of the this type of election and the relatively low application requirements for appearing on the ballot—only 65 signatures plus $3500—a substantial number of candidates, 135 in total, appeared on the ballot for this one race (State of California, 2013).

It is not immediately clear how well the results from experiments one and two would apply to an election of this magnitude. While in paginated mode, the MVS in this research displayed a maximum of six candidates per page. Using the 2003 California recall election as an example, the MVS used in this research would have utilized 23 pages to display the entire race—more pages than there were total candidate races on the ballot. Further, assuming that paginated content on a small screened device would continue to be more effective than scrolling that content in an election with 135 candidates in a single race, it would remain unclear how this situation might effect of the efficiency of MVS.

Overall, experiments one and two showed that paginating long ballot content was slightly less efficient than scrolling long content. However, it would not be unreasonable to expect that the difference in efficiency between paginated long content and scrolled

long content would continue to grow as the content grew large. Additional research is needed to determine the exact relationship of the speed accuracy trade off between paginated and scrolled long content observed in this research when it applies to exceptionally large amounts of content. Doing so can help clarify conclusions made about where and when on the curve the efficiency of paginated content drops low enough to make scrolling content the better choice.

It is also possible that gap in effectiveness between paginated and scrolling display methods might be narrowed by formatting the scrolling interface, especially for the MVS, in a style different than the formats used in experiments one and two. The scrollbars in on the MVS used in this research were standard display elements consistent with the scrollbars found throughout the Apple's iOS operating system. The only exception to this was that the scrollbars were always visible in the MVS when long ballot content was displayed. In the current version of iOS the scrollbars fade and disappear when the display has not been scrolled up or down in a given amount of time.

Incidentally, the miniaturization and fading out of view behavior of scrollbars found on small screen mobile devices is not unique to Apple's iOS mobile operating system. Select versions of the Android mobile operating system also utilize this functionality. While one could argue that this type of interface design (the miniaturization and fading out of scrollbars) is a product of the greatly enhanced value that individual units of screen real estate have on small screen devices compared to displays with larger screen sizes, the research presented possibly speaks to the effect this design has on system effectiveness. If subjects were less likely to notice that content existed below the fold in the scrolling condition, as a result of the narrow and low-contrast scrollbar, this

would indicate a trade off point between the screen real estate needed for mechanical elements of the user interface and the screen real estate devoted to actual content.

In this research, the scrollbars utilized for the MVS were left at the default settings and format found in the current version of Apple's iOS. This decision was made in an effort to be as consistent with the surrounding operating system as possible and to enhance user familiarity effects. Further, by design, while the MVS in scrolling mode had room to display only the first six candidates (the rest required scrolling to view), the first quarter of the seventh candidate was also visible, presumably acting as another visual cue that there was content below the fold.

One could argue, however, that the interfaces themselves, across voting systems, could have provided more salient clues that content existed below the fold. The data presented here is inconclusive as to whether or not subjects who made errors in the long-content races were ever explicitly aware that scrolling was an option or that content even existed below the fold. For example, the scrollbars on the MVS could have been styled such that they were thicker, darker, or had higher contrast to the content that appeared above, below, behind and to the left side of the scrollbars. The interface on the MVS could have also included another visual indicator, such as an arrow or other symbol(s) that would have indicated content existed below the fold. While these design choices (i.e., stylized scrollbars and symbolic indicators of additional content) were considered in the initial design of the MVS, they were not included in the final design due to: (a) the space limitations inherent in the design of displays for small screen devices and (b) the fact that including these elements would necessarily preclude other features of the display (such as the partial display or the seventh race).

Further the scrolling condition could have utilized a forcing function to ensure that voters actually scrolled to the bottom of the races. While, this might have been accomplished via pinning the navigation buttons to the last candidate option in every race it would have violated a core usability principle of consistency in design. The navigation button in the current instantiation of the MVS adhere to this design principal via having the navigation buttons always visible and always in the footer of the interface where users would be mostly likely to notice them. An alternative solution may have been to introduce a pop-up warning to alert voters that they had not scrolled to the bottom on the race. Unfortunately, the data presented in this research does not speak to whether or not this would have caused more or less confusion with subjects nor the effects it might have on the effectiveness or efficiency of the MVS.

Training may also be a means in which the effectiveness of a scrolling display method such as that used in the MVS might be improved. Subjects in experiments one and two, including the smartphone non-owners, were never explicitly trained on the voting task. One could imagine that a short training exercise built into the interface itself may have helped if in fact subjects were simply unaware that content existed below the fold in the scrolling condition and simply selected another candidate (as most of the error observed were wrong-choice voting errors).

Finally, this research also clearly demonstrated that older voters compared to younger voters require more time to vote. In extreme cases, long lines at polling stations have the potential to disenfranchise voters by denying them the opportunity to cast a vote in a timely manner. This research showed that across all three voting systems and throughout experiments one and two, older voters tended to take longer to complete their

ballots. This carries serious implications for election administrators that oversee elections as a large percentage of the voting population are older adults. Though, the degree to which older voters tend to complete absentee ballots, where applicable, may somewhat mitigate this effect. Elections officials and voters alike in these jurisdictions would benefit from taking special precautions. Such precautions include: (a) providing additional early voting opportunities, (b) spreading out the number of people who show up at any one polling station across multiple days and additional voting equipment of various types. This would allow voters to use those technologies that they are most familiar with.

Despite the clear results regarding candidate placement and display methods, however, this work was largely inconclusive in regards to the effect that multi-vote races have on ballot effectiveness. It is possible that this is simply a confound in that the multi-vote race deployed in experiment two was simultaneously one of the long-content races and was subject to the same above and below the fold voting effects seen in experiments one and two. Future researchers looking into this particular type of race may whish to de-couple the long ballot content effects from the multi-vote race itself.

This research was also not without a few limitations on its generalizability. The effects of subjects' self-reported levels of education were not replicated in experiment two. It is possible that this represents an artifact of the testing environment. Though the underlying cause remains unclear, the laboratory setting coupled with a set of experiment instructions that involved directing subjects whom to vote for may have diminished the personal connection that voters develop when voting for a candidate of their choice. This effect, however, may differentially impact subjects with lower levels of education and

possibly explains the absence of these effects in experiment two in which subjects where allowed to research the candidates and decide for themselves who to vote for.

Further, this research did not examine all the possible ways in which long ballot content might be displayed to voters nor did it attempt to quantify when or where voters might be most inclined to use a mobile voting system. In particular, future research into this area might consider examining the effects of candidate rotation and how this might mitigate the effects of displaying long ballot content in a scrollable fashion. It is possible, in jurisdictions in which candidate rotation is practiced, that the negative effects attributable to candidates appearing below the fold could be "washed out," or at the very least be equally as bad for all candidates.

Additionally, future research into this area may wish to consider examining when and where voters would actually use mobile technologies to cast their ballots. It is possible that these factors could heavily influence the effectiveness of any mobile voting system. Voters who would choose to vote from their place of business, for example, may have additional cognitive load or unnecessary distractions, that may lead to decreased voting system effectiveness and efficiency. Effects of this nature would likely be very difficult to properly measure in a laboratory setting and may simply not be present in polling stations in which the only focus, or goal, is to complete the ballot.

CONCLUSION

Overall, this research has led to a better understanding of how voting systems, especially the electronic variants, should support voters. When ballot content is too long to be displayed in its entirety then that content should be paginated across multiple screens, at the expense of efficiency and the extent to which it scales to heavily contested races, to reduce voting errors. Similarly, this research provides strong support for the practice of candidate rotation to help ensure that candidates that fall below the fold appear above the fold an equally as often. To help ensure accurate election tallies that reflect the will of the electorate, ballot designs should consider these design requirements when formatting ballots.

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APPENDIX A

Voting Study Survey Packet

Experiment #: x110
2012

Participant Number: _____

Background and General Voting Survey

1. Age: _____

2. Gender: ____ Male ____ Female

3. Year or Position at Rice University (if applicable):

____ Freshman
____ Sophomore
____ Junior
____ Senior
____ 5th +
____ Graduate
____ Staff
____ Faculty
____ Other/None

4. If you are a student, in what division(s) is/are your planned major(s)? Check all that apply.

____ Humanities
____ Social Sciences
____ Natural Sciences
____ Engineering
____ Architecture
____ Music

5. Do you have normal or corrected to normal vision? ____ No ____ Yes

6. Do you consider yourself to have a reading disability? _____ No _____ Yes

7. Are you left or right handed? ____ Right ____ Left ____ Ambidextrous

8. Are you a native English speaker? ____ No ____ Yes

If no, what is your native language? _____

9. Can you touch type? (Can you type without looking at the keys?)

____ No ____ Yes

10. How many hours per week do you use a computer?

____ less than 5 hours
____ between 5 and 10 hours
____ between 10 and 20 hours
____ between 20 and 30 hours
____ between 30 and 40 hours
____ over 40 hours

11. Please rate your level of computer expertise (1 = novice, 10 = expert)

1 2 3 4 5 6 7 8 9 10

12. Which of these activities do you use a computer for? Check all that apply.

____ Word Processing (e.g. Microsoft Word)
____ Programming (e.g. Java, C++, Scheme)
____ Web design
____ Graphic Design (e.g. Adobe Photoshop, Illustrator)
____ Video Editing
____ Personal Finance (e.g. Quicken, Turbo Tax)
____ Games
____ Music
____ Multimedia (e.g encyclopedias; interactive CDs)
____ Spreadsheet management (e.g. Microsoft Excel)
____ Data Analysis (e.g. SAS, SPSS)

13. What is your political affiliation?

____ Republican
____ Democrat
____ Libertarian
____ Independent
____ Other, please specify: _____

14. How many **national** elections have you voted in?

____ 0 to 5
____ 6 to 10
____ 11 to 15
____ 15 to 20
____ 21 or more

15. In which state(s) and county(s) have you voted in a national election?

_____

16. How many **other** elections of any type (local, school board, etc.) have you voted in?

____ 0 to 5
____ 6 to 10
____ 11 to 15
____ 15 to 20
____ 21 or more

17. In which state(s) and county(s) have you voted in other types of elections?

_____

Note: For questions 18 - 25, please answer while keeping in mind your previous voting experience in **any type** of election (not including voting you did in this study). If you have never voted, please skip questions 18 - 25.

18. Do you typically cast your vote on an absentee ballot?

____ No ____ Yes

19. Please indicate **how many times** you have used each type of technology or ballot to cast your vote in any election.

____ Fill in the bubble (or box)
____ Connect the arrows (or lines)
____ Open response
____ Lever machines
____ Punch cards
____ Electronic – touch screen
____ Electronic – other
____ Don't know
____ Other, please specify:
_____

20. Have you ever felt worried about figuring out how to use the ballot or technology to cast your vote?

____ No ____ Yes

21. Have you ever felt that time pressure caused you to rush, make a mistake, or leave a choice blank when you would not otherwise have done so?

____ No ____ Yes

22. If you have felt time pressure, did this prevent you from voting?

____ No ____ Yes

23. Do you typically vote a straight-party ticket?

____ No ____ Yes

24. Do you typically cast a vote for **every** office on the ballot?

____ No ____ Yes

25. When you voted in an election, have you ever been unsure if your vote was cast correctly or would be counted?

____ No ____ Yes

If yes, please describe the situation.

26. Have you been following the news about computer voting and potential security concerns? (Please choose one)

____ No, not at all

____ Yes, somewhat

____ Yes, very closely

27. Has news about computer voting and potential security concerns affected your trust of these systems?

____ No ____ Yes

Why or why not? _____

_____

_____

_____

28. How often do you use an ATM (Automated Teller Machine) to get money or complete other transactions at a bank, grocery store, or other location?

____ never
____ very infrequently
____ occasionally (for example 1-4 times a year)
____ often (for example once a month)
____ frequently (for example once a week or more)

29. What is your current occupation? _____

30. Please indicate the highest level of education you have completed.

____ Some high school
____ High school or G.E.D.
____ Some college or Associate's degree
____ Bachelor's degree or equivalent
____ Postgraduate degree (such as M.A., Ph.D., M.D., J.D.)

31. Are you:
____ African American
____ American Indian
____ Asian American
____ Caucasian
____ Mexican American or Chicano
____ Other Hispanic or Latino (please specify) _____
____ Multiracial (please specify) _____
____ Other (please specify) _____

32. Which of the following income ranges best describes your yearly wages?
____ below $20,000
____ $20,000 to $40,000
____ $40,000 to $60,000
____ $60,000 to $80,000
____ Above $80,000

33. If you are retired, which of the following income ranges best describes your maximum yearly wages while you were working full-time?
____ below $20,000
____ $20,000 to $40,000
____ $40,000 to $60,000
____ $60,000 to $80,000
____ Above $80,000

Mobile Phone Use Survey

1. When you voted on the mobile phone today, did you hold the mobile phone in portrait or in landscape mode?

____ Portrait (i.e., so that the mobile phone was taller than it was wide)
____ Landscape (i.e., so that the mobile phone was wider than it was tall)

2. When you voted on the mobile phone today, did you use one or both hands to make selections?

____ One hand
____ Both hands

3. Do you own an iPhone?

____ No ____ Yes

If you answered "No" to question 3 above, skip questions 4 - 8 and go to question #9.

4. What version iPhone do you own?

____ iPhone Original
____ iPhone 3G
____ iPhone 3GS
____ iPhone 4
____ iPhone 4S

5. How long have you owned your iPhone?

____ Less than 1 month
____ 1 – 6 months
____ 6 – 12 months
____ Over 1 year

6. About how many applications (a.k.a. "apps") have you downloaded to your iPhone?

_____

7. On average, about how many hours a week do you use your iPhone to go on the Internet?

____ Never
____ Less than 1 hour/week
____ 1 – 5 hours/week
____ 5 – 10 hours/week
____ More than 10 hours/week

8. What kinds of things do you regularly do on your iPhone? Please mark all that apply:

____ Make/receive calls
____ Send/receive email
____ Instant message
____ Take pictures
____ Play games
____ Use the Internet
____ Use 3rd party applications

9. Do you own a smartphone that is **NOT** an iPhone?

____ No ____ Yes

If you answered "No" to question 9 above, skip questions 10 - 14.

10. How long have you owned your smartphone?

____ Less than 1 month
____ 1 – 6 months
____ 6 – 12 months
____ Over 1 year

11. What kind of smartphone do you own?

_____

12. About how many applications (aka "apps") have you downloaded on your smartphone?

_____

13. On average, about how many hours a week do you use your smartphone to go on the Internet?

____ Never
____ Less than 1 hour/week
____ 1 – 5 hours/week
____ 5 – 10 hours/week
____ More than 10 hours/week

14. What kinds of things do you currently do on your smartphone? Please mark all that apply:

____ Make/receive calls
____ Send/receive email
____ Instant message
____ Take pictures
____ Play games
____ Use the Internet
____ Use 3rd party applications

Review Screen Survey

When you voted with the mobile phone voting system, you were shown a summary screen (see picture below) before casting your ballot. This screen displayed the names of the races and what selection you made.

1. Did you feel that having a summary screen was useful?

____ No ____ Yes

2. How carefully did you examine the review screen to make sure that your choices were recorded correctly?

____ Not at all

____ Somewhat

____ Very carefully

3. Did the summary screen perform as you expected it to?

____ No ____ Yes

4. Please describe why the summary screen either did or did not perform as you expected.

_____

_____

_____

5. Did you change any of your choices after viewing the summary screen?

____ No ____ Yes

6. If you made a change after viewing the summary screen, please describe why you made a change.

_____

_____

_____

7. If you made a change after viewing the summary screen, were you satisfied with the ability to change your selection?

____ No ____ Yes

8. Did you feel that having a summary screen made you feel confident that your vote would be counted correctly?

____ No ____ Yes

Why or why not?

_____

_____

9. Although the paper ballot did not provide you with method to review your vote like a summary screen, did you check each of your choices to make sure they were correct?

____ No ____ Yes

Why or why not?

_____

_____

_____

10. The third voting method you used, the computer, also provided you with a method to review your vote like a summary screen. Did you check each of your choices to make sure they were correct?

____ No ____ Yes

Why or why not?

_____

_____

_____

11. Did you feel checking your vote with the mobile phone or the computer ballot was better, or were they the same? Why?

_____

_____

_____

Voting Method Comparison Survey

1. Of the three voting methods you used in this study, which was your **favorite**? (Please circle one.)

Paper Ballot **Mobile Phone** **Computer**

2. Why was this your favorite type?

_____

_____

_____

3. What, if anything, did you **not** like about the other voting methods (the two that were not your favorite)?

_____

_____

_____

4. Have you ever voted on another type of ballot or voting equipment that you liked better than these? (Please circle one.)

No **Yes**

If yes, please describe the other ballot.

_____

_____

_____

Accuracy Comparison Survey

1. Please consider the **mobile phone voting method**. How accurate did you feel this voting method was? In other words, how confident were you that the voting method recorded the vote that you intended? Please indicate your response on a scale of 1 to 5, with 1 being least confident and 5 being most confident.

Not at all confident				Very confident
1	2	3	4	5

2. Please consider the **paper ballot voting method**. How accurate did you feel this voting method was? In other words, how confident were you that the voting method recorded the vote that you intended? Please indicate your response on a scale of 1 to 5, with 1 being least confident and 5 being most confident.

Not at all confident				Very confident
1	2	3	4	5

3. Please consider the **computer voting method**. How accurate did you feel this voting method was? In other words, how confident were you that the voting method recorded the vote that you intended? Please indicate your response on a scale of 1 to 5, with 1 being least confident and 5 being most confident.

Not at all confident				Very confident
1	2	3	4	5

Security Comparison Survey

1. Please consider the **mobile phone voting method**. How secure did you feel this voting method was? In other words, how confident did you feel that your vote could not be changed after the fact? Please indicate your response on a scale of 1 to 5, with 1 being least confident and 5 being most confident.

Not at all confident				Very confident
1	2	3	4	5

2. Please consider the **paper ballot voting method**. How secure did you feel this voting method was? In other words, how confident did you feel that your vote could not be changed after the fact? Please indicate your response on a scale of 1 to 5, with 1 being least confident and 5 being most confident.

Not at all confident				Very confident
1	2	3	4	5

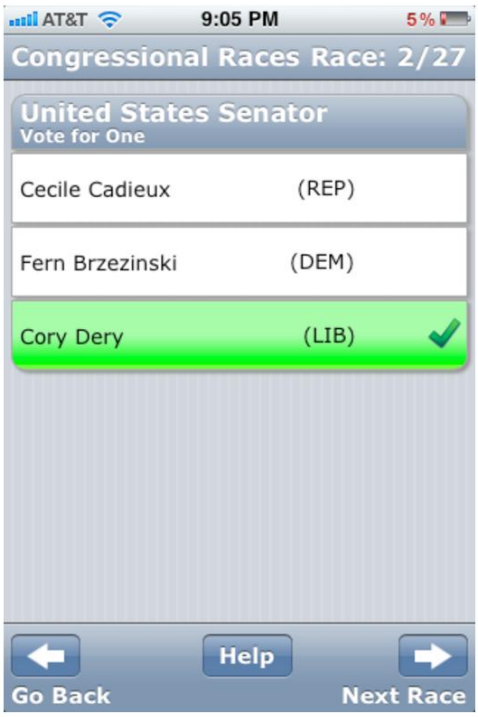
2. Please consider the **computer voting method**. How secure did you feel this voting method was? In other words, how confident did you feel that your vote could not be changed after the fact? Please indicate your response on a scale of 1 to 5, with 1 being least confident and 5 being most confident.

Not at all confident				Very confident
1	2	3	4	5

Instructions & Screen Size Survey

1. Did you feel that the instructions on the following voting method were easy to understand? (Please circle one.)

No **Yes**



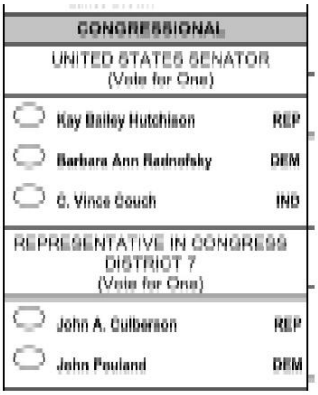
If no, what was unclear? _____

_____

_____

2. Did you feel that the instructions on the following voting method were easy to understand? (Please circle one.)

No **Yes**



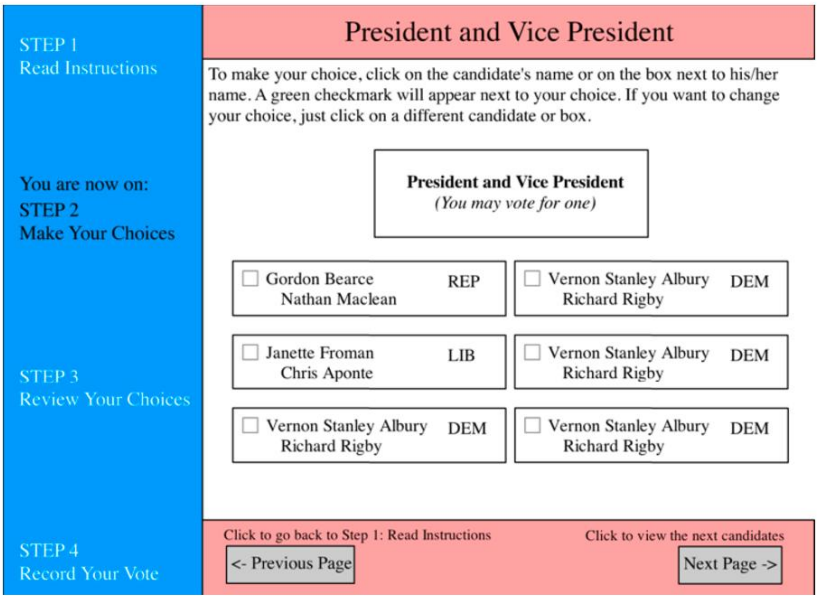
If no, what was unclear? _____

_____

_____

3. Did you feel that the instructions on the following voting method were easy to understand? (Please circle one.)

No **Yes**



If no, what was unclear? _____

_____

_____

When answering the following questions, consider your experience with the mobile phone voting system.

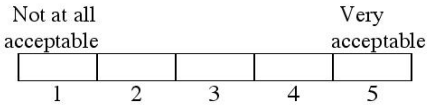
1. Was it easy to select candidates on the mobile phone?

____ No ____ Yes

If no, why not?

_____

2. How would you rate the size of the display on the mobile phone voting system?



Voter Guide Survey

Please answer the following questions by circling your answer. By "voter guide," we mean a packet that describes the candidates running for offices and their ideas about various issues. It also would include information on the propositions on the ballot.

1. If we had offered you a voter guide today, would you have wanted one?

No **Yes** **Not Sure**

2. How would you have used a voter guide if we had given you one?

Would not have looked at it

Briefly glanced at it

Read it carefully

3. Would you have used it when marking on the ballots?

No **Yes** **Not Sure**

4. In real-life voting situations, how often do you use a voter guide?

Never

Hardly ever

Sometimes

Most of the time

Always

5. If you use voter guides in real-life voting situations, please describe how you use it (For example, do you read it at home, while waiting in line, while voting? Do you mark your choices in advance? Do you bring it with you to look at when you vote? If you do use a voter guide, which one(s) do you use?

_____

_____

APPENDIX B

Please vote for the following candidates and propositions on all three ballots.

President And Vice President:
Althea Weibein (I)

United States Senator:
Fern Brzezinski (D)

Representative in Congress:
Robert Mettler (D)

Governor:
Rick Stickles (D)

Lieutenant Governor:
Cassie Principe (D)

Attorney General:
Rick Organ (D)

Comptroller of Public Accounts:
Greg Converse (D)

Commissioner of General Land Office:
Sam Saddler (R)

Commissioner of Agriculture:
Roberto Aron (D)

Railroad Commissioner:
Zachary Minick (D)

State Senator:
Wesley Steven Millette (D)

State Representative District 134:
Susanne Rael (D)

Member State Board of Education District 2:
Mark Baber (D)

Presiding Judge Texas Supreme Court Place 3:
Tim Grasty (D)

ADPB

Presiding Judge Court of Criminal Appeals Place 2:
Derrick Melgar (D)

District Attorney:
Jennifer A. Lundeed (D)

County Treasurer:
Gordon Kallas (D)

Houston I.S.D. Trustee, District 4
Tia Menges (D)

Sheriff:
Stanley Saari (R)

County Tax Assessor:
Randy H. Clemons

Justice of the Peace:
Deborah Kamps

Proposition 1:
No

Proposition 2:
Yes

Proposition 3:
Yes

Proposition 4:
No

Proposition 5:
Yes

Proposition 6:
Yes

Please vote for the following candidates and propositions on all three ballots.

President And Vice President:
Gordon Bearce (R)

United States Senator:
Cecile Cadieux (R)

Representative in Congress:
Robert Mettler (D)

Governor:
Glen Travis Lozier (R)

Lieutenant Governor:
Shane Terrio (R)

Attorney General:
Tim Speight (R)

Comptroller of Public Accounts:
Greg Converse (D)

Commissioner of General Land Office:
Sam Saddler (R)

Commissioner of Agriculture:
Polly Rylander (R)

Railroad Commissioner:
Jillian Balas (R)

State Senator:
Ricardo Nigro (R)

State Representative District 134:
Petra Bencomo (R)

Member State Board of Education District 2:
Peter Varga (R)

Presiding Judge Texas Supreme Court Place 3:
Tim Grasty (D)

Presiding Judge Court of Criminal Appeals Place 2:
Dan Plouffee (R)

District Attorney:
Corey Behnke (R)

County Treasurer:
Dean Caffee (R)

Houston I.S.D. Trustee, District 4
Allan Trabert (R)

Sheriff:
Stanley Saari (R)

County Tax Assessor:
Howard Grady

Justice of the Peace:
Deborah Kamps

Proposition 1:
No

Proposition 2:
Yes

Proposition 3:
No

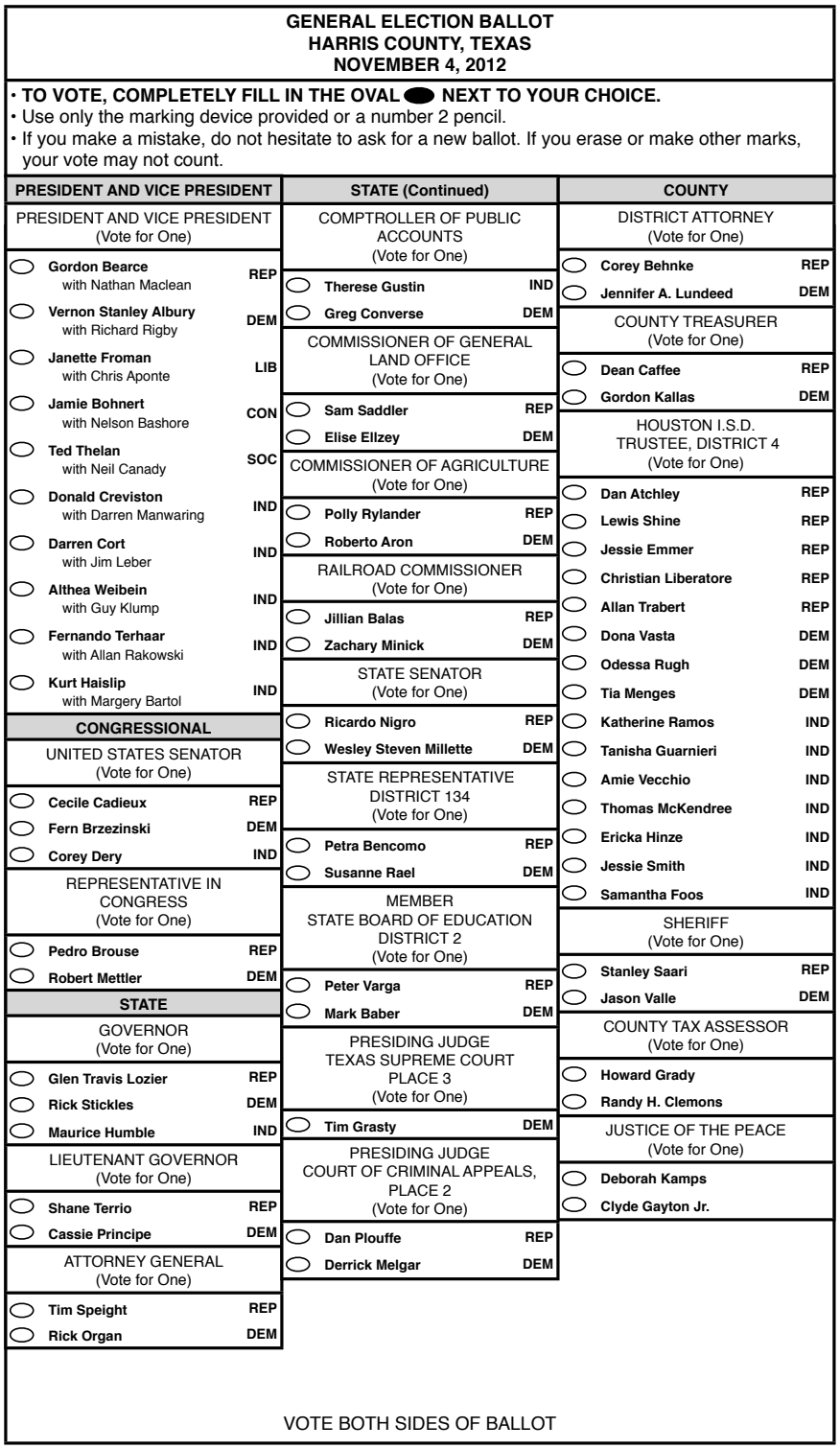
Proposition 4:
Yes

Proposition 5:
Yes

Proposition 6:
No

ARPT

APPENDIX C



GENERAL ELECTION BALLOT
HARRIS COUNTY, TEXAS
NOVEMBER 4, 2012

- **TO VOTE, COMPLETELY FILL IN THE OVAL ⬬ NEXT TO YOUR CHOICE.**
- Use only the marking device provided or a number 2 pencil.
- If you make a mistake, do not hesitate to ask for a new ballot. If you erase or make other marks, your vote may not count.

PRESIDENT AND VICE PRESIDENT

PRESIDENT AND VICE PRESIDENT
(Vote for One)

- **Gordon Bearce** with Nathan Maclean — REP
- **Vernon Stanley Albury** with Richard Rigby — DEM
- **Janette Froman** with Chris Aponte — LIB
- **Jamie Bohnert** with Nelson Bashore — CON
- **Ted Thelan** with Neil Canady — SOC
- **Donald Creviston** with Darren Manwaring — IND
- **Darren Cort** with Jim Leber — IND
- **Althea Weibein** with Guy Klump — IND
- **Fernando Terhaar** with Allan Rakowski — IND
- **Kurt Haislip** with Margery Bartol — IND

CONGRESSIONAL

UNITED STATES SENATOR
(Vote for One)

- **Cecile Cadieux** — REP
- **Fern Brzezinski** — DEM
- **Corey Dery** — IND

REPRESENTATIVE IN CONGRESS
(Vote for One)

- **Pedro Brouse** — REP
- **Robert Mettler** — DEM

STATE

GOVERNOR
(Vote for One)

- **Glen Travis Lozier** — REP
- **Rick Stickles** — DEM
- **Maurice Humble** — IND

LIEUTENANT GOVERNOR
(Vote for One)

- **Shane Terrio** — REP
- **Cassie Principe** — DEM

ATTORNEY GENERAL
(Vote for One)

- **Tim Speight** — REP
- **Rick Organ** — DEM

STATE (Continued)

COMPTROLLER OF PUBLIC ACCOUNTS
(Vote for One)

- **Therese Gustin** — IND
- **Greg Converse** — DEM

COMMISSIONER OF GENERAL LAND OFFICE
(Vote for One)

- **Sam Saddler** — REP
- **Elise Ellzey** — DEM

COMMISSIONER OF AGRICULTURE
(Vote for One)

- **Polly Rylander** — REP
- **Roberto Aron** — DEM

RAILROAD COMMISSIONER
(Vote for One)

- **Jillian Balas** — REP
- **Zachary Minick** — DEM

STATE SENATOR
(Vote for One)

- **Ricardo Nigro** — REP
- **Wesley Steven Millette** — DEM

STATE REPRESENTATIVE DISTRICT 134
(Vote for One)

- **Petra Bencomo** — REP
- **Susanne Rael** — DEM

MEMBER STATE BOARD OF EDUCATION DISTRICT 2
(Vote for One)

- **Peter Varga** — REP
- **Mark Baber** — DEM

PRESIDING JUDGE TEXAS SUPREME COURT PLACE 3
(Vote for One)

- **Tim Grasty** — DEM

PRESIDING JUDGE COURT OF CRIMINAL APPEALS, PLACE 2
(Vote for One)

- **Dan Plouffe** — REP
- **Derrick Melgar** — DEM

COUNTY

DISTRICT ATTORNEY
(Vote for One)

- **Corey Behnke** — REP
- **Jennifer A. Lundeed** — DEM

COUNTY TREASURER
(Vote for One)

- **Dean Caffee** — REP
- **Gordon Kallas** — DEM

HOUSTON I.S.D. TRUSTEE, DISTRICT 4
(Vote for One)

- **Dan Atchley** — REP
- **Lewis Shine** — REP
- **Jessie Emmer** — REP
- **Christian Liberatore** — REP
- **Allan Trabert** — REP
- **Dona Vasta** — DEM
- **Odessa Rugh** — DEM
- **Tia Menges** — DEM
- **Katherine Ramos** — IND
- **Tanisha Guarnieri** — IND
- **Amie Vecchio** — IND
- **Thomas McKendree** — IND
- **Ericka Hinze** — IND
- **Jessie Smith** — IND
- **Samantha Foos** — IND

SHERIFF
(Vote for One)

- **Stanley Saari** — REP
- **Jason Valle** — DEM

COUNTY TAX ASSESSOR
(Vote for One)

- **Howard Grady**
- **Randy H. Clemons**

JUSTICE OF THE PEACE
(Vote for One)

- **Deborah Kamps**
- **Clyde Gayton Jr.**

VOTE BOTH SIDES OF BALLOT

GENERAL ELECTION BALLOT
HARRIS COUNTY, TEXAS
NOVEMBER 4, 2012

- **TO VOTE, COMPLETELY FILL IN THE OVAL ⬬ NEXT TO YOUR CHOICE.**
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PRESIDENT AND VICE PRESIDENT

PRESIDENT AND VICE PRESIDENT
(Vote for One)

- ⬭ **Gordon Bearce** with Nathan Maclean — **REP**
- ⬭ **Vernon Stanley Albury** with Richard Rigby — **DEM**
- ⬭ **Janette Froman** with Chris Aponte — **LIB**
- ⬭ **Jamie Bohnert** with Nelson Bashore — **CON**
- ⬭ **Ted Thelan** with Neil Canady — **SOC**
- ⬭ **Donald Creviston** with Darren Manwaring — **IND**
- ⬭ **Darren Cort** with Jim Leber — **IND**
- ⬭ **Althea Weibein** with Guy Klump — **IND**
- ⬭ **Fernando Terhaar** with Allan Rakowski — **IND**
- ⬭ **Kurt Haislip** with Margery Bartol — **IND**

CONGRESSIONAL

UNITED STATES SENATOR
(Vote for One)

- ⬭ **Cecile Cadieux** — **REP**
- ⬭ **Fern Brzezinski** — **DEM**
- ⬭ **Corey Dery** — **IND**

REPRESENTATIVE IN CONGRESS
(Vote for One)

- ⬭ **Pedro Brouse** — **REP**
- ⬭ **Robert Mettler** — **DEM**

STATE

GOVERNOR
(Vote for One)

- ⬭ **Glen Travis Lozier** — **REP**
- ⬭ **Rick Stickles** — **DEM**
- ⬭ **Maurice Humble** — **IND**

LIEUTENANT GOVERNOR
(Vote for One)

- ⬭ **Shane Terrio** — **REP**
- ⬭ **Cassie Principe** — **DEM**

ATTORNEY GENERAL
(Vote for One)

- ⬭ **Tim Speight** — **REP**
- ⬭ **Rick Organ** — **DEM**

STATE (Continued)

COMPTROLLER OF PUBLIC ACCOUNTS
(Vote for One)

- ⬭ **Therese Gustin** — **IND**
- ⬭ **Greg Converse** — **DEM**

COMMISSIONER OF GENERAL LAND OFFICE
(Vote for One)

- ⬭ **Sam Saddler** — **REP**
- ⬭ **Elise Ellzey** — **DEM**

COMMISSIONER OF AGRICULTURE
(Vote for One)

- ⬭ **Polly Rylander** — **REP**
- ⬭ **Roberto Aron** — **DEM**

RAILROAD COMMISSIONER
(Vote for One)

- ⬭ **Jillian Balas** — **REP**
- ⬭ **Zachary Minick** — **DEM**

STATE SENATOR
(Vote for One)

- ⬭ **Ricardo Nigro** — **REP**
- ⬭ **Wesley Steven Millette** — **DEM**

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(Vote for One)

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- ⬭ **Susanne Rael** — **DEM**

MEMBER STATE BOARD OF EDUCATION DISTRICT 2
(Vote for One)

- ⬭ **Peter Varga** — **REP**
- ⬭ **Mark Baber** — **DEM**

PRESIDING JUDGE TEXAS SUPREME COURT PLACE 3
(Vote for One)

- ⬭ **Tim Grasty** — **DEM**

PRESIDING JUDGE COURT OF CRIMINAL APPEALS, PLACE 2
(Vote for One)

- ⬭ **Dan Plouffe** — **REP**
- ⬭ **Derrick Melgar** — **DEM**

COUNTY

DISTRICT ATTORNEY
(Vote for One)

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- ⬭ **Jennifer A. Lundeed** — **DEM**

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(Vote for One)

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(Vote for One)

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- ⬭ **Lewis Shine** — **REP**
- ⬭ **Jessie Emmer** — **REP**
- ⬭ **Christian Liberatore** — **REP**
- ⬭ **Allan Trabert** — **REP**
- ⬭ **Dona Vasta** — **DEM**
- ⬭ **Odessa Rugh** — **DEM**
- ⬭ **Tia Menges** — **DEM**
- ⬭ **Katherine Ramos** — **IND**
- ⬭ **Tanisha Guarnieri** — **IND**
- ⬭ **Amie Vecchio** — **IND**
- ⬭ **Thomas McKendree** — **IND**
- ⬭ **Ericka Hinze** — **IND**
- ⬭ **Jessie Smith** — **IND**
- ⬭ **Samantha Foos** — **IND**

SHERIFF
(Vote for One)

- ⬭ **Stanley Saari** — **REP**
- ⬭ **Jason Valle** — **DEM**

COUNTY TAX ASSESSOR
(Vote for One)

- ⬭ **Howard Grady**
- ⬭ **Randy H. Clemons**

JUSTICE OF THE PEACE
(Vote for One)

- ⬭ **Deborah Kamps**
- ⬭ **Clyde Gayton Jr.**

VOTE BOTH SIDES OF BALLOT

APPENDIX D

TEXAS
2012 GENERAL ELECTION
VOTER GUIDE

TEXAS GENERAL ELECTION
TUESDAY, NOVEMBER 6, 2012
POLLS OPEN 7:00 a.m. to 7:00 p.m.

NOTE TO PARTICIPANTS: THIS VOTER GUIDE HAS BEEN COMPILED SOLELY FOR RESEARCH PURPOSES AND IS NOT INTENDED TO REFLECT THE VIEWS OF RICE UNIVERSITY OR OF THE RESEARCHERS ASSOCIATED WITH THIS STUDY. IT ALSO IS NOT INTENDED TO DEPICT REAL PEOPLE.

CANDIDATES FOR PRESIDENT & VICE PRESIDENT

QUESTIONS:

(1) **What do you feel the federal government should do about immigration?**

(2) **What should the federal government do, if anything, to make sure that every American has health coverage?**

(3) **What should be done, if anything, at the federal level to reduce our use of and dependence on fossil fuels?**

Gordon Bearce, Republican
with Nathan Maclean

Background: Minnesota chapter of Free Masons (1995-current); degree in politics and economics, University of Minnesota (1993); Divorced and re-married.

1. I believe that we should restrict the amount of immigrants we already let in legally. What America needs is not more people but better resource management. Only the most productive of immigrants should be let into the country. Negotiations should be made with other countries to enact higher penalties and punishments on those who enter our country illegally.

2. Only those who can no longer care for themselves and those who have served their country deserve health coverage. I believe all veterans (and their families) as well as government workers, and senior citizens deserve health care. Children would also fall under this, but I believe this should be limited to children from families in financial need.

3. Our dependence on fossil fuels is the least of our problems. That being said, it will become a problem (hopefully not until the distant future) at some point. I believe work is already being done on cleaner, smarter cars that do not exact such a heavy toll on the environment.

Vernon Stanley Albury, Democrat
with Richard Rigby

Background: I served in Vietnam and attended college in Texas where I earned a degree in political science. I am married with two children and currently serve as the senator of my home state Nebraska. I also actively perform duties as director of the Boy Scouts of America in my local area.

1. Our country was founded on immigrants; the vast majority of Americans can trace their ancestry to other countries. Why should it be different now? I believe immigrants should be allowed in the country. If we have tabs on them, then I feel immigrants are just as eager as current Americans to help continue to make and maintain the greatest country on earth. I believe that the federal government should keep a close tab on recent immigrants (maybe for a year or two) to make sure they are being productive. The threshold for deportation should be somewhat low (like committing a felony or maybe even misdemeanors).

2. The medical sector is an interesting one; it's private and in the scheme of capitalism that should work best. It allows for doctors to be well compensated that theoretically should give them more motivation to do better. If the

federal government was to take over, I believe their work would suffer and therefore the health of the people. I believe sacrifices for governmental spending should be made in other areas to allow for a more comprehensive and fiscally feasible universal healthcare plan.

3. I believe even without our abundant use of fossil fuels, global warming would still be occurring. The answer is simple; there are too many people. Genghis Khan cooled the earth's temperature by slaughtering about a million people (literally). I believe we need to come up with a humane and creative way to help preserve our planet.

Janette Froman, Libertarian Party
with Chris Aponte

Background: The early years of my life were spent doing school and humanitarian works with my parents in India. I came back to the states around my 20's, got a degree at Harvard and continued my humanitarian lifestyle in the U.S., founding such organizations as A Gift of Life in 1999 and Green Cycle in (2006). Married, no children.

1. All immigrants deserve the right to be able to come to America and make this their home. In order to help better integrate new citizens, there should be federal "citizen training" programs to facilitate easy integration into productive citizenship. New immigrants need to be treated with equality and police should not be able to use "secret evidence" in deportation hearings, and police should not congregate where immigrants are anymore than they'd congregate for non-immigrants areas.

2. Diseases ravage the nation and when a cure is not found, or research is hindered by budgets, then the diseases manage to just eat up more funds through expensive and temporary treatments. Full funding needs to be given to such pressing issues as AIDS and cancer, and universal healthcare needs to be provided for all in order to prevent diseases from getting into advanced stages. I believe that will be the cheapest action for the nation over the course of the next decade; to work it's hardest to keep its citizens healthy. Healthy citizens, healthy nation.

3. I believe we need to move to a more minimalist use of resources to help preserve the environment. Flying has become one of the contributing factors to global warming and I believe in order to help combat this that federally imposed limits on flights per person should be imposed. That, or there is an environmental fee for certain activities that consume large amounts of fossil fuel. For example, for every flight you must contribute to one tree being planted.

Jamie Bohnert, Constitution Party
with Nelson Bashore

Background: Born and raised in Texas; Degree from Stanford (1995) in business and economics; senator of Texas.

1. Immigration is a danger to the country, many illegal immigrants feel more liberated to perform criminal acts because they are "off the radar." Now that's not to say I feel like there aren't many productive illegal immigrants, but are current immigration laws make it hard for them to be active citizens. The point is, we should use military force to prevent more illegal immigrants. There are enough in this country that we don't know about.

2. I believe that patients and doctors should have a personal form of communication, disassociated from government, or at least separated from federal government. That says it all.

3. Because of the amount of people in our country, and as can be seen by the unprecedented temperatures as of late, something needs to be done about our usage of fossil fuels. Personally, I believe prices of fuel need to rise while the federal government provides better public transportation.

Ted Thelen, Socialist Party
with Neil Canady

Background: Graduated from Annapolis Naval Academy in 1994 and was in the Navy from 1995-2002. I was Mayor of San Francisco for three years.

1. Immigrants should be granted a status to become citizens given they fulfill particular requirements. We are witnessing the growth of a new class in America and I believe we should embrace it rather than try to stomp it out.

2. Healthcare needs to be universal in order to help us grow unhindered as a society. Not enough money is being funneled into researching cures for pressing diseases and for caring for those who can't care for themselves. The government is supposed to protect its citizens.

3. We need to drastically reduce, or even eliminate the use of fossil fuels. We are killing the environment, a thing which we are dependent upon, so unless we find a way to inhabit other planets, we need to preserve our limited resources such as fossil fuel.

Donald Creviston, Independent
with Darren Manwaring

Background: Mayor of Cincinnati for two terms. Ran for president in 2008 and lost, but have come back with renewed gusto. Married with a daughter and was in the Army for 5 years before I got married.

1. I believe that we should open our borders to immigrants. Adding fresh perspectives to our current problems will help us to overcome. Our nation is a melting pot and I believe that has helped us to do well. Many hands make light work.

2. Healthcare should be nationalized. Plain and simple. As a government, our first concern should be the protection of our citizens and I believe protecting our citizens lives should be encompassed by adequate health care as well as protection from external threats.

3. Prices to fossil fuels should be raised; this will help to preserve them because it will lessen the amount that they are used and will help to cement the importance and value for this dying resource.

Darren Cort, Independent
with Jim Leber

Background: FSU graduate (1998); worked in the advertisement industry for a few years before I decided to attend college and get a degree in economics. I worked with Green Peace for a few years after college and then came back and worked my way up to senator.

1. I believe that federal immigration laws should be more lax. If someone manages to get into our country, they should feel like a citizen if they manage to live here a certain amount of time. If they can prove they have lived here

a certain amount of time, then they should be awarded citizenship status. It is my belief that most immigrants come here in good faith hoping to contribute to our society. There should be a probationary period on citizenships acquired in this way though.

2. I don't believe that it is feasible for the federal government to provide healthcare. We are already in a financial crisis and it would only add to our fiscal problems - that's not to say I don't think it would be ideal to be able to provide universal healthcare to all of our citizens.

3. I don't believe there is much that the federal government can do at this point. We can only fund research for non-fossil fuel dependent technologies.

Althea Weibein, Independent
with Guy Klump

Background: Lawyer in New York city for ten years; moved to politics because of my desire to go a step higher to make people's interactions with the law better. Graduated Harvard law in 2000.

1. The rate of immigration needs to be halted quickly. Some of my competitors may argue that our country was built on immigrants, why should that be any different now? The answer is that the situations of the time mandate more lax immigration now. We are no longer building a nation, we are maintaining one now. In order to do that, we must know who is in our country to adequately account for resource usage.

2. Nothing.

3. I believe that this will soon become a problem of the past; there are now high end electric cars and I believe that these are indicative that making viable electric cars is easier than we thought. This will help reduce the strain on the environment from automobiles and I believe it will also help to preserve fossil fuels. The federal government needs to step in to help make an affordable deployment of these vehicles.

Fernando Terhaar, Independent
with Allan Rakowski

Background: Graduated from University of Chicago (2001) with honors; Sigma Phi Pi. Worked in government positions for my city and then slowly worked my way up to state representative. Running for president to try and make a change for the nation as opposed to just my city.

1. The federal government should not do anything more than is already being done. It's already an extremely long and difficult process to gain citizenship, if anything this should be relaxed in order to help immigrants to be more productive for the US. Those who do not gain citizenship in due processes should be deported; this is already the case.

2. I believe universal healthcare leads us closer to communism and further away from capitalism. This may sound radical or ludicrous, but capitalism works. It keeps people motivated to perform better and allows for anyone to catch the break they need with a little luck and a lot of skill. I do believe that the healthcare available now should be aided by the government to help make it cheaper; this will still allow more people to retain their health and will also not be too fiscally taxing on the government. If anything, healthcare should be determined by state governments.

3. I believe that federal funding needs to be reassigned to put more importance on the research of alleviating the pressures that the use of fossil fuels creates. If anything, transportation should be something that is more affordable and that does not demolish the environment. I believe this would help our citizens to be more productive and would open a world of opportunities to them.

Kurt Haislip, Independent
with Margery Bartol

Background: Graduate of Saint Mary's College in 1996. Have been working on humanitarian efforts in inner city areas for six years after graduating. Helped form a lot of important legislature in my home state of Missouri.

1. I believe that we need to erect a wall on the Mexican American border. It is clear that entering America is far too easy with the current number of illegal citizens in the nation. That being said, we should treat immigrants who go through our legal citizenship process to more easily become U.S. citizens, the current process is very complicated and drawn out. I believe in equality for all, and no man is above the law. We're all equal under it.

2. I believe healthcare should be universal. It seems unfair that one person should be more entitled to live than another because one man lacks the funds to pay doctors. The federal government needs to cut spending in other areas to focus on this important issue in our nation.

3. I don't believe that anything needs to be done by the federal government. Private research companies are already working on solutions to our energy and resource crisis.

CANDIDATES FOR U.S. SENATOR

QUESTIONS:

(1) **What changes, if any, need to be implemented in US free-trade policies?**

(2) **A number of criticisms have been aimed at the Medicare prescription coverage program. What modifications, if any, would you support?**

(3) **What, if anything, would you change about "No Child Left Behind"?**

Cecile Cadieux, Republican

Background: JD, University of Texas 1985 – LLM in Taxation, University of Florida 1989, Authored or co-authored 14 professional articles; Married, one child

1. Chinese goods should be tariffed to cause their prices to be what they would be but for attachment of the Yuan to the Dollar. (China's currency has been attached to the dollar since 1995.) Attachment has prevented US manufacturers from being able to compete, thus causing loss of U.S. jobs.

2. The Program should be repealed and HHS should be directed to negotiate with the pharmaceutical companies to provide our seniors with the prices that are charged to western European and Canadian seniors. Catastrophic coverage should exist, but it should be funded by small Medicare Part A/B benefit reduction.

3. Test scores have not been improved since the federal Department of Education was created in 1979. Three levels of government is enough. Debts and unfunded liabilities of the federal government total $330,000 per full-time worker. I would dismantle the DOE.

Fern Brzezinski, Democrat

Background: I am a businesswoman, family woman, and public servant. I have been a business and political leader in Georgia for over 30 years, and I currently serve in the US House of Representatives. I am proud of my family, and I have 3 children and 4 grandchildren.

1. Our biggest challenge to our Free Trade Agreements is to make sure US Trade Representatives enforce the rights of US companies through the World Trade Organization.

2. The first phase of the Medicare Modernization Act has gone very well with the implementation of the Discount Drug Cards for seniors. The main provisions of the Act do not take effect until 2011. Any modification should only be considered after implementation in 2011.

3. As an original coauthor of NCLB, we are constantly monitoring its progress. We have already modified provision for testing of special education children and non-English speaking children. We must refine the "highly qualified teacher" provision, particularly in Special Education instruction.

Corey Dery, Independent

Background: I have a BA in Political Science from Yale University, and a JD from Duke University School of Law. I have served as a law clerk for the Texas Court of Appeals.

1. Trade agreements must guarantee that the US can act to protect workers from rapid changes in the international marketplace. I will carefully evaluate all trade agreements to ensure that they adequately protect the internationally recognized rights of workers including the right to organize and collectively bargain.

2. The Bush Administration's prescription drug plan must be changed so that our senior citizens can obtain prescription drugs at an affordable price. We should permit the government to negotiate with drug companies for fair prices for Medicare beneficiaries. We should also allow the re-importation of cheaper prescription drugs from other countries.

3. High quality education for our children is critical to the future of our economy and will give us a skilled and competitive workforce. As a member of the House Education and Workforce Committee, I have fought to fully fund Head Start, No Child Left Behind, and other important education initiatives.

CANDIDATES FOR REPRESENTATIVE IN CONGRESS

QUESTIONS:

(1) **Do you support the 9-11 Commission's recommendations regarding reorganization of Congressional Intelligence Committees? Please explain.**

(2) **What role should the federal government play in providing adequate health care for all Americans?**

(3) **How would you address the growing federal deficit?**

(4) **What is your position on renewing and/or expanding the US Patriot Act**

Pedro Brouse, Republican

Background: Education: B.A. Accounting, University of Texas, Austin; Experience: Auditor/accountant-Texas Department of Public Welfare (1973-1977), US Navy (1979-1983), Initial Rentokil USA, Inc (1983-2004)

1. Congress should play a greater role in oversight.

2. I am very concerned about inadequate planning for seniors and veterans. Millions of Texas families are without health insurance…it is tragic that so many children are left out and so many Americans of the "greatest generation"—seniors and veterans, most of whom are over 80 years old----are left behind, when all of us in the younger generations owe the World War II generation so much.

3. Inadequate management of the budget and the economy has created this problem for our future. I am proposing a more responsible foreign/defense policy to address budgeting…and new legislation to address large/multi-nationals that "outsource" and go "offshore"…our renewed emphasis on economic development and lowering the tax burden on Americans who have the least income will help.

4. It should not have been renewed, but rather revised to accomplish cooperation within our US law enforcement system while respecting our cherished US Constitution and Bill of Rights…undermining our rights, liberties, and freedoms does not enhance security; it diminishes our great American democracy.

Robert Mettler, Democrat

Background: Education: Graduate, Senior Executive Fellows Program, Harvard University. J.D., St. Mary's Law School. B.S., Trinity University; Experience: Chief, Terrorism and National Security, US Attorney's Office; Bush-Cheney transition team member; Attorney General Greg Abbott transition team member; Deputy Attorney General for Criminal Justice under John Cornyn; Trial attorney, Public Integrity Section, US DOJ

1. I support the Commission's recommendations on Congressional Intelligence Committees. Today, Congressional Intelligence gathering is spread over several committees making it more difficult for Congressional leaders to address the key issues that will define and determine our success in the war on terror. By consolidating the Committee structure, we help create one area where key security issues can be fully and completely examined.

2. The best possible health care system will be driven by consumer choice; where patients and physicians can make decisions about appropriate care. Our current system, both public (Medicare/Medicaid) and private (HMOs), limits

choice and drives up costs and must be reformed. Additionally, we must pass legislation to end runaway litigation that forces doctors to practice "defensive medicine," increasing costs and hampering development of cutting edge procedures and medicines while depriving Americans of the best health care possible.

3. Federal spending is driven by government bureaucracies and wasteful programs that are systematically funded, year after year, through massive "omnibus" spending bills which virtually no one actually reads, especially those in Congress. I strongly favor a Federal Agency "Sunset" Law so that each bureaucracy and every single funded program must justify its existence. This system in Texas has saved millions of dollars, and it is time we made Washington more closely account for every expenditure.

4. No matter the threat, America must protect our civil liberties enshrined in the Bill of Rights. If we curtail civil liberties to fight terrorism, the terrorists win. However, our laws must keep up with the times, allowing us to investigate, disrupt and prosecute terrorists before they destroy critical infrastructures. I support renewing the Patriot Act because it does just that: it takes existing legal principles and retrofits them to address the particular challenge of terrorism.

CANDIDATES FOR GOVERNOR

QUESTIONS:

(1) **What is your first priority as Governor?**

(2) **How would your budget reflect support for environmental measures?**

(3) **How would you improve and finance transportation?**

Glen Travis Lozier, Republican

Biography: BA, Texas 1977; JD Georgetown 1980; As Attorney General, I have focused on the security of Texans, including domestic violence and protecting children. A former state and federal prosecutor, I have also served as Secretary of Public Safety.

1. As Governor, I want to create a Texas filled with opportunity. To do this, we must have better pay for better teachers so that our children get a better education. We must empower Texans to have more control over their healthcare options through health savings accounts and long term care incentives. And I will continue my efforts to combat domestic violence and gang activity.

2. As Governor, I will pursue responsible environmental policies to benefit future generations by employing a stewardship based model for governing our natural resources and environmental assets, emphasizing collaboration and citizen involvement; recommitting our state to pollution prevention; and creating an environmental enforcement team to target those who harm the environment through purposeful or grossly negligent actions.

3. As Governor, I will lead the way to innovative transportation solutions that empower Texans and work to reduce congestion by creating Regional Transportation Authorities to develop and implement solutions to regional transportation problems. I will use prioritize the use of technology on our roadways to make them less congested.

Rick Stickles, Democrat

Biography: BS, Rice 1975; JD Texas 1980; My life has been shaped by my parents, family, children, faith, and my community. Working in my father's firm, as a civil rights lawyer, and later as Mayor and Lt. Governor taught me to value strong communities, equal opportunity, hard work, fiscal discipline and finding common ground.

1. Education. Our teachers deserve better pay, and our schools can be made better simply by an emphasis on education in our state budget. I will raise standards and expect nothing less than excellence in the classroom and in recruiting the nation's best teachers.

2. We owe it to our children to leave them this beautiful state as we found it. Budget reform will allow us to make historic investments in environmental programs. We should value clean air and a clean environment, and through budget reform, we can achieve these.

3. We need a new approach to reduce traffic. We cannot simply tax and pave our way out of the problem. I will work to fix the hole in the transportation bucket by vetoing any diversion of Transportation funds. I will create incentives to better connect land-use and transportation decisions to reduce traffic and sprawl.

Maurice Humble, Independent

Biography: I have a BA in Economics and a JD from Texas; I am currently serving my fourth term in the Texas State Senate, and I chair the Education and Health Committee. I value my family and my three daughters, and the community I live and work in.

1. My first priority as governor would be to implement a comprehensive solution to the state's transportation problems. The state also has several other important issues that need to be addressed—including education, tax reform, and health care.

2. As a state senator, I have been a strong advocate for the environment. I have worked to provide $15 million each year for air quality improvement. I will continue to fight for environmental improvement across the great state of Texas.

3. We have a crisis on our hands that needs to be fixed—I am the only gubernatorial candidate willing to recognize this fact. We need a radical approach to fixing our transportation problems, including bolstering our transportation budget and tackling the issue at the state level, rather than with regional authorities.

CANDIDATES FOR LIEUTENANT GOVERNOR

QUESTIONS:

(1) **How do you see yourself functioning in the role of Lieutenant Governor?**

(2) **How would you influence the dynamics of the legislative process?**

(3) **What would you like the citizens of Texas to know about you?**

Shane Terrio, Republican

Biography: Occupation: Consultant with Riggs, Counselman, Michaels, and Downes, a Houston-based insurance agency. Education: BA, Political Science, Texas, 1979. Experience: Texas State Senate 1996-present

1. The Lieutenant Governor's statutory responsibilities include presiding over the Senate of Texas and chairing a number of state commissions. With ten years experience in the State Senate, I can easily fulfill these responsibilities. I also look forward to working with others to take a leadership role in a number of state programs, including efforts to reform Medicaid and make quality health care available to every Texan.

2. During my ten years in the State Senate I have built strong personal relationships with other legislators from both political parties. I have been recognized as one of the most effective members, and I have proven my ability to work with people who hold competing views on important issues and fashion sound public policies for Texas. I will continue to do that as Lieutenant Governor.

3. I have the background, knowledge, and experience in state government that is necessary to help lead Texas. I have also articulated a clear vision for the future of Texas—a vision that creates a pro-business environment and a commitment to invest the resources that economic growth generates in the core responsibilities of state government including transportation, education, public safety, healthcare, and responsible efforts to protect our important natural resources.

Cassie Principe, Democrat

Biography: I've served Texas for 12 years in the legislature (both in the Senate and the House). I have a BA in Political Science from the University of Texas. I am a small business owner, and I am proud of my two grown children and my one grandchild.

1. The Lieutenant Governor presides over the Texas Senate. I will work closely with the Senate to continue the progress and build on the fiscal responsibility of the previous administration.

2. I believe that governing is not about finding fault but finding solutions. During my legislative career, I have proven the ability to reach out to those across the aisle to seek consensus on the important issues facing Texas, issues like education, transportation, the wise use of environmental resources, affordable health care insurance, and building a culture of freedom and personal responsibility.

3. I believe government must treat all its citizens with fairness, dignity and respect. My philosophy on government is that a representative has an obligation to listen, to have an open door for all people-including those who agree with and those who do not. I have fought for twenty years in Texas to build better communities, make our highways safer,

provide tax relief and broaden educational opportunity, I have consistently been a voice for those who cannot afford to hire lobbyists; I consider myself "the people's lobbyist". This is how I approached my service on behalf of Texans at the federal, state and local level. I am eager to bring this effective experience to the job of being your Lieutenant Governor.

CANDIDATES FOR ATTORNEY GENERAL

QUESTIONS:

(1) **What do you want to accomplish as Attorney General?**

(2) **What potential do you view in this office?**

Tim Speight, Republican

Background: I am a retired U.S. Army officer, a former prosecutor, and a 14 year member of the Texas House of Representatives. I have earned degrees in Business, Management, Public Policy, and the Juris doctor.

1. I will crack down on violent sexual predators who target our children by enacting much tougher penalties for sex offenders, revamping the sex offender registry, requiring sex predators to register with State Police before being released from prison, monitoring sex offenders with GPS tracking systems, and other legal reforms. Other key priorities include strengthening efforts to protect Texans from identity theft, protecting Texas from terrorist threats, fighting drugs and gangs, implementing a family court system, protecting private property rights, and protecting Texas' pro-jobs environment by working to end lawsuit abuse and reducing regulations.

2. Our next Attorney General must have the experience to get the job done for our citizens from day one. As an army veteran who served in Europe during the Cold War, a local prosecutor who put murders, child molesters, and rapists behind bars, a proven legislator who played a key role in abolishing parole for violent criminals and passing historic welfare reform, I bring the experience we need to this important office.

Rick Organ, Democrat

Background: BA, Texas, 1970; JD, Texas 1977; I have previously served the public as a District Attorney, and I have served in the Texas House of Representatives for 10 years.

1. In this post-9/11 world, I believe the next attorney general's top priority must be keeping Texas safe and secure. I will use the office to advocate for public safety and to pursue my security agenda. But the AG is also responsible for providing the best legal advice to the governor and legislature, and I believe that should be done promptly and without a partisan political agenda.

2. Texas needs an attorney general who is an advocate for all the people, not just the powerful. I believe the office can be a powerful force for reducing prescription drug prices, consumer fraud and identity theft. Also, I plan to work with the Department of Social Services to close the $2 billion child support gap.

CANDIDATES FOR COMPTROLLER OF PUBLIC ACCOUNTS

QUESTIONS:

(1) **What will you do to "provide a window into Texas government"?**

Therese Gustin, Independent

Training and Experience: I have a BA in Accounting from the University of Houston, and I am a Certified Public Accountant. I have worked in the Texas Comptroller's office for the past 15 years, and I am confident I can run this office better as the Comptroller.

1. If elected, I will work to audit and ensure that every Texas agency is spending money like it should and is being held accountable. I would make sure that government regulations are based on common sense and that every agency is abiding by them.

Greg Converse, Democrat

Training and Experience: I am a Certified Public Account, and I received a BA in Accounting from the University of Texas, and an MBA from Rice University. I have worked for the Texas Treasury Department for the past 10 years.

1. The Comptroller's office should shed light on all the other bureaucracy and government in Texas, ensuring that everything is working properly. If elected, I will help the Texas government to run a smaller, more efficient operation, ensuring that no taxpayer's money is misused.

CANDIDATES FOR COMMISSIONER OF GENERAL LAND OFFICE

QUESTIONS:

(1) **What will you do as Commissioner to uphold the General Land Office's responsibilities to protect natural resources?**

Sam Saddler, Republican

Training and Experience: BS in Geology from Texas A&M in 1981. I have worked for the Texas General Land Office for the past 20 years. I am proud to work for the oldest state agency in Texas, and I have experience with all the intricacies of this office, therefore I believe I am qualified to be Commissioner.

1. One of the General Land Office's duties is to protect the natural resources that belong to our state. I will work closely with the Office of the Railroad Commission to ensure that our state's oil and gas deposits are taken care of. I will ensure that Texas' interests are at heart in these decisions, not local business interests.

Elise Ellzey, Democrat

Training and Experience: I have a BS in Petroleum Engineering from Louisiana State University. I have worked for Exxon as an engineer, and I have worked for the Texas Railroad Commission.

1. I will ensure that our natural resources are protected and that all the proper proceeds are given to the Permanent School Fund, to ensure that our children get the monies they deserve from drilling rights in this state. I will ensure that all contracts are handled appropriately.

CANDIDATES FOR COMMISSIONER OF AGRICULTURE

QUESTIONS:

(1) **What can be done to revitalize Texas' agriculture industry?**

Polly Rylander, Republican

Training and Experience: I have served two terms in the Texas House of Representatives, and I have a BA from the University of Houston, and an MBA from the University of Texas. I grew up on a farm, and I have worked within the agriculture industry for the past 10 years.

1. Marketing for Texas' agriculture products tops my list of priorities as Commissioner of Agriculture. If elected, I plan to help revitalize our extensive agriculture industry by promoting our products nationwide.

Roberto Aron, Democrat

Training and Experience: BS, Texas A&M 1975; MBA University of Houston, 1981; I have worked closely with the agriculture industry for the past 20 years, including working in New York in the financial markets.

1. With the Texas Department of Agriculture backing our state's industry, there is no need to revitalize it. Texas has one of the strongest agriculture exports of any state, and, if elected, I plan to help continue making Texas' agriculture industry successful.

CANDIDATES FOR RAILROAD COMMISSIONER

QUESTIONS:

(1) **How would you prioritize the goals of the Railroad Commission's Strategic Plan for 20010-2014 in light of limited funding?**

(2) **How do you propose to meet the Railroad Commission's stated responsibility for supporting research, education, training, and marketing of clean-burning alternative fuels?**

Jillian Balas, Republican

Training and Experience: Geologist, petroleum geophysicist and energy attorney. Texas Railroad Commissioner since February 2006. Elected Chairman by colleagues. Former petroleum geophysicist for Amoco Production. Energy attorney at the General Land Office. Assistant Abilene city attorney; political science and legal studies instructor, Hardin-Simmons University. Elected Abilene City Councilman and Taylor County Judge.

1. The top goal of the Texas Railroad Commission is to strengthen the safety and productivity of the Texas energy industry. In this era of record high oil prices, we must reduce dependence on foreign oil, increase responsible energy production, and promote conservation and renewable energies such as wind, fuel cell and biomass energy. Since joining the Railroad Commission, I have helped reduce the agency budget, while improving safety and environmental quality in the energy sector.

2. As Chairman of the Texas Energy Planning Council, I worked hard to promote alternative energy sources. I have visited Texas wind farms and emerging technologies which promise to reduce dependence on foreign energy and improve environmental quality. My goal is to ensure emerging energy technologies are conceived and built in Texas, taking advantage of our vast expertise and infrastructure.

Zachary Minick, Democrat

Training and Experience: Born and reared in west Texas. Degrees from Baylor, Southwestern Seminary, Yale, and the University of Illinois. Experienced in personal business development. Experienced in formulation, support, and implementation of public policy at the local, state, and national level. Experience in the negotiation and management of mineral properties.

1. The Commission's Strategic Plan for 2008-2012 indicates it "does not expect significant changes in its mission, strategies, or goals during the next five years." The development of our oil and gas resources is primary. Safety and environmental concerns are secondary. Scant attention is given to alternative energy. No attention is given to monitoring intrastate natural gas transmission. The public's growing concern about the relationship between energy development and the environment needs a higher priority.

2. There may be an inherent conflict of interest in making a Commission devoted to the development of oil, gas and coal resources responsible for developing "clean-burning alternative fuels." A much broader range of knowledge, concern, and experience as well as a broader range of interests need to be involved.

CANDIDATES FOR STATE SENATOR

QUESTIONS:

(1) **What solutions would you propose to balance the state budget?**

(2) **Should state funding for Public Education be expanded?**

(3) **How do you propose to fund healthcare for the large number of uninsured in Texas?**

Ricardo Nigro, Republican

Education: B.B.A. from University of Texas-Austin, J.D. from South Texas College of Law;

Experience: State Senator 2006-present; Travis County Commissioner 2001-2004; former Chief Clerk, Senate Committee on County Affairs; former Chief Clerk, Senate Joint Interim Committee on Regional Issues; former member of the Texas Open Records Steering Committee; former General Counsel for Senator Jeff Wentworth, and the Senate Interim Committee on Public Information.

1. I am a fiscal conservative and believe general government should be smaller and smarter. Last session we had a $10 billion budget deficit. The deficit was a spending problem, not a revenue problem. Citizens should not be asked to pay more in taxes due to the deficit. Government should do what families do: set priorities and live within a budget. That's why I helped pass a balanced budget without a tax increase.

2. Public Education is my top priority. State funding should be increased to improve educational standards and to abolish the need for the current Robin Hood school finance system. Even in the face of a $10 billion budget deficit last session, I supported $1.2 billion of additional investment in public schools. I also supported amendments to increase investment in textbooks, pre-kindergarten and kindergarten classes, and teacher retirement benefits.

3. It is important that the legislature create opportunities for more affordable and flexible market alternatives for health care coverage. Last session we created "Consumer Choice Health Plans" that will allow many currently uninsured Texas men, women and children to get the health care coverage that they could not afford prior to the passage of this legislation. Under this law, many small businesses will be able to provide coverage to employees and their families.

Wesley Steven Millette, Democrat

Education: I have a Masters in Social Work and law degree from the University of Texas, and a B.A. in political science from Queens College.

Experience: My experience includes seven terms in the Texas House, passing over 150 bills including the Landlord-Tenant Security Devices, Indoor Air Quality, Nursing Home Reform, and Mold Remediation Licensure acts. I served on the Public Health Committee, Human Services Committee, and Select Committee on Child Welfare and Foster.

1. To balance the budget, I'd close the loophole in the corporate franchise tax so limited liability partnerships pay their fair share; expand the sales tax base to include certain services; increase the cigarette tax, and/or amend the

Texas Constitution t allow imposing a statewide property tax. I'd consider instituting a state income tax, if linked to restructuring our tax system so property and sales taxes are significantly reduced.

2. Yes. The state's contribution to public education has fallen below 40%, resulting in an increased reliance on local property taxes. This situation led Judge Dietz to rule that our system doesn't provide an "adequate" education, since almost half our school children under-perform. The ruling has been interpreted to mean that the state must come up with the substantial new money over and above the funds needed to offset a reduction in property taxes.

3. To fund health care for the large number of uninsured in Texas, I'd restore the cuts to the Children's Health Insurance Program and Medicaid, thus maximizing the receipt of federal matching funds. I'd institute a one-dollar increase in the cigarette tax and dedicate the revenues to health services. I'd close the loophole in the corporate franchise tax so limited liability partnerships pay their fair share and dedicate a portion of the revenues to health care.

CANDIDATES FOR STATE REPRESENTATIVE, DISTRICT 134

QUESTIONS:

(1) **Do you believe that changes or improvement should be made in the Texas public health care system?**

(2) **Do you believe that additional revenue sources are needed to meet the needs of Texas residents? If so, please identify possible sources.**

(3) **Given Texas' low national rating on education performance, what should be done to raise our standing?**

Petra Bencomo, Republican

Qualifications: I received my B.A. from the University of Houston and J.D. from the University of Texas. I am an attorney at ConocoPhillips. I have worked three continuous legislative sessions (2001-2007). I have also served as Rep. Farrar's Chief of Staff and Rep. Moreno's campaign manager in the 2003 Democratic Primary.

1. We need increased funding for clinics that provide preventive healthcare. This would help relieve the overcrowding in emergency rooms and prevent hospital stays. We also need to increasing funding for children's healthcare programs, such as CHIP. Additionally, the state should use its purchasing power to reduce prescription costs.

2. Texas needs a fair, broad based business tax that reflects modern economy. We need to close the business tax loopholes and ensure that all companies pay equally. Additional revenue sources should not target those least able to pay, such as a regressive sales tax. We need a fair and equitable tax revenue system

3. Out legislators need to answer the funding needs highlighted by Judge Dietz. We need more funding for our schools to ensure that our students have the resources they need to learn and teachers have the resources they need to teach. We also need a teacher pay raise in order to recruit and retain qualified teachers.

Susanne Rael, Democrat

Qualifications: I will use my 35 years of legal, legislative and judicial experienced leadership and proven service as a former judge for city of Houston-Harris County, attorney, certified mediator and arbitrator, wife and mother, to make our schools better, our neighborhoods safer and improve our economy for families.

1. Every system should be reviewed constantly to maximize the resources being used to see how and where more efficiency for the delivery of services can be accomplished. I will continue to work with the legislature to ensure Texas' public health care system provides the care and services required by all Texans while recognizing the financial requirements of such a system.

2. My commitment is to the families of this District; to ensure everyone has an opportunity to receive a quality education, affordable healthcare, and to work to the fulfillment of the American Dream. As your State Representative, I will continue to seek the most effective and efficient manner to make these opportunities available to the families of this District.

3. In the next legislative session, I will continue to use my years of legislative experience to ensure all children have the resources necessary to receive a quality education at the highest level and our schoolteachers are paid a reasonable salary for the hard work. I will work with other legislators to ensure this effort is achieved.

CANDIDATES FOR STATE BOARD OF EDUCATION, DISTRICT 2

QUESTIONS:

(1) **How can schools effectively recruit and retain quality teachers?**

(2) **What can be done about schools that have been rated "Academically Unacceptable"?**

Peter Varga, Republican

Background: As a self-employed father of three, wife of a firefighter and Iraqi Freedom veteran, I am presently a UH Consumer Science/Teacher Certification applicant after earning an Associates Degree at HCCS. My 20 years of community service established the foundation for my commitment to a new direction for our schools.

1. Energetic recruitment and retention efforts should include an accelerated hiring timeline, active marketing campaigns, college and university partnerships, new teacher mentorship programs, professional development on classroom management, classroom routines and procedures, multicultural education, and lesson planning, paid summer orientations, maintain reduced classroom size, enforcement of disciplinary policies, placement of trained principals with management skills that promote teacher retention.

2. Student learning turns around all school ratings. Children's learning is promoted through the learning style of each child. A high teacher-student interaction can raise the level of learning. One cohesive team of the faculty, staff and principal as the instructional leader and manager who is supposed by strong parental and community groups can achieve a clearly defined shared vision of achievement.

Mark Baber, Democrat

Background: Director, Mayor's Citizens' Assistance Office (since 5/2003), Houston Parks and Recreation (1995-2003), Houston Community College (1987-1992); Precinct 105 Chairman, (since 1999), past president – Hawthorne Civic Club, Honors Diploma- Jeff Davis High School, A.A. Government – HCC, B.A. Political Science – University of Houston. Married seventeen years, father of three daughters.

1. Teachers are our most precious resource, so we must treat them as professionals and pay them like we are serious about quality education for our kids. We must both maintain standards and allow flexibility in teaching. We must let committed teachers teach what they know. We must provide quality environments where teachers want to teach and students want to study.

2. Schools with extraordinary challenges require extraordinary resources and commitment. We must provide special incentives to attract the most qualified and talented educators and to provide the best equipment and buildings. The community's stakeholders must also be actively engaged in helping to do their part. Parents, local community and business leaders, all of us, can and must turn our schools around.

CANDIDATES FOR PRESIDING JUDGE, TEXAS SUPREME COURT, PLACE 3

QUESTIONS:

(1) **What do you think the community can do to assist the judiciary in making decisions that protect women, their children and the community against family violence?**

(2) **The U.S. Supreme Court has decided to hear a Minnesota dispute over whether judicial candidates can discuss their positions on issues that might come before their courts. Would you welcome a ruling that allowed you to freely comment on these issues?**

(3) **How could we strengthen communications with the legal system when family is dealing with multiple courts and proceedings?**

Tim Grasty, Democrat

Training and Experience: I have practiced trial law since 1981. I have never been sanctioned. I represent individuals, businesses, hospitals and educational institutions. I am active in delivering legal services to the poor. I am a mediator. I serve on a hospital board and volunteer through church, schools, and youth organizations.

1. Personal involvement with, and financial support of, prevention programs, assistance efforts and shelters is critical. Many such entities work with the courts. Citizens must press the legislature for appropriate action to address these problems. The court benefits when citizens willingly serve as jurors. The courts are open, be there.

2. No. Our government depends on objective, impartial and constitutionally constrained judges. Such a decision could overly politicize an already challenging selection process. Judges must decide each case on the facts and applicable law. The expression of opinions in the political context could suggest a predisposition or bias about certain cases.

3. The current presiding court system could be changed to allow a single court to handle a matter from filing to final disposition. Regardless, each file should be accurately documented as to activity and action. The courts provide forms, which permit contemporaneous documentation. Judges should require attorneys to promptly complete filings.

CANDIDATES FOR PRESIDING JUDGE, COURT OF CRIMINAL APPEALS, PLACE 2

QUESTIONS:

(1) **Do you believe the composition of juries adequately and fairly reflects society at large? Why or why not?**

(2) **What changes, if any would you support to assure that the rights of the legally indigent are adequately protected under current law and practice, particularly in death penalty cases?**

(3) **While serving on the bench, do you believe you have a role in bringing important legal or judicial issues before the public or the legislature? Why or why not?**

Dan Plouffe, Republican

Qualifications: Senior Judge, Texas Court of Criminal Appeals, 11 year member Associate Justice, Second Court of Appeals, 4 year member Board Certified in Criminal Law, Texas Board of Legal Specialization, Masters Degree-Judicial Process, University of Virginia School of Law Course Director- 2003 Advanced Criminal Law Seminar, State Bar of Texas

1. Since I have sat on the appellate bench for the past 16 years, I unfortunately have not had the experience to observe the jury selection process at the trial level. I do feel based upon the records on appeal involving jury selection that the trial courts are diligently enforcing the constitutional protections allotted to protect jurors.

2. In the last three sessions of the Texas Legislature, we have seen the enactment of the Texas Fair Defense Act and an amendment to the Texas Criminal Habeas Corpus Act to include Section 11.01, which covers representation of defendants in death penalty cases. I believe that both of these acts have gone a long way toward ensuring that indigent defendants are fairly and adequately represented, both at trial and on appeal.

3. Because the Texas Court of Criminal Appeals is in the best position to observe what are the current trends and issues affecting the criminal law, I feel that it is incumbent upon us to inform the legislature and the public of these matters and to hopefully help them fashion an adequate response.

Derrick Melgar, Democrat

Qualifications: I have practiced law for more than 20 years and have an extensive background in both civil and criminal trial work. As a part of my practice I have successfully argued cases before both The Supreme Court and The United States Court of Appeals for the Fifth Circuit.

1. Our right to a jury trial provides the most important protection we have against the abuse of power by the state. If the composition of the jury does not fairly reflect society, much of that protection is lost. Having picked many juries, I know that low income and minority Texans are not adequately represented in the jury pool. Remedying that requires both outreach to these communities and fair compensation for jury service.

2. Our state's failure to provide adequate representation to indigent defendants, particularly those in death penalty cases, is a national embarrassment. A statewide public defender's office should be established with adequate funding and competent attorneys to handle these cases. In addition Appellate Courts must be more aggressive in reviewing these cases to assure the defendant received adequate representation at trial.

3. While it is not a judge's job to legislate, they are in a unique position to recognize and advise on important legal and judicial issues facing the state. I would not hesitate to offer that expertise when appropriate and ethical.

CANDIDATES FOR DISTRICT ATTORNEY

QUESTIONS:

(1) **What role should the District Attorney's office play in enforcing laws dealing with white-collar crime?**

Corey Behnke, Republican

Training and Experience: District Attorney-present; Criminal District Judge 12 years; Assistant District Attorney 8 years; Private Practice 4 years; Board Certified Criminal Law; Co-chair Governor's Anti-Crime Commission; Member Texas Crime Victims Institute Advisory Council; National Council on Violence Against Women; Governor's Advisory Board on Juvenile Justice; University of Texas Law School.

1. I have prioritized white-collar crime prosecution. As law-enforcement's leader in pursuing this crime, my DA investigators and attorneys lead investigations & prosecutions. My efforts have resulted in millions being returned to victims and elderly individuals swindled of retirement money or scammed through home improvement and other frauds.

Jennifer A. Lundeed, Democrat

Training and Experience: BA, Texas, 1971. JD, Texas 1981. I have 20 years experience in criminal law. I am compassionate, rational and slow to anger. I will look at the big picture in making sure that justice is firm, fair, and serves the long-term interests of our community.

1. This office has a responsibility to protect the public from fraud whether by individuals, business or in cases involving public agencies. The DA has to enforce the law in a dignified manner. The DA must never serve the baser instincts of humanity such as envy, jealousy, or revenge.

CANDIDATES FOR COUNTY TREASURER

QUESTIONS:

(1) **What do you hope to accomplish if elected to this office?**

Dean Caffee, Republican

Training and Experience: BA in Accounting, Texas 1983. I have worked as a Certified Public Account in private practice for the past 18 years.

1. I hope to establish a transparent, smoothly run office. I will efficiently manage the staff of this office and ensure that the county's assets are handled properly and the county's budget is distributed as ordered.

Gordon Kallas, Democrat

Training and Experience: I am a Certified Public Account, and I hold certification as an elections administrator. I earned a BA in Accounting from the University of Oklahoma in 1979, and I have worked as a consultant for the local Area Development Partnership.

1. If elected, I hope to bring efficient management and vigor to make sure our county's monies are handled properly. With my experience, I will run a transparent and smooth county treasury office.

CANDIDATES FOR HOUSTON I.S.D. TRUSTEE, DISTRICT 4

QUESTIONS:

(1) **If elected, what do you hope to accomplish in the next two years?**

(2) **What do you see as the role of magnet schools, charter schools and the Apollo Program in ensuring that HISD students are receiving the education and skills that they need to succeed?**

(3) **What role do you think a differentiated teacher pay structure linked to student achievement and/or critical background skills should play in attracting and keeping the best teachers in HISD?**

Dan Atchley, Republican

Background: Teacher for two decades, principal for five years. Graduated with a degree in educational psychology in 1990 from TAMU. I have lived in Houston for my whole life.

1. With the current detriment in suitable, workforce ready, college educated youths it is my conviction that we need to help our middle schools and high schools to better prepare students for college. Once the first few bricks are laid in a child's life, the rest will come easily.

2. I believe magnet and charter schools are both great tools to help inclusively teach. Students who are not as comfortable in traditional class room settings. I question the Apollo Program methods, pilot program, and large investment and believe their results are insignificant.

3. Teachers should be given differing salaries based on the teacher's background skills and the success they have in furthering students' academic progress. I believe this will help set a minimum level of teaching experience required; that is, in the availability of teachers of a certain skill level which will probably be close to an average, thus eliminating bad teachers and providing us with a higher number of hired teachers.

Lewis Shine, Republican

Background: Married, father of three all who are in their college years. Lived in Houston whole life and had to deal with schools a lot for his children. Worked as a teacher for four years.

1. High schools should be more oriented towards helping students to decide what they want to do post-graduation and then arming them for whatever that may be. I will put in place initiatives that have proven success rates in order to help increase graduation rates.

2. We should learn from what works; if a charter has a good school then its methods should be replicated and added upon in order to not halt success. Charters and magnets allow children and youths to perform in environments that allow them to thrive. The Apollo Program remains in its experimental phase, but a timely and objective evaluation of the first-year is necessary.

3. Teachers should all be given a base salary. Just as students should not be treated unevenly, neither should teachers be. In addition, they should be given bonuses (not raises) for furthering students' academic success and helping their test scores. In this way teachers, will continue to strive to do their best.

Jessie Emmer, Republican

Background: Moved here from Denver when he was sixteen, Jessie graduated from U of H when he was twenty-one (1999) with a degree in education and instruction on the dean's list.

1. I believe the testing calendar needs to have amendments made to it; particularly it needs to be lessened. The amount of schools closing is also a very important issue in my eyes and I will work to prevent that. Funding needs to be an equitable thing amongst school, children are ripe with potential and that potential will be useless if it is not made to grow into real hard academic success. Sufficient funding is needed for that.

2. I am a strong proponent of traditional classroom settings – these are tried and true; that being said charters and magnets do have their place. Some students cannot perform as well in traditional settings and need more freedom and less structure. I believe they should be somewhat of a last resort though.

3. I believe teachers should be given competitive pay based on students' academic success, particularly graduation. There is ample proof that pay based on test performance does little to affect student success. Therefore, we should incentivize helping students succeed with bonuses and the like, but the money should follow the students – if the students are doing well, the teacher is doing well.

Christian Liberatore, Republican
Background: A judge for three years, Christian decided to attempt to strike directly and affect legislations dealing with education.

1. Our children are our first priority; that being said I will work to implement policies that help improve the quality of schools and I will make sure to gain continual feedback from students and their parents. This will ensure quick access to change in an already over regulated and slow system.

2. Magnet schools and charter school provide equal opportunity for all students to excel and because of that I support them. I believe they also help build a strong social support system that is an integral part of development for students.

3. I believe teachers should work together in certain problem areas in the school and be rewarded monetarily. This will help avoid any teachers from feeling less valuable than others and will also help spread prowess and skill level amongst teachers as they share methods. We should combine differentiated pay with student achievement and teacher skills.

Allan Trabert, Republican

Background: Born in Minnesota, Allan was superintendent of Saint Paul in Minnesota for nine years. He decided to move be closer to some of his family and shortly became superintended of HISD.

1. HISD needs a strategic plan of attack for the reformation of our schools; how can we improve graduation and attendance rates? Why are our schools closing and how do we prevent this? How can we keep kids interested? These are the questions I hope to answer should I be elected.

2. Given past success of magnet and charter schools, I believe they will continue to be as such. I believe the Apollo program on the other hand is a waste of a large amount of tax payer dollars. I do not believe it has or will be more than marginally effective than traditional schools.

3. I believe in high performance of teachers sensitive to their students' needs. Therefore it is critical to have the best and great teachers should be compensated accordingly.

Dona Vasta, Democrat

Background: Was speaker of the board in RISD (Richardson) in Dallas, Texas. Was teaching as well for five years before that. She quit teaching to pursue higher positions in the education system.

1. I plan to start with a series of steps in order to help HISD begin to thrive. First, we need to work to revitalize the image of HISD. Secondly, HISD needs special programs to involve parents with their kids schooling. This will provide a strong boost to the pupils of HISD and from there work can be done to amend the curriculum to be more comprehensive. A heavier curriculum would help to keep students busy; schools need to be stricter on homework requirements to keep kids involved.

2. Magnet schools should draw students from around the district for a specialized or themed core study program that is not available in other schools. I understand that some students are not well-suited for public schools and I believe

3. I support a differentiated teacher pay structure linked to student achievement and/or critical background skills as a mechanism to attract and keep the best teachers in HISD. We have already put into place systems that evaluate data on teacher effectiveness and can be used to identify and reward effective teachers as well as to inform professional development.

Odessa Rugh, Democrat

Background: Lived in Katy and Dallas for a while, as well as Amarillo. Experience with many different children through teaching experience in all three places. Was a principal here in Houston and then rose to superintendent and eventually to running for district controller.

1. Well, I would like to revitalize the curriculum; our current textbooks are too outdated. I believe we should also teach both intelligent design and evolution in public schools. I believe in evolution but I don't believe in forcing my doctrine on people—it's all about equal opportunity.

2. I think most everyone can agree that magnet and charter schools are useful because they help reach those who are not as easily taught in the typical public school setting; these children may need more or specialized attention. The Apollo program still needs to be tested more before widespread deployment.

3. Though in a perfect world teachers are whole heartedly motivated to teach children to the best of their ability, we live in a capitalist society and that is not the case. I believe to attract the best teachers, you need to use monetary incentives to keep the teachers coming to you. If teachers know they are better than their peers and know they will make better money at a certain school and will be rewarded for their skills, why would they not go there?

Tia Menges, Democrat

Background: She immigrated here from China when she was young, Tia quickly realized the need for individual attention, which she received here more so than in China, and decided to try to improve education for future generations

1. I hope to help open more schools so that students can be given better individual attention. This would also help diversify schools. Houston is a very diversified place and I believe it would help ethnic communities to be bridged if the youth of each get to know each other in schools.

2. If a student is neglected in a school, then I agree with a parents call to send their children to a magnet or charter school and support their decision; magnet and charter schools fall in good with me. I believe the Apollo program will help improve the concept of charter schools and because it is based on performance, will tailor itself to the changing students. It can evolve some might say.

3. Teachers should be paid more if their students succeed. Teachers who have better experience should be given a higher starting pay but I believe that if their students do worse than a teacher who was given a lower starting pay, the two pays should be adjusted accordingly.

Kathrine Ramos, Independent

Background: Went to law school at Stanford in education law. Before that, she graduated from Brown in 1996. She worked with teachers and principals for her whole career.

1. In the next two years, my goal is to continue the efforts of getting the bond referendum approved. It is important for us, as a school district, to develop new campuses and modernize outdated buildings with resources that enhance student learning. I will also work with colleagues and constituents to develop academic, music and the arts as well at athletic programming geared toward youths. It is thus important to work on creating and fostering environments that allow students to have stake in their learning and to care in their progress into young adulthood.

2. The role of magnet schools, charter schools and the Apollo 20 programming is to push for academic excellence while providing skillful and effective teachers that care about student learning and success. Teacher accountability and parental/community involvement are key targets that need to work together and as a unit to challenge and nurture student interest in school, in particular with the math and sciences. Additional roles include partnering together to develop and enlist mentoring and tutoring programs for students.

3. The differentiated pay structure linked to student achievement can be a slippery slope. Although it is important for teachers to be compensated for they work with students, placing pay structures around standardized test scores not only disrupts overall academic curriculum, it also places burden on the teacher to have students succeed for a test versus having student succeed in their overall learning and socializing experience of being in school.

Tanisha Guarnieri, Independent

Background: From Kansas City, she was superintendent of the ISD there. She moved to Houston for better career opportunities.

1. I hope to help garner an interest for learning in kids. I'd also like to instill a sense of structure in their lives at the same time. To reach my goals I hope to help after school programs and other activity based school events and programs. Involvement in school activities, especially those involving the community, are correlated with lessened involvement in deviant activities.

2. Though I am hesitant to disavow all charter and magnet schools, some reach more success than others. Magnet and charter schools should have a certain threshold of success they must reach. If they fail, they should be shut down to save money. The ones that succeed should be well respected. The Apollo program has potential but I hold my reservations regarding its execution.

3. I do not believe that background skills should come into play when a teacher's pay is being negotiated; past successes (that are relevant) should play a small part. Successes in the current place of work should increase the teacher's pay in order to keep their financial future tied in to the students' academic future.

Amie Vecchio, Independent

Background: Living in Houston for most of her life, Amie is quite acquainted with the problems of Houston ISD. She hopes to help improve HISD by starting with the teachers. Her experience with teachers has been less than optimal and most people who have shared their opinions with her feel the same.

1. I hope to attract new, intellectually stimulating teachers in HISD as well as to help to better train our current teachers. It's apparent that something needs to be done to help children stay interested in school and I believe a new teacher training program that emphasizes keeping students interested and engaged needs to be employed.

2. Magnet and charter schools are a waste of money; public schools should provide programs similar to those of magnet schools and classes similar to those of charter schools. This way children who need the attention get it but they also get real world interaction with their peers.

3. Due to fluctuations in the ability of students, teachers should be given a base salary. I believe that teachers should aim as a whole to improve the school, and not just their students. In other words, if the school as a whole does better, the teachers all get bonuses.

Thomas McKendree, Independent

Background: Originally and industrial organization psychologist, he decided to use his Ph.D. to help fix the broken educational code and provide extensive, more comprehensive schooling.

1. I hope to expand the scope of the school system to focus on more than just intellectual teaching. Curriculums will also involve classes in important life skills like financial management, public speaking, etc. I also hope to attract principals to start a wave of disciplinary reform.

2. Magnet schools are great and should be utilized more. I believe they are a thriving place for those who will pave the future in particular subjects. The Apollo program is a waste of money, public schools are just as effective.

3. HISD needs a unified scale of starting salaries for teachers based on specific qualifications and pass successes. To add to this would be an additional scale for bonuses based on current and ongoing successes.

Ericka Hinze, Independent

Background: Born to a multi-cultural background; graduated from Rutgers in 1998 with a degree in teaching and psychology. She quickly realized that her contributions as a teacher were not enough and she felt the urge to help the Houston in a more direct way.

1. My vision for HISD is that we can become an ISD that is a model for others to follow. HISD need a total reform, the community needs to become more involved with its burgeoning generations, better nutrition needs to be forced in the cafeterias to keep children well-nourished and focused, and better teachers need to be attracted.

2. If charter schools and magnet schools are doing well, don't touch them; their success is measured by their students' success. If students are doing well, then their school is doing well so in this aspect they play a large role. Though, it is a conditional role. If the school's students aren't doing well I think they should be scrapped. The apollo program lies under the above condition for me.

3. Teachers need to be attracted not by their desire for money but their personal desire to teach. I think that there should not be a differentiated pay structure for teachers.

Jessie Smith, Independent

Background: Married with two children, Jessie is very familiar with HISD. His children are the 7th generation in his family attending HISD and he wants to improve the district for his children and their children.

1. I hope to focus on equality and diversity in the school systems. Helping students to be accepting of everyone (by hitting bullying harder for example) will help students to feel more accepted and comfortable allowing them to focus more on their schoolwork.

2. I believe magnet schools and charter schools should give way to more focused versions of public schools. The public school system has been in place for a long time and has worked to get students to where they need to be later in life. It's not a question about whether or not public schools teach what needs to be taught, but whether or not all will be receptive. I acknowledge there are students who don't quite fit the mold, but I believe this is a very small amount. Because of that, I believe the role of magnet and charter schools and the Apollo program to be minimal for the majority of our youth.

3. I believe that pay structure should play a large part in attracting and keeping the best teachers. Teachers should be awarded when their students reach notable achievements and teachers with better background skills should be offered higher salaries in order to attract them. If schools became more competitive with their salaries, teachers would strive to make them better known and recognized for their skills.

Samantha Foos, Independent

Background: Lived in the fifth ward for her years as a youth, Samantha is well aware of the rising diversity of Houston and how failed assimilation between cultures can lead to large gaps in the community. Community stress can lead to distractions in school.

1. I hope to provide quality education to our rising generation. To accomplish this our curriculum will be refined to be more comprehensive, as well as more intensive to keep students involved.

2. Magnet schools help provide us and fine tune our greatest thinkers in various subjects. Charter schools help school districts be more inclusive and for this I think they play a pivotal role. The Apollo program is a good thing because it is tailored to how the students are progressing and performing.

3. I believe teachers should be paid depending on their experience and skill. This seems like common sense and I feel teachers that are more confident, competitive, and self-driven would be attracted to a place where they can get paid more for performing better and for having performed well already.

CANDIDATES FOR SHERIFF

QUESTIONS:

(1) **What is the impact of Homeland Security requirements on the Sheriff's Office?**

(2) **What would you do to reduce juvenile crime in this County?**

(3) **What would you do to improve relations between the Sheriff's office and the community?**

Stanley Saari, Republican

Education: B.A. in Social Work; Corrections Certificate; FBI, Secret Service Protection, and UT West Point Academies; Certified Public Manager; Police Senior Management Institute; 3809 hours CE; Experience: Manage $11 million budget and 211 employees at Austin Police Department; attained rank of Commander; 15 of 25 years in management; commanded Southwest & Southeast regions, SWAT Team, Investigations; managed Gang Suppression Unit, Homicide, Child Abuse, Sex Crimes, Robbery. Organized training conferences on gangs, criminal investigations and financial crimes.

1. Increased training and equipment for deputies who respond to WMD calls. Added security on high-risk terrorist targets. Increased calls for service on suspicious person' substance calls. Establishing an Intelligence Unit that provides potential threats. Screening information before public release to thwart false alarms. Educate the public on threats and providing instruction on how they can safeguard themselves against varied threats.

2. Work with private and public entities to expand programs such as Big Brothers/Big Sisters, mentoring, sports, scouting, and career development. Extra curricular activities keep at-risk kids and latch-key kids occupied and out of trouble. Expand the Juvenile First Offender Program to include other delinquent conduct cases. Use Juvenile Boot Camp for recidivists focusing on community service work. I would request additional bed space at Texas Youth Commission for serious habitual offenders.

3. Lead by example. Protecting and serving the community is a high calling and responsibility. Sheriff's deputies would interact with the community accordingly. Also, we would be more responsive to the community's needs. WE would determine what and where the needs are by reviewing citizen responses, internal affairs cases, crime statistics and data on hotspots of crime. We would also empanel a group of community representatives and sheriff's personnel to pinpoint additional issues and solutions.

Jason Valle, Democrat

Education: B.A. in Criminal Justice, Southwest Texas State University, 1985 Graduate of Governor's Executive Development Program, University of Texas LBJ School of Public Affairs; Experience: Chief of Law Enforcement for Texas Alcohol Beverage Commission 1997-2007; 300 employees, 55 offices, budget of $15 million; National trainer for Department of Justice; Sheriff's Office (1988-1997) Corrections Officer, Mounted Patrol, DARE Officer, Deputy Sheriff Texas Department of Corrections (1988) Corrections Officer

1. Protecting our community and safeguarding the peace and welfare of all our citizens is a critical role of this office. We will do everything that we can to insure that our residents are informed, educated and prepared to respond to acts of bioterrorism and other threats. We will work tirelessly to partner with other local, regional and statewide groups to address preparedness, response and recovery efforts.

2. I believe that juvenile crime is something that we as a community must address. The sheriff's office, as an authority figure, must work to build a relationship with our youth. However, I believe everyone should be held accountable, without being condescending. When it comes to reducing juvenile crime, an ounce of prevention truly is worth a pound of cure. It is a countywide issue and will require countywide coordination and response.

3. The sheriff's office must begin to build relationships with the people whom we serve. Community policing refers to much more than the assignment of an officer to a certain community. We must knock down the walls of separation and build relationships on trust and respect with accountability and responsibility as our commitment to all we serve.

CANDIDATES FOR COUNTY TAX ASSESSOR

QUESTIONS:

(1) **What are the two biggest challenges facing the Tax Assessor-Collector office and how would you address them?**

(2) **How can this office increase the number of registered voters in this County?**

Howard Grady

Education: B.A. degree, major-Economics, Texas Lutheran University; M.B.A. degree, Texas State University; Maintains certification as a Certified Internal Auditor; Experience: Deputy Clerk, Guadalupe County Clerk's Office; Caseworker/Eligibility specialist, Texas Department of Human Services; Assistant State Auditor, Texas State Auditor's Office; Field Monitor/Auditor, Contract Monitoring Department, Texas Workforce Commission; Self-employed auditor

1. The primary duty of the County Tax Collector is presenting accurate tax statements that are stated according to the properly assessed value of the property and the legal requirements. The County Tax Collector must ensure that voter rolls are accurate to ensure that everyone that is eligible to vote gets one voter's registration record. The County Tax Collector must confirm that all property statements and voting records are correct prior to mail-outs and issuance.

2. The office can send voter registration information in the mail-outs and the staff can routinely ask visitors to the tax offices if they are registered and would like to register. The County Tax Office can place voter registration materials at other county offices and various public places.

Randy H. Clemons

Education: B.A. degree in English, M.A. in Communications, Registered Texas Assessor-Collector (RTA). Certified by Texas Board of Tax Professional Examiners; Experience: Seventeen years' successful experience managing Tax Office operations, including property tax collections, current and delinquent; vehicle registration and titles; voter registration. Thirty-two years public service experience in federal, state, and local government.

1. a. Provide citizens with consistently superior service, (1) by decreasing their wait-time; (2) making services available at more convenient locations; (3) offering technological solutions to service delivery. Currently implementing all of these. B. reduce operating costs in the tax office (1) by using technology to our best advantage, (2) multi-tasking existing staff to reduce the need for more employees, (3) by creating and maintaining public/ private partnerships for efficient, cost-effective service delivery.

2. By utilizing more than 2,500 Volunteer Deputy Registrars to register new voters. By focusing on voter registration year round, not just before major elections. By educating the public about voting, and using electronic media to help disseminate information. By raising awareness among younger voters. Travis County has 558,000 registered voters, which represents 90% of the population.

CANDIDATES FOR JUSTICE OF THE PEACE

QUESTIONS:

(1) **In light of the recent US Supreme Court opinion recognizing the free speech rights of judicial candidates, what public policy issues, if any, will you raise in your judicial race?**

Deborah Kamps

Training and Experience: I have worked for the Administrative Hearings Office for 10 years. My dedication, work ethic, and commitment to excellence in this office have qualified me for this position.

1. If elected, I will work closely with local schools in developing a pathway for truancy. This pathway will entail counseling and community service involvement. The old saying that "it takes a community to raise a child" can still be utilized today. This will help keep our community and our children successful.

Clyde Gayton Jr.

Training and Experience: B.A., Texas 1987. I have worked as a clerk for the Administrative Hearings Office for the past 7 years. I have a wealth of knowledge regarding the intricacies of this office, and my dedication qualifies me for this office.

1. I plan to work closely with the community and other courts to help provide troubled youth a second chance in life. I would like to help establish extensive counseling services for youth entangled in drugs, and help them get back on a path to a successful life.

PROPOSITION 1

The constitutional amendment asks voters to let state government to keep a projected $3.7 billion – money expected to be collected over the next ten years above revenue-growth limits.

EXPLANATION

This amendment would allow Harris County and the City of Houston to keep all city and county tax revenues. Estimated to be around $3.7 billion, this money will be spent on: public safety, public works, parks and recreation, healthcare, libraries and other services. The current Texas Constitution actually doesn't allow for this much money to be retained for government spending. This proposition is asking for the voters to allow an amount of money above the limitation to be retained by the government and spent on the above areas. The section of the Texas Constitution that limits the amount allowed to be retained is called the Taxpayer's Bill of Rights (TABOR).

ARGUMENTS FOR

- The additionally allowed spending would improve safety of roads and schools, and would provide additional healthcare for Texas families.
- The added spending would be accomplished "without raising taxes" because it does not increase tax rates or impose new taxes.

ARGUMENTS AGAINST

- This would be a massive tax increase because Texans would forgo billions of dollars in TABOR refunds if the measure passes.
- This ballot measure would set a new, higher, threshold for calculating government functions, contracting with private companies to perform some state services and cutting out some services and programs.

PROPOSITION 2

The charter amendment extending Charter authority of the City Council.

EXPLANATION

This charter would allow for six revisions. It would extend the existing Charter authority of the City Council to include certain types of intergovernmental agreements and revenue contracts. It would allow the City Council to waive, by ordinance, its Charter authority to review and approve certain categories of contracts and leases. It would allow the City Council to modify its regular meeting schedule, which is currently mandated by the charter to be at least one meeting per week in each of the fifty-two weeks of the year. It would provide for the use of resolution rather than an ordinance when the City Council is acting in a non-legislative capacity, and allow for the adoption of simplified resolution procedures. It would remove from the Charter detail on the formation and management of assessment districts. And finally, it would allow the Council to excuse an absent council member for reasons other than sickness.

ARGUMENT FOR

- The major goal of this charter amendment is to remove unnecessary detail and build more flexibility into the Charter.

ARGUMENT AGAINST

- This amendment could lead to abuse of this new authority to excuse people for events other than sickness. (For example, it could lead to people getting more days off work they should.)

PROPOSITION 3

The constitutional amendment revising owner's rights to recover damages.

EXPLANATION

This is an initiated amendment to Article XVIII of the Texas Constitution that will add a new section concerning recovery of damages relating to construction of real property improvements. It will also prohibit laws that limit or impair a property owner's right to recover damages caused by a failure to construct an improvement in a good and workmanlike manner. There are three major provisions that will take effect if this amendment passes. It will prohibit limits on a property owner's right to recover damages caused by poor construction. It will permit exceptions when laws limit punitive damages; and affords government immunity. And it states that lawsuits must be filed within 2 years of observing the damage or by 6 years from the construction date.

ARGUMENT FOR

- Under current legislation, owners of non-residential property cannot recover losses from construction not done in a "good and workmanlike manner." The passage of this initiative would allow recovery of such damages.

ARGUMENTS AGAINST

- Contractors may be unable to obtain insurance and might, therefore, be put out of business. In addition, parties remotely responsible, i.e. a lumber store providing materials, might be liable for "collection of damages" if the responsible party is unable to pay.
- This type of detail does not belong in the Constitution.

PROPOSITION 4

An initiated amendment to Article 2 of Title 40 of the Texas Revised Statutes requiring providers of retail electric service serving more than 40,000 customers to obtain at least 10 percent of their electricity from renewable energy sources including solar, wind, geothermal, biomass, small hydroelectric, and hydrogen fuel cells by 2023.

EXPLANATION

If this proposed amendment is passed, several revisions will take effect. This amendment will specify that electric providers serving over 40,000 customers are considered a "qualified retail utility" and are subject to the rules of this proposal. It will require qualified retail utilities to gradually increase the amount of retail electric sales derived from renewable energy sources from 3 percent in 2011 to 10 percent by 2021. It will require that at least 4 percent of retail electric sales from renewable sources shall be derived from solar energy by 2018. It will provide financial incentives for certain utilities and customers to invest in renewable energy. It will allow customers of a qualifying utility, municipally-owned utility or cooperative electric association to vote to be exempted from or to adopt the standards of this proposal. It will limit the monthly rate impact to residential customers, due to the increased reliance on renewable energy, to 50 cents. And finally, it will allow qualifying utilities to retain current commissions and to earn profits from investments in renewable energy technologies.

ARGUMENT FOR

- The initiative will have little impact on consumer energy rates in the short term. Over the long term, it will save utility customers million of dollars. While traditional fossil fuel prices continue to rise, the price of renewable sources will decrease as technology improves.
- The customer rebate for solar consumers is an economic incentive to offset the initial investment. With the rebate, the cost of solar power to the utility is comparable in price to the cost of a new coal generation plant.

ARGUMENT AGAINST

- Wind farms take a heavy toll on bats and birds, with hundreds of protected species among the thousands of birds killed each year.
- The customer rebate for solar energy use would force customers not utilizing the rebate to subsidize those who do. If wind energy is cost-competitive with conventional energy sources, we don't need a law or a voter referendum to force utilities to purchase it.

PROPOSITION 5

Amendment 30 allows eligible voters to register to vote and cast a ballot on election day in any election beginning on or after January 1, 2013.

EXPLANTION

If this measure passes, it would enable voters to register on the day of election. They must appear in person at the polling location with a valid photo ID in order to join the rolls. Present Texas law requires voters to register at least 30 days before election day. Additional law enforcement would be implemented to protect against election fraud.

ARGUMENT FOR

- The potential number of voters is increased by allowing people to register to vote on Election Day. Attention to political issues grows as the election draws close—often after the voter-registration deadline has passed.

ARGUMENT AGAINST

- Voter registration on Election Day may provide opportunities for election fraud. The current waiting period is an effective safeguard against multiple voting.

PROPOSITION 6

The Harris County Charter concerning powers of the City Council to be amended in regard to the sale of city-owned property.

EXPLANATION

If this proposed measure passes, there will be two effects. The first is that the Charter will now require that the City Councils approve the sale of personal property that is valued at no less that $500,000. That is, if anyone wants to sell their personal property and that property is valued at over $500,000, you are required to seek City Council's approval. The Charter will also require the language to be clarified in regards to City Council's approval of any sale of real property.

ARGUMENT FOR

- The buyer of the property in question has a right for his purchase to be approved by the City Council. A lot of money is changing hands and an approval from a governmental body is smart.

ARGUMENT AGAINST

- It is unnecessary for the City Council to be involved in this sort of issue. These are private dealings among individuals; it does not require government interference.