LRN: 05D146I

Project Number: KJR-1740 - 46

STUDENT IMPACT OF ELECTRONIC VOTING

An Interactive Qualifying Project Report
Submitted to the Faculty of WORCESTER
POLYTECHNIC INSTITUTE in partial
fulfillment of the requirements for the Degree of
Bachelor of Science
by

Rocco J. Lore

Date: 3 May 2005

Approved: Professor Kent J. Rissmiller, Advisor

Abstract

The issue of electronic voting is of interest to many voters, particularly after the incident involving Florida's punch cards in the 2000 United States Presidential election. After researching pre-election polls and the concept of electronic voting, a survey was given to college students to discover if the perception of electronic voting has changed months after the 2004 elections. The survey determined that while there is substantial support for electronic voting, students see room for election reform.

Acknowledgements

I would like to thank Professors Mark Miller and Joshua Rovner from Clark University for allowing me to survey their classes. I would also like to thank the students in the classes of Professors Miller and Rovner, and the students in the Campus Center who took time out of their busy schedule to participate in the survey. Without them, the project would not be possible and I would not have had a decent sample to analyze.

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Introduction

There were many issues that were relevant to the United States after the 2000 elections and during the 2004 elections. One issue that became popular after the 2000 elections was the issue of voting reform. In the state of Florida, antiquated methods of voting caused much controversy among the state's voters and eventually forced the Supreme Court to decide our President.

The constant bickering in Florida caused voting commissions across the United States to begin to reform the system; certainly, there is much left to do on this. The United States government supported legislation to help communities update their methods by allocating funds to install electronic voting machines and optical scanners. The new technology would help phase out levers used since the Eisenhower administration and the punch cards that caused so much trouble in Florida.

Electronic voting, like its predecessors, has its advantages and drawbacks. People support electronic voting because it is quicker, more convenient and less error-prone. Electronic voting will allow elections to be decided more quickly and avoid lengthy hand recounts. Critics argue that electronic voting is not foolproof and the system could be hacked. In some instances, the companies that make voting machines are accused of rigging elections in one party's favor.

Others have pointed to machines malfunctioning on voting day.

A number of surveys on the issue of electronic voting were performed before the election, but what is the attitude of the voter months after the election? Depending on where polls were taken and on who was being surveyed, people across the United States had varied opinions on the issue.

The surveys taken before the election asked adults in every age bracket about their opinion on electronic voting. A survey I designed asked the nation's youngest voters. Many 18-25-year-olds voted in their first major election in 2004. The survey asked college students in this bracket what they think of electronic voting, their opinion on the current American voting system, whether they believed that electronic or manual methods are prone to fraud and mistakes, and if they had preference in a method.

I conducted my survey over a two-week period and a two-stage process. The first stage involved going to WPI's Campus Center and asking passing students to take the voluntary survey. The second stage involved going to classes and administering the surveys to students, with the permission of professors. Some of the respondents for the survey came from two classrooms at Clark University.

I felt that a survey on electronic voting was relevant because younger people embrace technology better than their parents. Today, we see young adults with cell phones that can take pictures or connect to the Internet, laptops, Palm Pilots, and pagers. Young adults also use ATM machines, which contain similar technology used in electronic voting machines. If this demographic can be welcome to more advanced and faster means of communication, will they feel the same way about electronic voting?

The survey results help to answer a number of questions. What do students think of electronic voting? Do Republicans really prefer electronic voting over Democrats and what do the Independents think? How do students feel toward paper records? Do men and women have different opinions?

Background Information on Electronic Voting

Voting reform got plenty of interest after the controversy in Florida during the 2000 elections, perhaps the biggest interest in voting reform since the women's suffrage movement and the voting age being lowered to eighteen. One of the major problems in Florida was the punch-card ballots. Certain ballots were thrown out because their holes were not fully punched through or because the "chads" were still hanging. The controversy led to calls to change the way America votes and introduced a method known as electronic voting.

Since the lever was phased out, optical scanners have been used. Optical scanners allow a voter can fill out the ballot and the machine will scan it. Many communities want to modernize their methods further and make the process more efficient by installing touch-screen voting booths. Supporters say that touch-screen voting will shorten the length of time voters will spend waiting to vote. Skeptics are concerned that the votes will not be counted if the machines fail and about the cost of installing these machines.

The United States is not the only country to implement electronic voting. India, Brazil, the United Kingdom, and Venezuela are also using touch-screen voting (Cherry 35). In India, the government installed voting machines that were used by 380 million residents in the 2004 elections. Like the United States, there were also problems. Vote tampering, voter confusion, corruption, and faulty starts occurred and there was no paper trail for the keyboard-like machines. Revoting was required in 1879 stations. A number of Indian states are considering legislation that requires paper ballots (Srinivasan, 2004).

In other countries, centralized election authorities choose machines for the whole nation.

In India, the two-government owned companies are Bharat Electronic Limited and Electronics

Corporation of India Limited. In the United States, states can choose voting equipment, or it may

be left to counties and towns. The three major electronic voting machine companies in the U.S. are Ohio-based Diebold, Election Systems and Software Inc. of Ohama, Nebraska, and Oakland's Sequoia Voting Systems. They sold a combined 80% of all electronic voting machines used in the United States (Cherry 36-37).

The first major problem was the reliability of the machines. Diebold became synonymous with the controversies in Ohio during the 2004 elections. However, problems with Diebold first surfaced during California's 2004 primaries, when voting machines in that state malfunctioned and precincts could not open on time. The California Attorney General is planning a criminal investigation against Diebold. ES&S has also had its share of problems, when flaws were indicated in iVotronic voting machines in Miami-Dade County, Florida, in 2003. The same company also manufactured machines for Venezuela that suffered a 6% malfunction rate. A Texas-based company had problems with machines in one Virginia county (Cherry 37).

The second major problem was whether such machines are secure. In the age of technology, hacking is a common occurrence. The risk of hackability in voting means that ballots could be released to the public or a candidate could mysteriously get votes if machines are not secure. Cryptographer David Chaum has an approach that may make electronic voting unhackable. After a voter chooses a candidate from the voting booth, encrypted tiles printed by a thermal printer form the name of the candidate. The voter chooses which encrypted strip to use as a receipt, where the digital representation is posted on an election website. At the voting place, the voter can verify online that the tile pattern is accurate. Ballots are later decrypted and a perfect match proves that no ballot has been tampered with. A two-stage decryption process never uses the same ballot in both stages and preserves voter anonymity (Cherry 38-39).

During the 2000 election, the issue of military voting also came up, as a number of military ballots were not counted. Republicans accused the Democrats of intentionally not counting military ballots; a large majority of the military votes Republican. The 107th Congress proposed numerous pieces of legislation to remedy the problem. Rep. Mac Thornberry (R-TX) and Sen. Bill Nelson (D-FL) proposed a Military Overseas Voters Empowerment Act of 2001, which would have allowed the demonstration of electronic voting. The Military Voting Support Act, sponsored by Sens. Wayne Allard (R-CO) and Kay Bailey Hutchison (R-TX) would have extended the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA). UOCAVA allows military and U.S. citizens living overseas to register and vote absentee in federal elections. The Military Voting and Support Act would have maximized access of those in the armed forces to the polls (Thomas, 2005).

Before he became a Senator, Louisiana Republican John Vitter proposed H.R. 311, the Armed Services Absentee Ballot Act of 2001, which allowed the Secretary of Defense to submit a plan for electronic voting for absent military voters. Former Georgia Democrat Max Cleland was behind S. 479, the Make Every Vote Count Act. Cleland's bill would have used a grant administered by the Federal Election Commission to upgrade voting systems and enhance participation by military personnel in national elections. None of the mentioned proposals became public laws (Thomas, 2005).

The Help America Vote Act of 2002 was passed. The House version (H.R. 3295) of the bill was drafted by Representatives Bob Ney (R-OH) and Steny Hoyer (D-MD). The Senate version was authored by Christopher Dodd (D-CT), Mitch McConnell (R-KY), and Kit Bond (R-MO). The Help America Vote Act was approved 92-2 (Project Vote Smart, 2005). The Senate version, once known as S. 565, was signed by President George W. Bush on 29 October 2002.

The Help America Vote Act was enacted in response to problems in Florida during the 2000 elections.

The Help America Vote Act of 2002 allocated funds that would be used to phase out antiquated voting machines, make polling places more accessible to the handicapped, and implement a pilot program that would explore voting through touch-screens, the Internet, and other technologies. Section 245 deals with the study of the electronic voting process, which would include security measures taken to minimize fraud in registration or voting. Other issues to be studied include the debate over Internet voting and the impact of technology in elections (Public Citizen, 2005).

The Help America Vote Act is not the only piece of legislation relevant to voting that was proposed in the 108th Congress, but it is the most important and the only one that became law. During the 2003-2004 Congressional session, a number of amendments were drafted in the House and the Senate. Former Florida Democrat Bob Graham introduced the Voter Confidence and Increased Accessibility Act of 2003 (S. 1980), which would require a voter-verified permanent record or hardcopy of their ballot. Similar bills were drafted by Sen. Barbara Boxer (D-CA), Sen. John Ensign (R-NV), and Rep. Rush Holt (D-NJ), and Rep. Steve King (R-IA). None of the legislation mentioned became public law (Thomas, 2005).

There are measures in the 109th Congress (2005-2006) that would make additional changes to the Help America Vote Act of 2002. Among them is H.R. 470, the Improving Electronic Voting Standards and Disclosure Act of 2005, introduced by John Larsen (D-CT), which would require that software used in electronic voting machines meet certain requirements. The Voter Confidence and Increased Accessibility Act of 2005 would allow permission for the

voter to verify touch-screen ballots and allow a paper ballot to record the voters' intentions if the machine fails (Thomas, 2005).

The Count Every Vote Act would be an extension of the Voting Rights Act of 1965; it would require devices to be accessible to the disabled and non-native English speakers. The Count Every Vote Act is a House proposal by Stephanie Tubbs Jones (D-OH) and a Senate version was done by Hillary Clinton (D-NY). In a press conference, Jones, Clinton, and Sen. Barbara Boxer (D-CA) said that the legislation would enact "sweeping reforms changes" in time for 2006 (Clinton, 2005).

The bipartisan Voting Integrity and Verification Act of 2005 would ensure that all electronic records are consistent with the paper records. Similar is the Know Your Vote Counts Act of 2005 (H.R. 278), introduced by Steve King. In February 2005, all were referred to their respective Committee of Administrations (Thomas, 2005).

Overall, it seems that towns cannot change their methods of voting by themselves.

Legislation and government intervention is required to try to prevent the reoccurrence of problems that have plagued voters recently. The controversy in 2000 was a wake-up call to many precincts across the United States that reform was necessary. Communities need to understand that all forms of voting have their problems and must work to ensure fair elections.

It will likely be a long time before we consider the voting system to be perfect. The legislation passed in the United States and around the world will one day encourage the dream that all elections are conducted in a fair manner, that every vote is counted, and that there are no lengthy recounts and court battles. Voting is one of the most fundamental rights of every citizen living in a democratic society and the process should be made so that everyone can enjoy that privilege.

What Do the Polls Say?

Occasionally, Americans will get a phone call from an organization or company to participate in a particular survey. Sometimes, a number of groups asking the same questions will receive a variety of different responses due to the variety of different viewpoints, the region where the survey may be taken, and differing survey techniques. Even nationally-recognized groups have gotten different results. This may be particularly true in the issue of electronic voting.

In April 2004, a Virginia based lobbying group, whose members include makers of electronic voting machines, conducted a survey of 1,000 registered voters. The survey found that eighty-eight percent of those polled were confident in digital ballots. 77% of those asked were "not very concerned about the security" of electronic voting. The Information Technology Association of America also found voters were least confident in punch-card ballots (Konrad, 2005).

That was not the same story in a September 2004 poll sponsored by the legal affairs website FindLaw.com. Out of the one thousand adults sampled, 42% had concerns about vote tampering and 38% worried about the accuracy of electronic voting machines. According to the survey, the voters most concerned with accuracy and tampering were young adults, lower-income households, and minorities (UPI/Washington Times, 2005).

Worcester Polytechnic Institute, with cooperation from Penn, Schoen, and Berland Associates, conducted its own survey of 750 adults nationwide in September and October 2004, shortly before the elections. The survey showed that electronic voting was believed to be more vulnerable to fraud and mistakes. A large majority also agreed that they would support having a

paper record for votes. Despite the problems, a large number would still prefer to vote electronically (WPI, 2005).

The same poll also showed that Republicans and adults aged 18 to 34 show strong support for electronic voting. Eighty-three percent of Republicans are confident that the vote will be accurate, compared to 33% of Democrats and 38% Independents. Young adults prefer electronic voting by a two-to-one margin (62% vs. 32%); older respondents prefer manual voting by a two-to-one margin (60% vs. 31%). Younger people were also more willing to vote if an electronic option was available (WPI, 2005).

In March 2005, a poll conducted by the Carl Vinson Institute of Government and the University of Georgia found that voters in the Peachtree State were very confident in electronic voting. Many of the 800 Georgians polled also expressed support for extended hours and weekends for advanced voting and inclusion of paper records. 57% of respondents claimed that electronic voting was more convenient and easy to use than past methods. 76% of whites were confident that their vote was counted accurately. On the other hand, only 39% of nonwhites felt confident, meaning minorities are less confident (Allen, 2005).

Overall, the polls had the same message. Many people want electronic voting, but they also want paper records that show their vote. As the issue of electronic voting becomes a major issue, Americans will also have a wide variety of views. Conservative and liberal groups will ask the same questions, but the results will be different because of the people being polled, not the political affiliation of the group. Unfortunately, we can't get the opinion of every American, so we have to ask a few people on their thoughts.

IQP Methodology

What do students think about electronic voting and what is their opinion after the 2004 United States elections? My IQP answered that question with a survey on the issue of electronic voting. It was based on a poll partly sponsored by WPI. There is more to a survey than the survey itself. One has to have a fairly good idea about the topic, wonder what questions to put, and decide how to administer the survey.

Typical surveys sponsored by major groups, such as Gallup and Zogby, use computer-aided devices to conduct their surveys. The computers call phone numbers randomly. The standard polling size for a survey is about 500-1000. The population may seem small, but as an old joke goes, "If you survey the whole population, you might as well ask the doctor to drain all your blood next time." Also, polls conducted by certain groups may occur in different regions, so a poll that asks people's opinions on the Bush administration in Baltimore will likely not get the same result in St. Louis. Northern states tend to favor Democrats and the Southern states vote Republican.

Before even putting together the survey, I had to take several problems into consideration. I had to try to make the survey as nonpartisan and inoffensive as possible. The original draft of the survey had twenty questions. During the final draft, I had to cut the list down to keep it short yet relevant to the topic in order to cut costs and not take too much of the students' time. The survey included questions of gender, place of residence, and party affiliation. These were deemed important variables likely to correlate with one's opinion on politics and voting. The survey also asked whether respondents voted, their opinion on the state of the America voting system and the government's effort to improve electronic voting, and for opinions on electronic voting overall.

Unfortunately, as a student, I do not have the time or resources to conduct a telephone poll; also many do not have the patience. I decided to conduct my survey in two phases. The first phase was a student poll taken in the Campus Center; the second involved going to different classes to conduct the survey. To conduct my survey, I had to receive permission from the school and professors who conduct classes.

I chose the Campus Center because I wanted to survey in a place where a large amount of students would be. Students may get food or check their mail at least once per week. I also needed a place where I was able to be in the area for about 4-6 hours. The surveys in the classrooms helped acquire a larger number of students in a more controlled and structured environment. Both had their drawbacks. Students may be busy in the Campus Center and professors hope the survey does not take too much time away from instruction.

The surveying was not performed solely at WPI; I also decided to survey a number of classes at Clark University. Clark University is known to be more politically active than WPI. Unlike a technical school such as WPI, Clark is a liberal arts college. I wanted to compare the results of WPI students to an equal number of students from another college. Another reason for the surveys at Clark is that I had a goal of 250 students in the survey.

While conducting the survey, I had everyone sign a disclaimer. It basically says that the agreement to take the survey is voluntary and that the person taking the survey agrees that the results will be kept private and used solely for the IQP. Even if I know students taking this survey, the top sheet will be indistinguishable once the survey results are tallied and separated. The disclaimer and the survey were stapled in order to ensure as much fairness as possible and to lessen the risk of fraudulent activity.

After all the surveys were compiled and the final results tallied, I separated the results according to gender, party affiliation, political activity, and to whether they voted in 2004. The results were expected to answer my questions and maybe even shatter some myths about student political activity. Unfortunately, every surveyor understands he may not have all his questions answered or sometimes regrets not being aggressive enough in his methods. I also realized that I had a limited amount of time to distribute the survey and collect the data.

The data was sorted on a Microsoft Excel spreadsheet document. To keep track of the results, I added the daily results together. I took the results of each day's data and tallied the results according to gender, party affiliation, and anything else I deemed fit for comparison. The data determined if the results were close to the WPI survey. The questions that could be answered were: Do students embrace the idea of electronic voting? Do Republicans prefer the idea over Democrats? Are men more favorable toward electronic voting than women?

I also have understood that not all students taking the survey were registered voters,

Republican, Democrats, or even United States citizens. Also, a number of students that may have
been interested in the survey were not in the area the week I was in the Campus Center.

Analysis of Poll Results (All Data)

During the period of 28 March-8 April 2005, I surveyed 201 students on the issue of electronic voting. Of the 201, 144 came from WPI and the other 57 were from Clark. Overall, the students showed some interest in politics, showed support for electronic voting with paper records, and did not think the government was doing enough to ensure the reliability of voting machines.

The 201 who took the survey were composed of 130 (65%) males and 71 (35%) females. Four states had double-digit figures when it came to student residence. Massachusetts got the largest (89, or 44%), followed by Connecticut (11%), New York (6%) and Maine (5%). Eight students were foreign nationals. Seven did not give an answer, and one had dual citizenship.

As for those registered, 55 (27%) were Democrats, 31 (15%) were Republicans, 84 (42%) were independents, three respondents each came from the Green and Libertarian parties, one from the New York Conservative Party, one identified himself as a "Radical Traditionalist," one did not give an answer, and one did not mention a specific affiliation. Thirteen (6%) were not registered to vote. 149 out of the 201 surveyed voted in the 2004 elections, which meant 74% voted.

Students had varied opinions on the state of the current American voting system: 18 (9%) thought it was great the way it is, 93 (46%) thought it could use some minor changes, 63 (31%) said that a large number of changes were needed, and 21 (10%) thought we should change it completely, while six did not answer.

One hundred thirty-six students, or sixty-eight percent, showed support for paper records, thirty-seven (18%) showed opposition, and 28 were unsure (14%). However, when it came to their opinion on whether voting machines should produce paper records, 94% agreed with the

idea, eleven were against, and one was not sure. Sixty-six percent didn't know whether their state had electronic voting available.

When students were asked which method was more prone to problems and mistakes, 8% thought electronic voting was much more problematic than manual, 23% thought "somewhat electronic," 15% replied "somewhat manual," 11% thought manual was much more likely, 30% thought both were equally likely, and 26 were unsure. On the issue of fraud, the opinions were a lot different, with 111 (55%) saying electronic was more prone, 23 (11%) thinking manual was more prone to fraud, 48 (24%) claiming both were equally likely, and 19 unsure.

The survey also showed most either did not trust the government (91, or 45%) or were unsure about the government (94, or 47%) when it came to the reliability of voting machines. There was also no clear preference when it came to the method of voting: 38% preferred electronic, 36% preferred manual, 22% had no preference, and seven were unsure.

Students also had some degree of political activity. Thirty-four (17%) considered themselves very politically active, 82 (41%) were somewhat active, 62 (31%) were not very active, and 23 (11%) said that they were not at all politically active.

The survey showed that despite stereotypes and media pessimism, students do care about our government. Students make up a large population of today's voters and activists, large enough to want reform our voting system to make it easier and less aggravating. Many of them voted for the first time and their opinions could help change the outcome of any future election.

Results of Survey by School

During the week of 28 March-1 April 2005, 144 students at Worcester Polytechnic Institute took a survey on the issue of electronic voting. Those who took the survey answered questions on gender, party affiliation, the state of the American voting system, and their opinions on electronic voting in general.

Out of the 144 surveyed, 104 (72%) were males and 40 (28%) were females. This is close to the actual percentage of WPI's student gender makeup of 77% male and 23% female. 47%, or 68 students, were from Massachusetts. Connecticut came in second with 16 students. Rhode Island, New York, Maine, New Hampshire, and New Jersey also had significant representation. Four did not give a response, while six were foreign nationals.

As for voter affiliation, 46% considered themselves independent, more than the combined total of Democrats (19%) and Republicans (15%). Nine percent of those who responded were not registered to vote; four percent were non-US citizens. Three respondents were Libertarians, two were Green, one was a member of the New York Conservative Party, one identified himself as a "Radical Traditionalist," one was non-specific about his affiliation, and one did not respond.

Of the 144, 94 (68%) voted in the 2004 elections. As for the state of the current voting system, over half (59%) liked it, although 51% thought it needed some work. 26% thought the voting system needed major changes, 11% wanted a complete overhaul, and five respondents did not answer. There was strong support for paper records in electronic voting machines (67%), with 20% showing opposition.

66% of students didn't know it their area had electronic voting available. Of those that did, it was not available to 27% of the group. Only eight had state and county availability.

Students were also asked which method was more prone to problems and mistakes. 34% thought

electronic voting, 26% thought it was manual, 28% thought both methods were equally likely, and 13% were unsure. When it came to fraud, the responses were a lot different: 60% thought electronic voting was more fraudulent, compared to just 13% for manual methods. 28% viewed both as equally likely.

Ninety-three percent, or 134, believe that electronic ballots should produce paper records, with only ten opposing. Most students are unsure (49%) or cannot trust the government (42%) when it comes to the reliability of electronic voting machines; one student gave no answer. There was no major gap in preferred method. 57 students (40%) preferred to vote electronically, 50 (35%) preferred to vote manually, 33 (23%) had no preference, and 3% were unsure.

Most students displayed some level of political activity. 14% considered themselves very politically active, 38% said "Somewhat politically active," 35% said they were not very active, and 14% were not active at all.

A week after the poll at WPI, a survey of 57 students was performed at Clark University. I wanted to see if I could get any different results; WPI was a technical college while Clark was a liberal arts college. With permission from two professors, I surveyed two classes. Clark University also has a history of extensive political activism.

The gender ratio was a lot different, 31 (54%) were females and 26 (46%) were males. Twenty-two students (39%) came from Massachusetts. In a distant second, six students (11%) each came from Connecticut and New York. Maine, California, and New Jersey were also states that contained two or more students. Two students were foreign nationals and one had dual citizenships.

Of the 57 students surveyed, twenty-seven (47%) were registered Democrats, eighteen (32%) were independent, nine (16%) were Republican, two were not foreign nationals, and one was a member of the Green Party. Fifty-one (89%) of those surveyed voted in the 2004 elections.

Twenty-five students (44%) thought the American voting system needed significant changes; exactly one-third thought the system only needed minor changes. 12% thought the system was great the way it is, 9% thought of overhauling it completely, and one did not answer. Support for paper records was strong, with 39 students, or 68%, supporting the idea (strongly support or somewhat support), compared to eight students (14%) who opposed to some degree and ten unsure (18%).

Two-thirds of students didn't know if electronic voting was available, while 14 students (25%) said the option was not available in their state or county and 7% had the option statewide. Thirty-five percent, or 20 students, thought electronic and manual methods were equally likely to cause problems and mistakes. Fifteen students (26%) thought electronic voting was more problematic; an equal number thought manual voting was more problematic. 44% thought electronic voting was more fraudulent, 30% thought both methods were equally fraudulent, 7% thought manual was more prone to fraud, and 19% were unsure.

Only one student did not feel that electronic voting machines should produce paper records and one was not sure. A majority (54%, or 31 students) thought the government was not doing enough to ensure the reliability of voting machines and 40% were unsure. 40% of those surveyed prefer manual voting, one-third prefer electronic voting, 21% had no preference, and three were unsure.

As for political activity, almost half (28 students, 49%) were somewhat politically active, 25% were very active, 21% were not very politically active, and three students were not active at all.

In conclusion, the Clark students were definitely more politically active than the WPI students. Students at Clark also tended to be more liberal and were more likely to vote than their Consortium counterparts. Both student populations were also very diverse when it came to student populations. Preference varied slightly. WPI students tended to prefer electronic voting, while Clark students preferred manual voting.

The overall student population showed that most students put voting as a priority when possible. Those who took the survey participated in their first Presidential election and wanted to express their views. Unlike the media stories, young voters care enough about politics to want change in the government. They want to make voting an easier and more enjoyable experience.

Table 1 (Note: Due to rounding, results may not add up to 100%.)

	WPI	Clark
Male	72%	46%
Female	28%	54%
Democrat	19%	47%
Republican	15%	16%
Independent	46%	32%
Other (Third-party, nonregistered, foreign)	19%	5%
Voted in 2004?		
Yes	68%	89%
No	32%	11%
How would you define the state of the current voting s	system in the United	d States?
It's great	8%	12%
It's okay, could use some work	51%	33%
It needs a lot of improvement	26%	44%
Overhaul the system completely	11%	9%

No answer	3%	1%
How strongly do you support or oppose touch-screen voting produce paper records?	ng if machines were rec	quired to
Strongly support	28%	21%
Somewhat support	40%	47%
Somewhat oppose	17%	7%
Strongly oppose	3%	7%
Don't know	13%	18%
Which method of voting (electronic or manual) is more vu	llnerable to mistakes ar	nd problems?
Much more likely electronic	8%	11%
Somewhat more likely electronic	26%	16%
Somewhat more likely manual	15%	14%
Much more likely manual	10%	12%
Both are equally likely	28%	35%
Unsure	13%	12%
Olisuic	1370	1270
Which method of voting (electronic or manual) is more vu	llnerable to mistakes ar	nd problems?
Much more likely electronic	27%	19%
Somewhat more likely electronic	33%	25%
Somewhat more likely manual	7%	7%
Much more likely manual	6%	0%
Both are equally likely	22%	30%
Unsure	6%	19%
Do you feel the government is doing enough to ensure the	reliability of electroni	c voting
machines?		
Yes	8%	5%
No	42%	54%
Don't know	43%	40%
No answer	1%	0%
If you had a choice, would you prefer to vote electronicall	y or manually?	
Electronically	40%	33%
Manually	35%	40%
No preference	23%	21%
Don't know	3%	5%
2 0.1 4 1.10 11		0,70
How politically active are you?		
Very politically active	14%	25%
Somewhat politically active	38%	49%
Not very politically active	35%	21%
Not at all politically active	14%	5%

Poll Analysis by Gender

Do male college students have a different opinion about electronic voting than their female counterparts? Separating the survey results by gender could help solve this question. Over a course of two weeks, a survey of 130 males and 71 females was taken. Surveying was done at the Campus Center and at classes at Clark and WPI. I first tallied the results of the women, since it was a smaller sample, on a spreadsheet. After I did the women, I subtracted the difference to find the men's totals.

Sixty one males, or 47%, came from Massachusetts, 10% from Connecticut, 6% from New York, and 5% from Rhode Island. The top four states for women were: Massachusetts (28 students, 39%), Connecticut (13%), New York (7%), and Maine (6%). Five men and two women did not give a location of residence. Five males and three females are foreign nationals and one male student has dual citizenship.

The male political makeup was: 22% Democrat, 16% Republican, and 45% independent, with 8% not registered to vote. 4% checked the "Other" column, meaning they were registered with parties such as the Green and Libertarian parties. As for the women, it was 37% Democrat, 37% independent 14% Republican, and 4% in the "Others" column. Ninety-one males (70%) and 58 females (82%) voted in the 2004 elections.

Almost half of the males (48%) who responded thought the current state of the voting system needed minor improvements and 10% thought it was perfect. 23% thought the system needed major changes, 15% thought the system should be scrapped completely, and five men did not answer. 46% of female respondents thought the system needed major changes, 42% thought minor changes were necessary, five females thought it was perfect, two wanted it completely overhauled, and one did not answer.

Most males (60%) and females (77%) didn't know if electronic voting was available in their area. For those that knew, 31% of males and 18% of females did not have the option available. 7% of males and 4% of females had electronic voting available city and statewide.

An equal number of males (43 students each, 33%) thought that electronic voting was more susceptible to problems and mistakes than manual voting and that both options were equally susceptible to problems. 24% of males thought manual was more problematic and 10% were unsure. Thirty percent of females thought manual voting was more prone to problems, 28% thought electronic, 24% thought both were prone to problems and 18% were unsure.

59% of males and 48% of females thought electronic voting was more at risk of being fraudulent than manual voting, compared to 10% of males and 14% of females who thought manual voting was more fraudulent. 23% of males and 25% of females thought both methods were equally susceptible to fraud. Only eight males and three females thought electronic voting machines should not produce paper records.

46% of males and 44% of females did not think the government was doing enough to ensure the reliability of electronic voting machines. 44% of males and 52% of females were unsure about the government's ability. There is no clear winner to the preferred method of voting. 40% preferred electronic, 38% preferred manual, and 21% had no preference. The female side was similar: 34% preferred electronic, 32% preferred manual, and 25% had no preference.

18% of males considered themselves "very politically active," 40% said "somewhat," 32% were "not very politically active" and 11% were not at all active. 15% of females were very politically active, 44% were somewhat politically active, 28% were not very politically active, and 13% said they were not at all politically active.

Overall, the survey population was composed of 104 WPI males, 26 Clark males, 40 WPI females, and 31 Clark females.

Males are more likely to be independent or Republican and females are more likely to be Democrats or independents. Females were also more likely to vote, but males were more confident of the voting system. However, males were less confident of electronic voting due to the problems and risk fraud. Males also saw less trust in the government's ability to maintain the reliability of voting machines. Neither has a preference in a method.

Table 2 (Note: Due to rounding, results may not add up to 100%.)

	Male	Female
Democrat	22%	37%
Republican	16%	14%
Independent	45%	37%
Other (third-party, non-voters, foreign)	17%	13%
Voted in 2004?		
Yes	70%	82%
No	30%	18%
How would you define the state of the current voting systematics.	em in the United States	?
It's great	10%	7%
It's okay, could use some work	48%	42%
It needs a lot of improvement	23%	46%
Overhaul the system completely	15%	3%
No answer	4%	1%
How strongly do you support or oppose touch-screen voti produce paper records?	ng if machines were rec	quired to
Strongly support	28%	23%
Somewhat support	36%	52%
Somewhat oppose	14%	14%
Strongly oppose	6%	1%
Don't know	16%	10%
Which method of voting (electronic or manual) is more v	ulnerable to mistakes ar	nd problems?
Much more likely electronic	8%	8%
Somewhat more likely electronic	25%	20%

Somewhat more likely manual	15%	18%
Much more likely manual	11%	11%
Both are equally likely	33%	24%
Unsure	10%	18%
Which method of voting (electronic or manual) is more		_
Much more likely electronic	30%	15%
Somewhat more likely electronic	29%	32%
Somewhat more likely manual	5%	10%
Much more likely manual	5%	4%
Both are equally likely	23%	25%
Unsure	8%	13%
Do you feel the government is doing enough to ensure the machines?	he reliability of electron	ic voting
Yes	10%	2%
No	46%	44%
Don't know	44%	52%
No answer	0%	1%
If you had a choice, would you prefer to vote electronic	ally or manually?	
Electronically	40%	34%
Manually	38%	32%
No preference	21%	25%
Don't know	1%	8%
How politically active are you?		
Very politically active	18%	15%
Somewhat politically active	39%	44%
Not very politically active	32%	28%
Not at all politically active	11%	13%
That at all politically active	11/0	1370

Poll Analysis by Political Activism

Does political activism have any connection with attitudes toward electronic voting?

Does it predict the voters' attitudes toward the state of the American voting system? Political activism involves talking about politics and taking interest in a cause.

Out of the 201 students surveyed at Clark and WPI, 17% considered themselves "very politically active." 41% considered themselves "somewhat politically active." 31% said they were "not very politically active" while 11% said they were not politically active at all.

Of the very active crowd, 42% were Democrats, 30% were independent, and 18% were Republican. The "somewhat active" crowd consisted of 44% independents, 30% Democrats, and 16% Republicans. As for the "not very active" crowd, the make-up was 50% independent, 19% Democrat, and 15% Republican. The politically inactive crowd was 35% independent, 17% Democrat, and 13% Republican.

38% of the very politically active crowd thought the current American voting system needed a lot of improvements, 26% thought it needed minor changes, and 18% thought the system was great the way it is. Of the somewhat active crowd, 51% thought the system needed minor changes and 33% thought the system needed major changes. The not very politically active crowd had 53% saying the system needed minor changes, 26% wanting major changes, and 10% wanting a complete overhaul. 52% of the politically inactive crowd thought "it's okay" and 26% said "it needs a lot of improvements."

68% of the very politically active crowd did not think the government was doing enough to ensure the reliability of electronic voting machines; 26% were not sure. Eleven percent of the somewhat active club thought the government was doing enough, while 48% did not. Of the not

very active crowd, 61% were not sure and 35% said "no." The politically inactive crowd had 65% unsure and 30% saying the government was not doing enough.

The most politically active crowd tended to be Democrats or independents, although there were more politically active Republicans than inactive Republicans. As political activity increased, students tended to be more disgruntled with the state of the current voting system.

Also, those with more political activity were less confident in the government's ability to ensure the reliability of electronic voting machines.

Table 3 (Note: Due to rounding, percentages may not add up to 100%.)

	Very active 17%	Somewhat 41%	Not very 31%	Not at all 11%
Political Party				
Democrats	42%	30%	19%	17%
Republican	18%	16%	15%	13%
Independent	30%	44%	50%	35%
Others	12%	10%	16%	35%
How would you define the current st	tate of the votin	ng system?		
It's great	18%	7%	6%	9%
It's okay	26%	51%	53%	52%
Needs a lot of improvements	38%	33%	26%	26%
Overhaul completely	15%	7%	10%	9%
No answer	3%	1%	6%	0%
Do you feel the government is doing machines?	g enough to ens	sure the reliabil	ity of electronic	voting
Yes	6%	11%	3%	4%
No	68%	48%	35%	30%
Don't know	26%	40%	61%	65%
No answer	0%	1%	0%	0%

Poll Analysis: Does Voting Matter?

Do those that voted in the 2004 election have more confidence about our system than the nonvoters? Does the state of the voting system affect one's decision about whether they vote or even register?

Out of the 201 students surveyed at Clark and WPI over the course of two weeks, it was discovered that 74% of those surveyed voted in the 2004 elections. The 26% that did not vote is comprised of non-registered voters, registered voters, and foreign nationals. In this evaluation, only those who were eligible to vote were included, so the eight respondents who are not US citizens were not counted. Altogether, a net total of 193 surveys were evaluated, 77% of whom voted in 2004.

47% of those who voted in the 2004 elections thought the voting system was "okay" and 34% thought the system needed major improvements. Ten percent were satisfied with the state of the current voting system. Of the nonvoters, 53% thought the voting system was "okay," 23% thought the system needed a lot of improvements, and 11% thought the system needed a complete overhaul.

Over half of the voters said that the government was not doing enough to ensure the reliability of electronic voting machines; 41% were not sure. Of the nonvoters, 61% were not sure if the government were doing enough to ensure the reliability of electronic voting machines and 23% responded "no."

So why don't people vote? There are a number of reasons. Those who do not vote believe a number of the following reasons: The candidates may not be good, voting could be considered a hassle, students do not have time or knowledge about the candidates, do not give politics a priority, or do not follow the news. The data suggests, however, that questions about the integrity

of the voting process do not tend to keep people from voting. In fact, non-voters had more confidence in the voting process.

Table 4 (Note: Due to rounding, percentages may not add up to 100%)

Overall	Voted 77%	Not voted 23%
How would you define the state of the current voting sy	ystem in the United	States?
It's great	10%	9%
It's okay	47%	53%
Needs a lot of improvements	34%	23%
Overhaul completely	10%	11%
No answer	1%	0%
Do you feel the government is doing enough to ensure machines?	the reliability of ele	ectronic voting
Yes	5%	14%
No	54%	23%
Don't know	41%	61%
No answer	0%	2%

Conclusion

As long as there are controversies about voting, Republicans and Democrats will bicker and blame the other party for problems. Democrats will claim that the voting system is corrupt and rigged in favor of the Republicans. The Republicans will claim that the Democrats are poor sports. However one feels about the voting system, Americans should be grateful that leaders can be elected without fears of a riot.

In the 2004 primary and main elections, states like Georgia, Maryland, and California experienced electronic voting. Electronic voting was especially helpful in the state of Florida, site of the 2000 election controversy, a state that used touch-screen voting during the 2002 elections. Electronic voting has been used in other countries, but results have been less than satisfactory in India and Venezuela.

There have been vast improvements over what happened in 2000. Florida did not have any problems when residents, especially the news-making counties of Broward and Miami-Dade, used electronic voting in mid-term elections. In fact, there were more reasons that came up as to why electronic voting should be a nationwide occurrence. Punch cards were another issue in California's gubernatorial recall election in 2003. In 2004, the Washington gubernatorial race was too close to call. Mandated hand recounts saw changing results and the courts were forced to intervene. Electronic voting could have save candidates and voters millions of dollars.

The government can enact legislation, such as the Help America Vote Act, to help enfranchise voters. The federal government is only a supplement to municipalities that regulate the system of voting, as it helps distribute funds to cash-strapped towns to help add voting machines. It is the towns and counties across America that ultimately have to make decisions on how voting should be performed.

Voting systems across the nations should be updated by the next Presidential election.

The number of voters will increase, and that means longer lines. Electronic voting will help alleviate long lines because paper ballots can be a taxing process to fill out. To get those short waits, the voting machines will have to function perfectly during all elections. Machines should be tested frequently to avoid catastrophic failures. If the machines function, then voters will have more confidence in the voting system and be encouraged to vote electronically. Money should be distributed according to how successful voting went. States that are more successful should be rewarded for their efforts on Election Day. However, modernizing all precincts should be a year-round priority that is ultimately left to towns and counties because the federal government can only do so much.

The United States is on target, but there are still areas that need improvement. Among those who need the most attention are the low-income, technologically-impaired, older voters, and minorities. Those groups show the least confidence in electronic voting. Programs could be enacted to introduce voters to the machines and show them how to vote electronically. The same process could be used for military voters to avoid the problems of 2000.

After analyzing my poll, from the sampling taken, Republicans were more confident in the voting system, Democrats would prefer electronic voting, and independents prefer manual voting. Men were more likely to be Republican and more satisfied with the voting system. As political activity increased, the confidence in the voting system decreased. Those who were less politically active were more supportive of the current voting system. Nonvoters were more confident in the voting system.

As a registered voter who has voted absentee and at a voting booth, I feel the system works and that my vote will be counted. Obviously, the system isn't perfect (not every state has

learned to embrace electronic voting) and my political affiliation would consider me a minority in Massachusetts (moderate-to-conservative Republican in a heavily liberal Democratic state), but ours is one of the most civil, stable, and reputable systems that other countries should emulate.

Basically, the state of the American voting system has greatly improved, but there is still a lot of work that needs to be done. Electronic voting needs to be extended and sites should be secure from hacking. The paper ballot may go the way of the lever for on-site voting, as optical scanners will be replaced with ATM-like machines. Paper records should be included to ensure that every vote gets counted accurately. Voting is one of the most important responsibilities of a democratic society and every American should participate in the process.

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Electronic Voting Poll

 What is your gender? Male Female What state are you from? (If you're not a US citizen, write name of country of citizenship, then skip to 6.) 	 8. Which method of voting (electronic or manual) is more vulnerable to mistakes and problems? Much more likely electronic Somewhat more likely electronic Somewhat more likely manual Much more likely manual Both are equally likely Unsure
 3. What political party are you registered with? Democrat Republican Independent Other (please specify) 4. Did you vote in the 2004 elections? Yes 	 9. Which method (electronic or manual is more vulnerable to fraud? Much more likely electronic Somewhat more likely electronic Somewhat more likely manual Much more likely manual Both are equally likely Unsure
 No How would you best define the state of the current voting system in the United States? 	 10. Do you feel that electronic voting machines should produce paper records? Yes No
It's great the way it is It's okay, could use some work It needs a lot of improvements Overhaul the system completely.	 11. Do you feel the government is doing enough to ensure the reliability of electronic voting machines? Yes No
 6. How strongly do you support or oppose touch screen voting if machines were required to produce paper records? Strongly support Somewhat support Somewhat oppose Strongly oppose Don't know 	 No Don't know 12. If you had a choice, would you prefer to vote electronically or manually? Electronically Manually No preference Don't know
 7. Does your state or county have touch screen voting available? State and county State, but not my county Not available in my state Don't know 	13. How politically active are you? In other words, do you often talk about politics, volunteer in political campaigns, or promote political activism? Very politically active Somewhat politically active Not very politically active Not politically active at all

Question	Code	No.	Name	Question	Cod	e I	No.	Name
Q01	1 2	71	Male Female	Q05		1 2 3	93	It's great It's okay Needs work
Q02	MA CT NY	22	Massachusetts Connecticut New York		NA	4	21 6	Change completely No answer
	ME RI NA NJ NH	9 7 7 6	Maine Rhode Island No answer New Jersey New Hampshire	Q06		1 2 3 4 0	84 28 9	Strong support Somewhat support Somewhat oppose Strongly oppose Don't know
	CA PA CO VT MD SC	4 3 3 2	California Pennsylvania Colorado Vermont Maryland South Carolina	Q07		1 2 3 0	3 53	State & County State only Not available Don't know
	AK AR BAN BRA CHN GA IN	1 1 1 1 1	Alaska Arkansas Bangladesh Brazil China Georgia Indiana	Q08		1 2 3 4 5 0	46 30 22 60	Much more electronic Somewhat electronic Somewhat manual Much more manual Both equally likely Unsure
	IND JAM JOR KAZ MD MI OH	1 1 1 1 1	India Jamaica Jordan Kazakhstan Maryland Michigan Ohio	Q09		1 2 3 4 5 0	61 14 9 48	Much more electronic Somewhat electronic Somewhat manual Much more manual Both equally likely Unsure
	OR TX UGA USGER	1 1 1	Oregon Texas Uganda US-German dual	Q10		1 2 0	11	Yes No Unsure
Q03	VA 1 2	55	Virginia Democrat Republican	Q11	NA	1 2 0	91 94	Yes No Don't know No answer
	9NR 9F 9G 9L 9CON	84 13 8 3	Independent Not registered Non-US citizens Green Party Libertarian New York Conservative	Q12		1 2 3 0	76 73 45	Electronically Manually No preference Don't know
Q04	9NS 9RT NA	1 1 1	Non specific Radical Traditionalist No answer	Q13		1 2 3 4	82 62	Very active Somewhat active Not very active Not at all active
	2		No	Q14	WPI CL	9	57	WPI Clark Other

Question	Code	No.	Name	Question	Code	No.	Name
Q01	1		Male Female	Q05		2 7	1 It's great 4 It's okay 8 Needs work
Q02	MA CT RI	16	Massachusetts Connecticut Rhode Island		NA	4 1	6 Change completely 5 No answer
	NY ME NH NJ NA	6 5 5 4	New York Maine New Hampshire New Jersey No answer	Q06		2 5 3 2 4	0 Strong support 7 Somewhat support 4 Somewhat oppose 5 Strongly oppose 8 Don't know
	CA PA CO SC VT AR	3 2 2 2	California Pennsylvania Colorado South Carolina Vermont Arkansas	Q07		2 3 3	8 State & County 2 Not in county 9 Not available 5 Don't know
	BRA CHN GA IN IND JOR KAZ	1 1 1 1	Brazil China Georgia Indiana India Jordan Kazakhstan	Q08		2 3 3 2 4 1 5 4	1 Much more electronic 7 Somewhat electronic 2 Somewhat manual 5 Much more manual 0 Both equally likely 9 Unsure
	MD MI TX UGA VA	1 1 1	Maryland Michigan Texas Uganda Virginia	Q09		24314	9 Much more electronic 7 Somewhat electronic 0 Somewhat manual 9 Much more manual 1 Both equally likely 8 Unsure
Q3	2	2 22 3 66	B Democrat P Republican B Independent B Not registered	Q10			4 Yes 0 No
	9F 9L 9G 9CON 9NS	6 3 2	Non-US citizens Libertarian Green New York Conservative Non-specific	Q11	NA	2 6	2 Yes 60 No 71 Don't know 1 No answer
	9RT NA		Radical Traditionalist No answer	Q12		2 5 3	7 Electronically 60 Manually 83 No preference
Q4			3 Yes 3 No	Q13		2 5	4 Don't know 20 Very active 54 Somewhat active 50 Not very active 20 Not active at all
				Q14	WPI CL	9	14 WPI 0 Clark 0 Other

Question	Code		No.	Name	Question	Code	No.		Name
Q01		1		Male Female	Q05	:	1 2 3	19	It's great It's okay Needs work
Q02	MA CT NY		6	Massachusetts Connecticut New York			4	5	Change completely No answer
	ME NA CA NJ AK		4 3 2 2	Maine No answer California New Jersey Alaska	Q06	;	1 2 3 4	27 4 4	Strong support Somewhat support Somewhat oppose Strongly oppose
	BAN CO		1 1	Bangladesh Colorado	Q07		0	4	Don't know State & County
	JAM MD NH		1 1	Jamaica Maryland New Hampshire		;	2 3 0	14	State only Not available Don't know
	OH OR PA RI USGE	:R	1 1 1	Ohio Oregon Pennsylvania Rhode Island US-German dual	Q08	;	1 2 3 4	9 8	Much more electronic Somewhat electronic Somewhat manual Much more manual
Q03	VT	1		Vermont		;	5	20	Both equally likely Unsure
400	9F 9G	3	9 18 2	Republican Independent Non-US citizen Green	Q09	;	1 2 3 4	14 4 0	Much more electronic Somewhat electronic Somewhat manual Much more manual
Q04		1 2		Yes No			5 0		Both equally likely Unsure
					Q10	:	1 2 0	1	Yes No Unsure
					Q11	:	1 2 0	31	Yes No Don't know
					Q12	;	1 2 3 0	23 12	Electronically Manually No preference Don't know
					Q13	;	1 2 3 4	28 12	Very active Somewhat active Not very active Not at all
					Q14	WPI CL	9	57	WPI Clark Other

Question	Code	No.	Name	Question	Code	No.	Name
Q01	1 2) Male) Female	Q07	1 2	3	State & County State only
Q02	MA CT	13	Massachusetts Connecticut		3	78	Not available Don't know
	NY RI ME NJ	6	B New York 7 Rhode Island 6 Maine 6 New Jersey	Q08	1 2 3	32 17	Much more electronic Somewhat electronic Somewhat manual
	NA CA NH	5	5 No answer 5 No answer 5 California 5 New Hampshire		4 5 0	43	Much more manual Both equally likely Unsure
	PA AR BAN	3	B Pennsylvania I Arkansas I Bangladesh	Q09	1 2 3	38	Much more electronic Somewhat electronic Somewhat manual
	CHN CO JOR	•	l China l Colorado l Jordan		4 5 0	6 30	Much more manual Both equally likely Unsure
	KAZ MD OH	•	l Kazakhstan l Maryland l Ohio	Q10	1	122	Yes No
	OR SC UGA		l Oregon l South Carolina l Uganda	Q11	1		Yes No
	USGER VA VT	•	l US-German Dual l Virginia l Vermont	Q12	1		Don't know Electronically
Q03	1 2 3	2	Democrat Republican		2 3 0	50 27	Manually No preference Don't know
	9NR 9F 9L 9CON	11	3 Independent 1 Not registered 5 Non-US Citizen 2 Libertarian	Q13	1 2 3	51 42	Very active Somewhat active Not very active
	9G 9NS 9RT		New York ConservativeGreenNon-specificRadical Traditionalist	Q14	WPI	104	Not at all active WPI
Q04	1 2	9	Yes No		CL g		Clark Other
Q05	1 2 3 4 NA	63 30 19	3 It's great 3 It's okay 3 Needs work 5 Change completely 5 No answer				
Q06	1 2 3 4 0	36 47 18	S Strong support Somewhat support Somewhat oppose Strongly oppose Don't know				

Question	Code N	lo. Name	Question	Code	No. Name
Q01 Q02	1 2 MA	0 Male 71 Female 28 Massachusetts	Q07	1 2 3 0	,
Q02	CT NY ME PA CO NA NH RI	9 Connecticut 5 New York 4 Maine 3 Pennsylvania 2 Colorado 2 No answer 2 New Hampshire 2 Rhode Island	Q08	1 2 3 4 5	6 Much more electronic 14 Somewhat electronic 13 Somewhat manual 8 Much more manual 17 Both equally likely
	VT AK BRA CA GA IND IN	2 Vermont 1 Alaska 1 Brazil 1 California 1 Georgia 1 India 1 Indiana	Q09	1 2 3 4 5 0	23 Somewhat electronic 7 Somewhat manual 3 Much more manual 18 Both equally likely
	MD NJ PA JAM	Maryland New Jersey Pennsylvania Jamaica	Q10	1 2 0	3 No
	SC TX	1 South Carolina 1 Texas	Q11	1 2 0	31 No
Q03	1 2	26 Democrat 10 Republican		NA	1 No answer
	3 9F 9G 9NR 9L	26 Independent 3 Non-US citizens 2 Green Party 2 Not registered 1 Libertarian	Q12	1 2 3 0	18 No preference
	NA	1 No answer	Q13	1 2	,
Q04	1 2	58 Yes 13 No		3	
Q05	1 2 3 4 NA	5 It's great 30 It's okay 33 Needs work 2 Change completed 1 No answer	Q14 y	WPI CL 9	40 WPI 31 Clark 0 Other
Q06	1 2 3 4 0	16 Strong support 37 Somewhat suppor 10 Somewhat oppose 1 Strongly oppose 7 Don't know			