

THE INTERNET AND POLITICAL PARTICIPATION
THE EFFECT OF INTERNET USE ON VOTER TURNOUT

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ABSTRACT

This study investigates the effect of the Internet on political participation, specifically if Internet use is associated with increased likelihood of voter turnout and campaign donating. There are well documented socio-economic and psychological determinants of political participation, but there is also some evidence to suggest that improvements in methods of information distribution and communication can boost participation rates. This study uses data from the 2004 presidential election to help understand the connection between Internet technology and political participation. It uses logit models and finds that access to the Internet was associated with higher rates of both voting and donating to political campaigns. The Internet has played an increasingly important role in the political landscape of the United States. By lowering information and communication costs this study shows that it can be a factor in boosting political participation.

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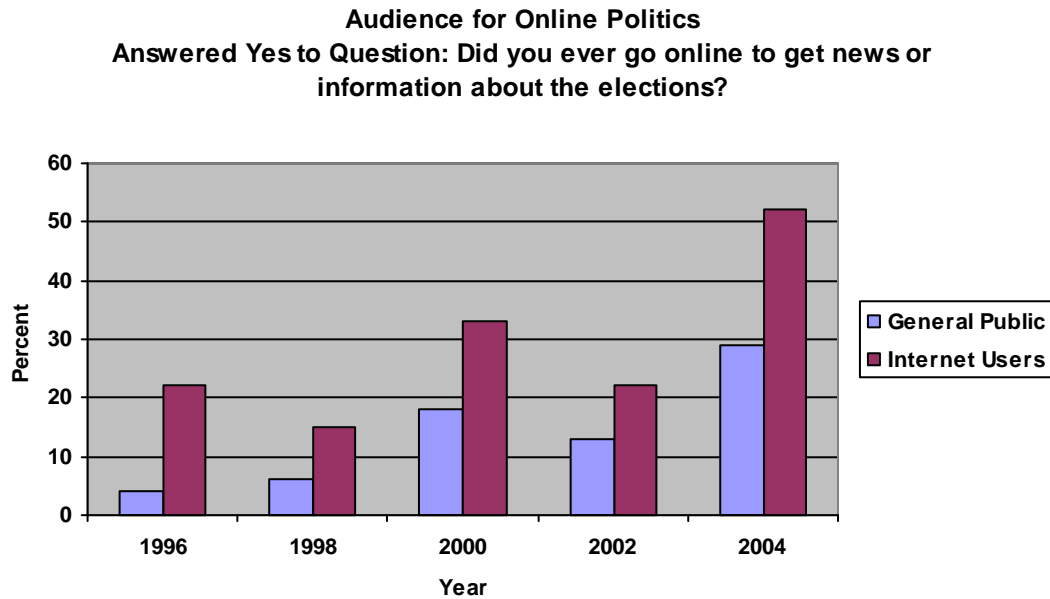
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Chapter 1: Introduction

Between 1960 and 1996 voter participation rates in the United States fell from 62.8 percent to below 50 percent. In the past 30 years, the number of people who work for a political campaign has fallen 42 percent; the number of people who serve on a committee for any local organization has fallen by 39 percent. Furthermore, the number of those who attend public meetings or political rallies have fallen by 35 and 34 percent, respectively (Trippi, 2004). Because citizens must be knowledgeable about the process of government and interested in politics in order to ensure proper representation in a democratic state, it is important to study methods of reversing this trend.

The Internet has played an increasingly key role in recent elections. In 2004, at least 75 million Americans, 37 percent of the adult population, used the Internet to get political news and information, discuss candidates and issues, or participate directly in the political process. The number of online political news consumers increased from 18 percent of the U.S. population in 2000 to 29 percent in 2004. And, in those same four years, the number of registered voters who cited the Internet as one of their primary sources of news about the presidential campaign increased by 50 percent (Rainie, 2005). Figure 1 illustrates this steady growth in the number of online political information consumers especially in presidential election years. Although lower in non-presidential election years, there was still growth between 1998 and 2002 in people reporting that they went to the Internet to get election-related news.

Figure 1



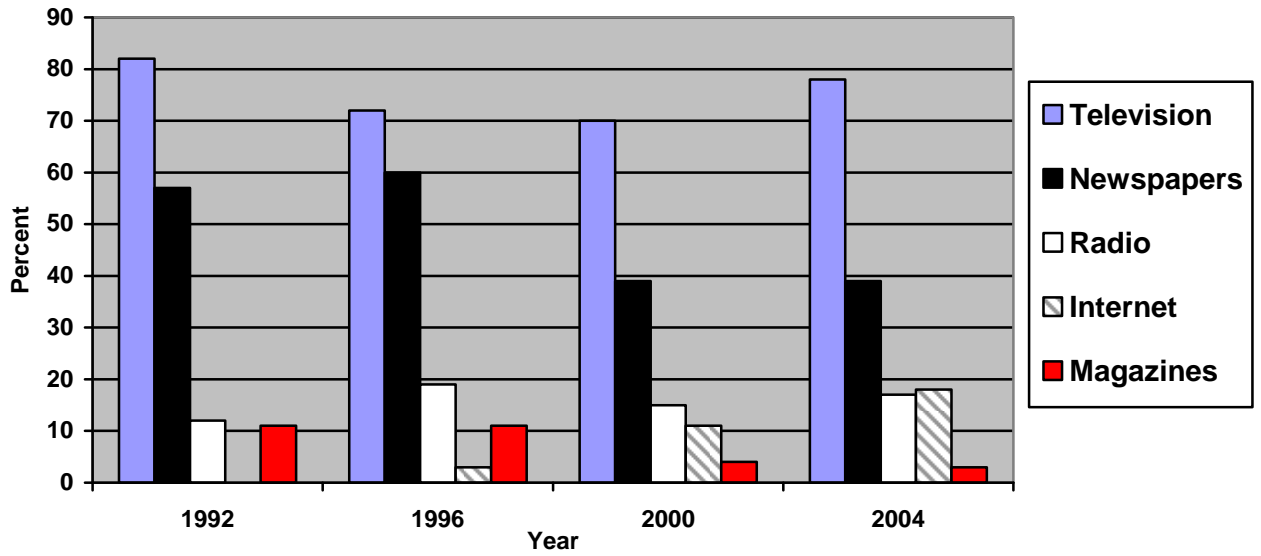
Source: Pew Research Center for The People & The Press and Pew Internet & American Life Project Surveys

The Internet is a growing part of the mass media which not only provides information to voters, but can determine the issues and agendas of an election (McCombs & Shaw, 1972). The Web has increased public exposure to political coverage and provided more avenues for people to gain understanding about issues and candidates. Figure 2 shows that while newspaper and magazine readership for political information was down between 1992 and 2004 and television and radio audiences fluctuated, the number of people using the Internet to obtain knowledge about elections steadily increased. This raises an important question; can the development of the Internet as an information source raise interest in politics and stimulate participation in the political process? (Weaver, 1996; Tolbert & McNeal, 2001; Bimber, 1999).

Figure 2:

Presidential Campaigns and News Sources

Responses from registered voters to the question: how have you been getting most of your news about the presidential election*



Source: Pew Research Center for The People & The Press and Pew Internet & American Life Project Surveys
*Respondents were allowed to give two responses

Chapter 2: Theoretical Background

Research has shown that communication systems and the availability of information can contribute to citizens' ability and desire to participate in the political process (Polat, 2005). The Internet is a new form of communication technology that incorporates the audio-visual dimensions of television and print media with the speed of telephone and cable delivery systems. It not only facilitates greater access to the news but provides a simple path to active participation in organizations such as political campaigns. Chat rooms, message boards and other interactive tools allow Internet users to form virtual communities in order to discuss candidates and issues. Because this technology is so new, there are questions as to its actual impact on the political process. Researchers debate whether the Internet stimulates new classes of people to engage in the political process, enhancing political participation and mobilization by encouraging an egalitarian democracy, or whether it is simply a new tool that will be primarily utilized by those who are already politically engaged and active (Norris, 1999).

Mobilization and *reinforcement* are two contrasting theories that try to explain the effect of the Internet on political participation. Pippa Norris (1999) effectively summarized the literature about these two theories. Mobilization theories state that the Internet is a new form of civic engagement that empowers citizens and strengthens their social capital by reducing the divide between the government and the governed. This new communication technology facilitates a level playing field and a more participatory democracy. With an increased stake in the democratic process, citizens increase their

participation. Mobilization theory assumes that the Internet will continue to expand so that it will eventually overtake both television and print media as the primary source of news and information for both general and election related news (Norris, 2002). When compared to classic voter theories, mobilization theory is consistent with ideas presented in *The Changing American Voter* which argued that citizens can grow in their political knowledge, learn to understand politics and issues better, and cast more intelligent, informed votes (Nie, Verba, & Petrocik, 1976; Smith, 1989).

In contrast to this, reinforcement theories propose that increased Internet use will not radically transform existing patterns of political communications and political participation. They cite the digital divide, or the split between those who have access to the Internet and those who do not, as a primary reason. People who enjoy socio-economic advantages have greater access to technology and also already have greater political participation. The Internet will simply serve to strengthen this association and widen the gap between the elite, politically active citizen and the poor, politically inactive citizen (Norris, 1999). This view of civic engagement is expressed in a classic 1960 book, *The American Voter*, which argued that only people with a strong psychological interest in political affairs are likely to become involved in politics and that very few people are sophisticated voters who understand candidates and policies that are presented to them (Campbell, Converse, Miller, & Stokes).

Chapter 3: Literature Review

The Internet only came into wide use in the United States in the past 10 years. And, as such, research about its effect on media, information, and politics is still in the infancy stages. Findings about its relationship to political participation have been mixed, possibly due to limited datasets and a restricted time frame. Most studies of voter participation have used data available from the 1996, 1998, and 2000 election campaign cycles.

Several studies have found a pattern of reinforcement rather than mobilization in regards to the Internet and political participation. That is, little relationship exists between Internet use and political engagement, and income and education are still paramount (Bimber 2001; Kamarck and Nye 2002; Levine, 2003). Bimber (2001) further noted that historically the *evolution* of informational and communication resources (i.e. the shift from newspaper to television as a primary source of news) have not increased citizen engagement in politics. It should be noted, however, that the emergence of the Internet as a source of news and information is fundamentally different than past media evolution. Compared to newspapers, television reduced the amount of hard news delivered to consumers. In contrast, the Internet, with its unlimited storage and audio/visual capabilities, provides an interactive framework capable of distributing much more information to the public than either television or newspapers. Moreover, Internet communication can be interactive providing a format where views can be discussed and debated.

In contrast, other authors have found a positive correlation between Internet usage and both voter turnout and campaign contributions. They conclude that the Internet provides the public with political information in a more convenient, detailed and low cost form which motivates civic participation (Tolbert & McNeal, 2003; Weber, Loumakis, & Bergman, 2003; Shah, Kwak, & Holbert, 2001). Tolbert and McNeal (2003) found that “individuals with access to the Internet and online election news were significantly more likely to vote in the 1996 and 2000 presidential elections” (p. 184) and were also more likely to make political contributions to candidates. With this in mind, the type of usage has been found to be a factor in the development of civic participation when dealing with the Internet. Individuals who use the Web for information and news exchange are more likely to be motivated politically than those who use the Internet for entertainment purposes (Shah et al. 2001; Prior, 2001). Regarding campaign contributions, it is also noteworthy that although Bimber (2001) found little to no correlation between voter turnout and the Internet, he did find a correlation between monetary contribution to campaigns and Internet use.

When considering studies that find no link between Internet usage and political participation, it is important to note that they primarily include information from the late 1990’s when the Internet was still in the early stages of development. The past few years have seen an explosion of on-line political news resources ranging from blogs to mainstream media outlets. Bimber (2003) expanded his research to include 2000 data and found that “a tiny number of those who obtained political information online were more likely to vote, donate money, and attend a meeting or rally than politically and

demographically similar people who did not use the Internet in that way” (p. 224).

Although Bimber did not find substantial changes in political engagement, he left the door open for further research as more data become available. This study takes advantage of new information availability and uses data from the 2004 election to update previous studies into voter turnout and donation behavior, especially as it relates to Internet usage.

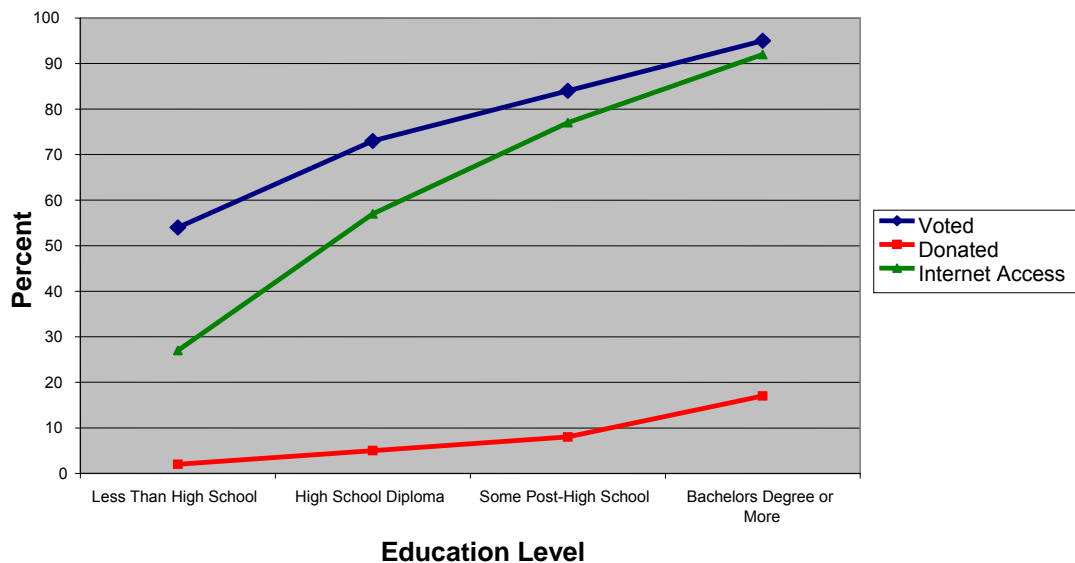
Who Participates?

The extent to which citizens participate in politics is determined by a number of social and economic factors which must be taken into account when performing analysis on voter participation. Social circumstances such as age, race, gender, ethnicity, educational attainment, partisanship, and location, can all affect civic engagement with political participation increasing with age, partisanship, and educational attainment. Citizens living in areas of high racial and ethnic diversity have been shown to be less likely to vote. There is also a well documented correlation between political participation and social/economic class where individuals who are more wealthy and powerful participate in the system to a much greater degree (Conway, 2000; Campbell et al., 1960; Tolbert & McNeal, 2003, Bimber, 2001). In her book, *Political Participation in the United States*, Conway (2000) provides theories as to why many of the above mentioned variables should be included in analysis of voting behavior. She argues that socioeconomic status influences the social roles and expectations individuals have for both themselves and others whereby higher status leads to greater participation. She also

reasons that increasing amounts of political information stimulates political interest, and those of higher socioeconomic status receive more political communication than those of lower status (Conway, 2000). Figures 3 and 4 illustrate two of these relationships by showing increases in both voting and donating with higher levels of income and education. Since these figures also show that Internet usage increases with income and education, it is important to control for these factors in a study of the effect of Internet use on voting behavior.

Figure 3

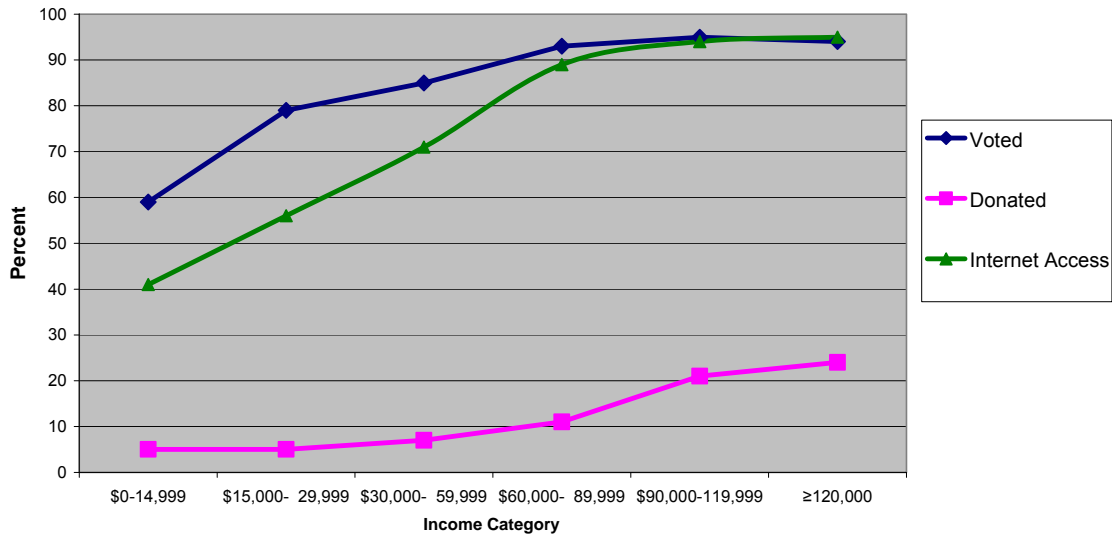
Percentage of Respondents Who Voted, Donated to a Campaign, and Have Internet Access by Education Level
2004 Presidential Election



Source: American National Election Studies, 2004

Figure 4

Percentage of Respondents Who Voted, Donated to a Campaign, and Have Internet Access by Income
2004 Presidential Election



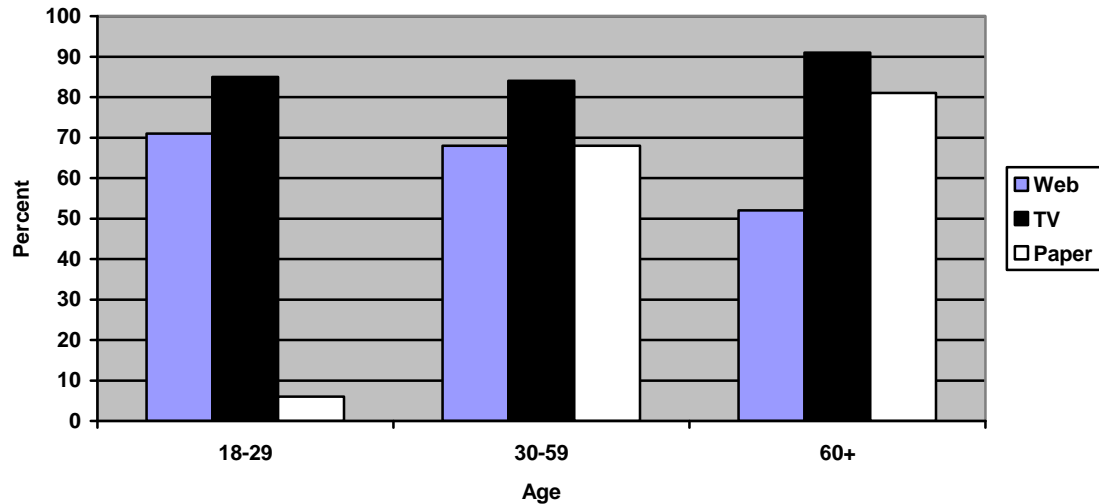
Source: American National Election Studies, 2004

When considering political participation and Internet usage with respect to age, it is interesting to consider two conflicting tendencies. As noted before, there is clear evidence that older individuals participate more than younger individuals (Conway, 2000; Campbell et al., 1960). However, in their research, Shah et al. (2001) note that the Internet is more widely used and has a much larger effect among young Generation X individuals than those of the Baby Boom generation (Shah et al. 2001; Prior, 2001). Figure 5 illustrates the differences between media use by generation by showing that younger generations read newspapers less, but use the Internet more for campaign news coverage than older generations.

Figure 5

Campaign Coverage Consumption by Age and Media Type

Percent of Individuals who used the Internet, Television, and Newspaper for Campaign Information in the 2004 Presidential Election



Source: American National Election Studies, 2004

In order to increase political participation it is necessary to boost involvement in previously underrepresented categories. As the population ages and technology advances, the Internet will play an increasingly important role in news and information sharing (Norris, 1999). For this reason, the Internet could be a useful vehicle in increasing participation rates in the United States, especially among youth.

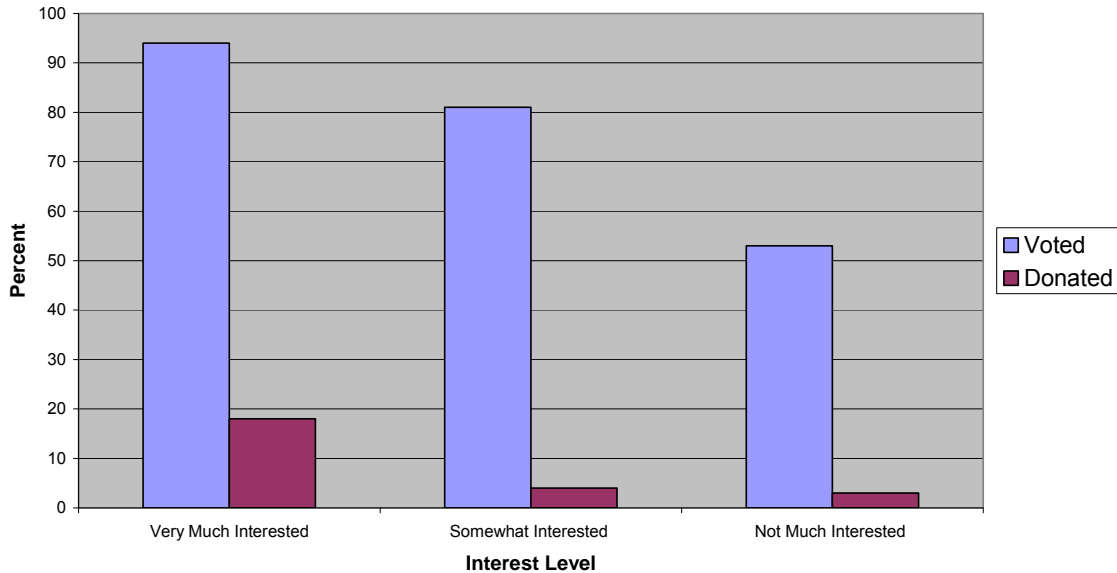
Consideration should also be given to psychological factors such as political efficacy, which is an individual's perceived capacity for political effectiveness. Those with a strong sense of political efficacy have been found to participate more in the political system. As seen in Figure 6, general interest in politics also influences voter participation with more interested individuals participating at significantly greater rates (Campbell, 1960). Studies have also shown that mid-term elections which include ballot

initiatives and close local races draw citizens to the polls who would otherwise not vote; however, this same effect was not found during presidential election years (Smith, 2001).

Figure 6

Effect of Reported Interest in Political Campaigns on Political Participation

2004 Presidential Election



Source: American National Election Studies, 2004

Chapter 4: Hypotheses, Data Source and Methodology

Political participation can encompass a wide range of activities as complex as seeking elected office or working for a candidate, or as simple as voting, donating to a candidate or writing a letter to a public official. Voting is one of the simplest forms of political activity to measure, and it can be a useful gauge of overall participation (Conway, 19; Norris, 2002). Given the comparative ease of on-line monetary transactions, campaign contributions via the Web can also be used to measure the Internet's affect on political involvement.

This study uses logit¹ regression models to test hypotheses that there are positive relationships between Internet usage and both voting and donating to political campaigns. Specifically, the hypotheses are:

Hypothesis 1:

Increased Internet use, which provides improved speed and flexibility in accessing greater amounts of information about candidates and issues in an election, is associated with higher voter participation rates.

Hypothesis 2:

Controlling for income, increased Internet use, which provides an easy method of monetary contribution, is associated with a higher probability that individuals will contribute money to political campaigns.

The models used to test these hypotheses are based on a 2003 study by Tolbert and McNeal which found that Internet access was associated with increased probabilities for both voting and donating. The Internet has played an increasingly important role in the election process as evidenced by the extraordinary successful use of the Internet as a

¹ A mechanism to predict the likelihood of voting and donating

fundraising tool by Howard Dean in the 2004 presidential primary. Because the Internet has continued to grow in popularity with the emergence of numerous political blogs, advocacy sites, and candidate information sites, this study will build on the work of Tolbert and McNeal by attempting to determine if the same positive relationships exist for the 2004 Presidential election.

Data Source

All data for this study comes from the 2004 American National Election Studies (NES). The NES is a nationwide, random survey which began in 1948 and is conducted every two years. It focuses on the American electorate and asks questions about political participation including socio-economic and psychological characteristics of respondents as well as voting and donating behavior. Beginning in 1996, the NES included a question that asked if the respondent had Internet access which has made analysis of political participation and Internet use possible.

For this study, dichotomous dependent variables were used to measure whether or not an individual voted or donated to a campaign in the 2004 election. Independent variables were used to determine the effect of Internet use on voting/donating while controlling for the previously discussed factors that have been shown to affect political participation. These include income, age, gender, race, interest, education, efficacy, and partisan status. Exhibit 1 contains information about the variables in the model. The 'Definition' column indicates variable type and how each variable was created from the original National Election Studies data set. The exhibit also includes a predicted

relationship for each independent variable on the dependent variables; these predictions are based on theory and the existing literature. For example, individuals of higher as opposed to those of lower socio-economic status are more likely to vote and contribute to political campaigns. Minorities and the young tend to participate less than whites and older individuals. Psychological factors will also affect participation rates; individuals who are more interested in politics and show higher levels of efficacy are predicted to have increased participation. Most importantly, individuals who have access to the Internet and use it to obtain political information are expected to have higher participation rates than those who do not.

Exhibit 1
Overview of Variables in the Model and Expected Effects

	Variable Name	Definition	Predicted Relationship	Rationale/Previous Studies
Y ₁	Vote	Dependent variable. Respondent voted in the 2004 election; Dummy variable where 1 = Voted, 0 = Did not vote	N/A	N/A
Y ₂	Donate	Alternate dependent variable. Respondent gave money to a political candidate; Dummy variable where 1 = Gave Money, 0 = Did not give money	N/A	N/A
B ₁	Internet	Respondent had access to the Internet or web; Dummy variable where 1 = yes, 0 = no	Positive	Theory: Nie, Verba, & Petrocik, 1976; Smith, 1989 Tolbert and McNeal, 2003; Bimber 2003
B ₂	HighInc	Dummy variable where 1 = HighInc (High Income:\$70,000+) and 0 = LowInc (Low Income: \$0 - \$24,999) or MedInc (Medium Income: \$25,000-\$69,000)	Positive	Conway, 2000; Campbell et al., 1960; Tolbert & McNeal, 2003; Bimber, 2001
B ₃	Age	Age of Respondent in years; continuous	Positive	Conway, 2000; Campbell et al., 1960

	Variable Name	Definition	Predicted Relationship	Rationale/Previous Studies
B ₄	College	More Than High School Education, Dummy variable where 1 = More than High School education and 0 = Less than High School or High School education	Positive	Conway, 2000; Campbell et al., 1960; Tolbert & McNeal, 2003
B ₅	Independ	Independent Voter, Dummy indicator created from 7 point partisan scale contained in the NES, includes pure Independents, and Independents who reported leaning Republican or Democratic: 1 = Independent, 0 = Not Independent	Negative	Campbell, Converse, Miller, & Stokes, 1960; Smith, 1989
B ₆	GOP	Republican Supporter, Dummy indicator created from 7 point partisan scale contained in the NES. Dummy variable: 1 = Strong/Weak Republican, 0 = Strong/Weak Democrat or Independent (A similar variable for Democrats was created for a reference category)	Positive	Campbell, Converse, Miller, & Stokes, 1960; Smith, 1989
B ₇	Female	Gender dummy variable where 1 = Female, 0 = Male	Positive for Vote; Negative for Donate	Conway, 2000; Campbell et al., 1960
B ₈	NonWhite	Race dummy variable, 0 = White, 1 = NonWhite	Negative	Conway, 2000; Campbell et al., 1960
B ₉	Interest	Respondent interest in campaign, "How interested in Political Campaign" Very interested = 1, somewhat interested or not interested = 0	Positive	Campbell, Converse, Miller, & Stokes, 1960; Smith, 1989
B ₁₀	Efficacy	Dummy variable for question "People like me don't have any say in what the government does": = 1 if agree, 0 if disagree	Negative	Campbell, 1960

Limitations

Limitations with the data exist primarily because political participation is self-reported. Voting has positive connotations associated with it; therefore, respondents might incorrectly report that they voted in order to appear to be a better citizen. Problems also exist because many participants do not want to report their voting behavior at all. The 2004 survey has over 1000 participants; however approximately half of these refused to report whether or not they voted. It is important to take this into consideration when modeling voting behavior by ensuring that the group of individuals who reported their voting status is similar to those who did not. A comparison of descriptive statistics (See Appendix A, Part A) and a difference of means t-test (See Appendix A, Part B) were used in this study to compare individuals whose voter status was missing to those who reported whether or not they voted. Although the two groups were found to be very similar, the difference of means t-test found that the sample is perhaps slightly biased towards white voters. Many more individuals reported whether or not they donated to a campaign; therefore, missing data was not a problem for this variable.

Chapter 5: Regression Analysis

Model 1: Vote²

$$\text{Log}(P/1-P) = \text{Vote}$$

$$Y_1 \text{Vote} = B_0 + B_1 \text{Internet} + B_2 \text{highinc} + B_3 \text{age} + B_4 \text{female} + B_5 \text{nonwhite} \\ + B_6 \text{interest} + B_7 \text{college} + B_8 \text{efficacy} + B_9 \text{gop} + B_{10} \text{independ} + \varepsilon$$

Table 1

Number of observations = 458			Wald $\chi^2(10) = 73.5$		
Pseudo R-squared = .2227			Prob > $\chi^2 = 0$		
Dependent Var. = Vote	Odds Ratio	Coef.	Robust Std. Error	z	P>z
Internet	1.879779	0.631154	0.3222989	1.96	0.050**
highinc	2.411226	0.8801352	0.4219111	2.09	0.037**
age	1.015339	0.0152227	0.0091255	1.67	0.095*
female	1.345604	0.2968431	0.3087023	0.96	0.336
nonwhite	0.529822	-0.6352137	0.3381615	-1.88	0.060*
interest	4.860078	1.581055	0.3754858	4.21	0***
college	2.680523	0.9860117	0.3054588	3.23	0.001***
efficacy	0.708993	-0.3439093	0.2903264	-1.18	0.236
gop	1.358089	0.3060788	0.4571062	0.67	0.503
independ	0.466799	-0.7618549	0.3532916	-2.16	0.031**
_cons		-0.2368442	0.6411139	-0.37	0.712

* Significant at the 10% level

** Significant at the 5% level

*** Significant at the 1% level

Table 1 shows the results of the logit model testing the relationship between voting and Internet access. Overall, with a χ^2 of 73.5 the model is significant at the 99 percent level, and the Pseudo R-squared indicates that it explains 22 percent of the variation in voter status. The results support the hypothesis that Internet access is associated with improved voter turnout; it is a significant, positive predictor of voting at the 95 percent level ($P < .050$).

² In order to correct for heteroskedacity, all logit models in this study were run with robust standard errors.

As expected income, age and education were also significant, positive predictors of voting while race and independent partisan status were significant, negative predictors of voting. Education was significant at the 99 percent level, while income and partisan status were significant at the 95 percent level. These findings are consistent with the literature on voter participation. Race and age were significant at 90 percent, and, as expected, age predicted a positive effect while non-white status predicted a negative effect.³ Gender was insignificant; this could be due to the fact that their turnout rates have become similar to men.

Psychological factors associated with political participation also had an impact on voting. The psychological measure, interest, was highly statistically significant (99 percent level). Those who reported high levels of interest in the campaign were more likely to vote than those who expressed some or no interest in the campaign. This high statistical significance implies that stimulating public interest in a campaign has the possibility to increase voter turnout. Moreover, efficacy—which measures whether an individual believes that his/her vote matters—was not significant. This implies stimulating public interest does not have to overcome the view that one’s vote does not matter.

³ Remembering that the model could be slightly biased toward white voters could explain this lower significance level for the race variable. That is, a larger sample of non-white individuals would help to capture better their variation in voting behavior.

Predicted Probabilities of Voting

Using the results of the logit model, it is possible to calculate the probability an individual will vote given a specific characteristic. Table 2 shows the predicted probabilities associated with the statistically significant variables in the model.

Table 2
Probability of Voting by Selected Category
Based on Logit Results

Characteristic	Probability of Voting
Total	83.3
Internet Access	87.4
No Internet Access	72.2
High Income	94.1
Middle or Low Income	78.3
White	87.3
Nonwhite	71.9
Very Interested in the Campaign	94.6
Somewhat or Not Interested in the Campaign	74.5
Some College Education	90.2
High School Education or Less	70.9
Independent	74.1
Partisan (GOP or Democrat)	88.2

As table 2 shows the probability of voting for a person with Internet access increases over fifteen percentage points, from 72.2 percent to 87.4 percent, from a person without access. Large variations in the probability of voting were also associated with

income, race, interest in the campaign, education and partisan status. Voters who are white, high income, or partisan are approximately 15 percentage points more likely to vote than those who are nonwhite, middle/low income, or independent, respectively. These findings are consistent with the existing literature. Education and interest in the campaign display the largest variations in probability of voting. Individuals with at least some college education are 20 percentage points more likely to vote than those whose education is high school level or less. This same 20 percentage point spread is associated with the interest characteristic; those who are very interested in campaigns are expected to vote at a much higher rate than those with some or no interest in campaigns.

Model 2: Donate

$$\text{Log (P/1-P) = Donate}$$

$$Y_1 \text{ Donate} = B_0 + B_1 \text{Internet} + B_2 \text{highinc} + B_3 \text{age} + B_4 \text{female} + B_5 \text{nonwhite} + B_6 \text{interest} + B_7 \text{college} + B_8 \text{efficacy} + B_9 \text{gop} + B_{10} \text{independ} + \varepsilon$$

Table 3

Number of observations = 885			Wald $\chi^2(10) = 79.24$		
Pseudo R-squared = 0.1884			Prob > $\chi^2 = 0.0000$		
Dependent Var. = Donate	Odds Ratio	Coef.	Robust Std. Error	z	P>z
Internet	2.655653	0.97669	0.390989	2.5	0.012***
Highinc	1.959417	0.672647	0.24791	2.71	0.007***
Age	1.040982	0.040164	0.008576	4.68	0.00***
Female	1.550172	0.438366	0.258512	1.7	0.09*
Nonwhite	0.773154	-0.25728	0.345833	-0.74	0.457
Interest	4.138378	1.420304	0.277822	5.11	0.00***
College	2.502384	0.917244	0.341444	2.69	0.007***
Efficacy	1.003707	0.0037	0.249335	0.01	0.988
Gop	0.877908	-0.13021	0.302454	-0.43	0.667
Independ	0.674314	-0.39406	0.317029	-1.24	0.214
_cons		-6.84474	0.842286	-8.13	0.00

* Significant at the 10% level
 ** Significant at the 5% level
 *** Significant at the 1% level

Table 3 shows the results of the logit model testing the relationship between donating to a campaign and Internet access. This regression used a larger number of observations (n = 885) than the voting regression (n = 458). As previously discussed, this is most likely do to the fact that, unlike voting, donating is not seen as a civic duty so individuals are more willing to report if they did not donate to a campaign than if they did not vote. Also, because most donation information is public record, unlike the secret ballots used in voting, individuals might be more willing to report their donor status.

The results support the hypothesis that Internet access is associated with greater tendency to contribute monetarily to a campaign. Overall, the model has a chi² of 79.24 and is significant at the 99% level, and with an Pseudo R-squared of 0.188, it explains 19 percent of the variation in donation status. The results are similar to the voting model in that income, age, interest, and education were all significant, positive predictors of donating. Race, efficacy, and partisan status did not have a statistically significant affect on donating to a campaign. So, members in one political party are just as likely to donate as members in another political party. Also, blacks are just as likely to donate as whites.⁴

The results for the female gender dummy variable are inconsistent with the predicted outcome. The model shows that at the 90 percent confidence level, women are more likely than men to donate to a campaign. This finding is contrary to existing literature that has found that men are more likely to donate to campaigns than women. While it is not highly statistically significant, it is possible that the ease of Internet donations has encouraged more women to participate monetarily in the campaign

⁴ See Footnote #2

process, or it could be another indication that women are becoming politically active to the same degree as men.

Predicted Probabilities of Donating

Table 4 shows the predicted probabilities associated with the statistically significant variables in the donate model.

Table 4
Probability of Donating by Selected Variable
Based on the Logit Model

Characteristic	Probability of Donating
Total	10.3
Internet Access	12.4
No Internet Access	5
High Income	18
Middle or Low Income	6.8
Female	10.7
Male	10.1
Very Interested in the Campaign	18.6
Somewhat or Not Interested in the Campaign	4
Some College Education	13.5
High School Education or Less	4.8

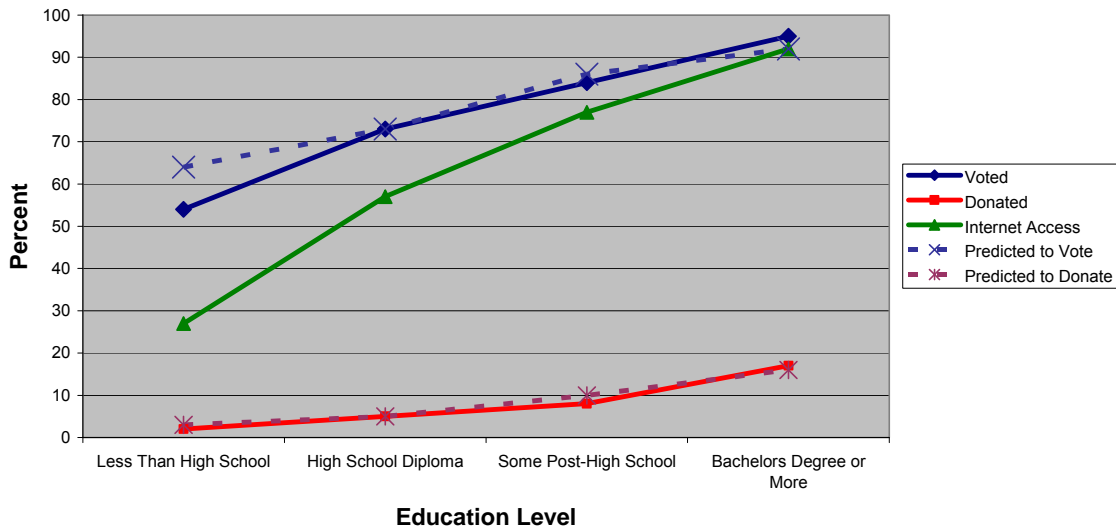
Internet access improves the probability of donating to a campaign by over 7 percentage points. Given the relatively low percentages of individuals who give political contributions, the Internet can be considered to have a large impact as it more than doubles the predicted probability of donating to a campaign. Because fundraising is such

an important part of the election process in the United States, candidates running for office should take note of the Internet’s potential as a fundraising tool.

As expected, higher income, education and interest levels were all associated with large increases in the probability of donating. Predicted probabilities more than tripled with greater education, income, and interest in the campaign. Figures 7, 8, and 9 illustrate increases in predicted probabilities of both donating and voting along with actual reported percentages from the 2004 NES data set based on educational, income, and interest level.

Figure 7

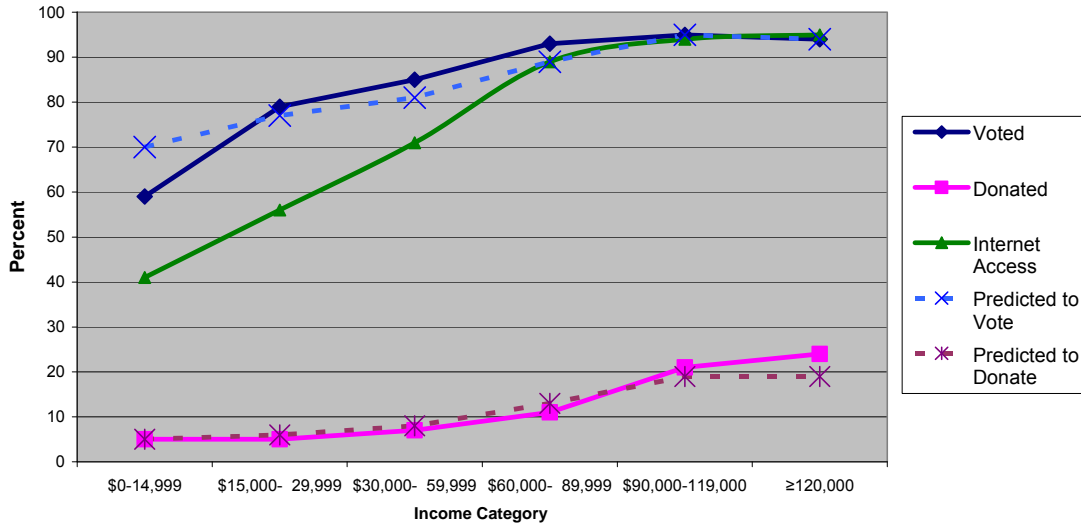
Actual Percentage of Respondents Who Voted, Donated to a Campaign, and have Internet Access, with the Logit Predicted Percentages for Voting and Donating by Education Level
2004 Presidential Election



Source: American National Election Studies, 2004

Figure 8

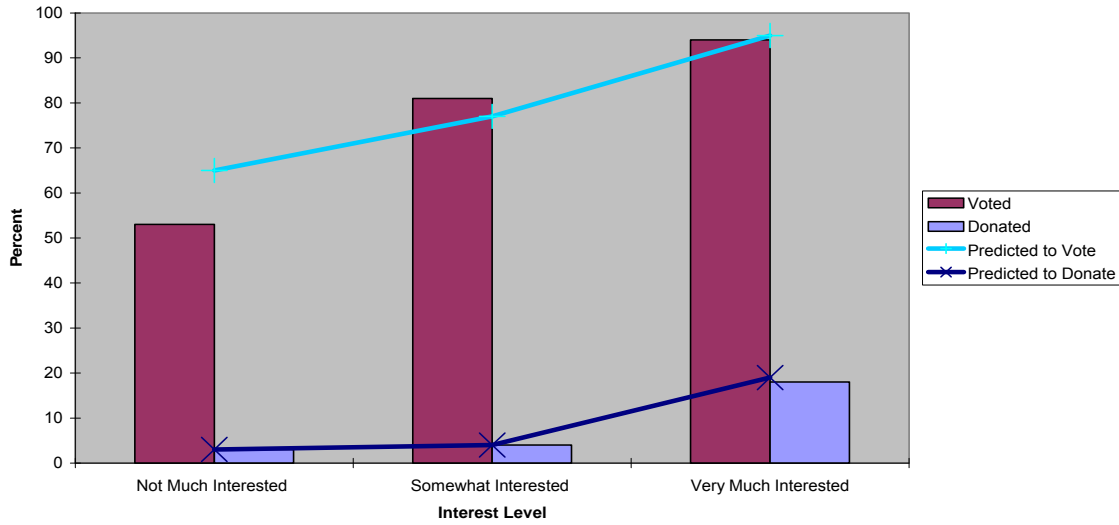
Actual Percentage of Respondents Who Voted, Donated to a Campaign, and have Internet Access, with the Logit Predicted Percentages for Voting and Donating by Income
 2004 Presidential Election



Source: American National Election Studies, 2004

Figure 9

Effect of Reported Interest in Political Campaigns on Voting and Donating with Logit Predicted Probabilities of Voting and Donating by Interest Level
 2004 Presidential Election



Source: American National Election Studies

As mentioned before, the significant, positive gender variable is surprising because this result contrasts with existing research that generally found men are more likely than women to donate to a campaign. However, as seen in Table 4, gender is associated with a less than one percentage point difference in the probability of donating. Given the contrast with earlier studies where men are the predominate donors, and the importance of campaign fundraising, female donation patterns warrant further research.

Age was the only continuous variable used in the models. The actual and predicted probabilities of both voting and donating by the age of the respondent can be seen in Figures 10 and 11. As predicted, both voting and donating tend to increase as individuals grow older. Sharp declines in the 81-90 age category are probably due to the relatively few individuals who reach this age category and their general health and ability to participate in the political process.

Figure 10

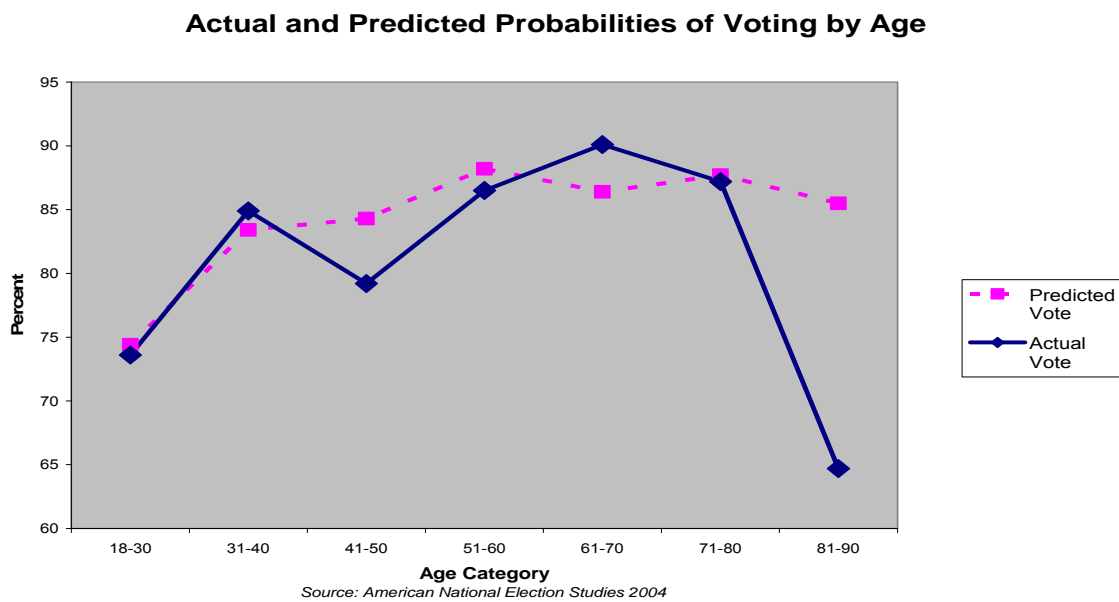
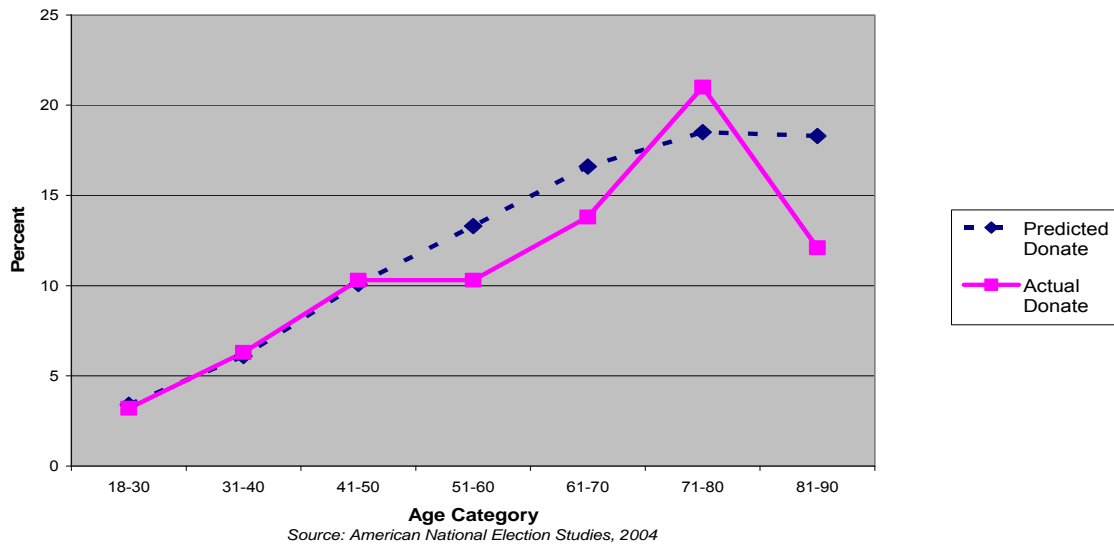


Figure 11

Actual Values and Predicted Probabilities of Donating to a Campaign by Age



Because this study did not compare voting and donating behavior over time it is impossible to determine whether voter participation and donation among the more technologically savvy younger generation was boosted. This is another area that warrants further research as more data become available, and as web based educational and communication opportunities continue to expand.

Chapter 6: Policy Implications and Conclusions

Voter participation in elections has been on a steady decline since the 1960's. If the argument that greater political participation makes for stronger democracy is taken as true, a correlation between Internet use and political participation can have important policy implications. This study finds that a correlation does exist. Individuals with access to the Internet are significantly more likely to vote and donate to a campaign than those who do not have access. The predicted probability of voting increased by nearly 15 percentage points, and the predicted probability of donating more than doubled when Internet users were compared to non-users. These findings support the Mobilization Theory that asserts the Internet empowers citizens and strengthens their social capital by reducing the divide between the government and the governed thereby encouraging greater participation rates. Further support of the mobilization theory can be found in the psychological variables used in the model. Interest in the campaign was highly statistically significant while efficacy was not. One way of sparking interest in the political process is to provide more information to the public. In this regard, the Internet can be considered a new tool to counter declining civic engagement in the United States.

Given these results, policies and programs to open access to and increase Internet use should be encouraged because they can contribute to greater political awareness and participation by the public. In this regard, the Internet can be considered a public good, and much like free education and public library systems, citizens should have free Internet access. There are currently many rural and poor communities that do not have

Web access even in their public libraries and schools. Increased civic and political participation is a strong argument in favor of government investment in providing Web access for all. In addition, programs that focus on information technology expansion should be promoted.

Internet is constantly improving and changing methods of information exchange and communication. Policymakers should be aware of the ways in which new technology can update and streamline political institutions. Such developments can improve citizens' perceptions and trust in government. For example, technology proponents look for a day when instead of physically going to a polling place, individuals can use the Internet for voting purposes. Although it is currently not practically, legally, or fiscally possible to develop a comprehensive Internet voting system, this technology is not entirely remote and could possibly significantly alter not only the number of voters but also the demographic makeup of the voting public. (Bimber, 2003) Policymakers should make a point of keeping government services and institutions up to date with the latest technology.

Other policy implications include 'Net Neutrality' legislation that is currently before congress. These laws would bar Internet providers from offering two-tiered Internet services that force businesses or organizations to pay premium prices to send certain kinds of data at high speeds to their customers. Net Neutrality legislation seeks to ensure that all Internet users can access the content or run the applications and devices of their choice without extra fees. The proponents of neutrality laws argue that the existence of different levels of service can restrict the flow of information increasing the

costs of Internet use to the less fortunate. The public good afforded by universal, low cost Internet access that the findings of this study support is a powerful argument in favor of Net neutrality laws.

Given current trends in globalization and the Bush administration's stated goal of promoting democracy abroad, the Internet should become a factor in the United States foreign policy and diplomacy efforts. An informed public is integral for a strong democracy. Web technology should be considered in the planning and implementation of democracy building projects that the United States is involved in abroad. Easy access to information and education is one way to combat repressive, authoritarian regimes throughout the world.

In addition to policy implications, there are political campaign issues related to the findings in this study. Politicians seeking office should pay close attention to the documented increases in voting and donating associated with Internet use. With the skyrocketing costs of campaigns, the effective use of the Web as an organizational, informational, and fundraising tool can greatly affect the outcome of elections. The results also indicate that campaigns should potentially pay greater attention to female constituents as they were found to be more likely to donate to a campaign than men. Overall, this study reinforces previous findings that the Internet is an increasingly effective fundraising tool for elections. Because of its positive effects on both voting and donating, serious candidates should make the Internet an important part of their campaign strategy.

This study has shown that, using voting and donating as indicators, the Internet can be an effective tool for increasing political participation. This is important because a more expansive and inclusive political system strengthens the democratic process. The Internet is a dynamic communication and information source, and as technology moves forward, it will play an increasing role in both the policy and political processes in the United States.

Appendix A: Descriptive Statistics

Part A: Due to the large amount of missing data in the “Vote” category, descriptive statistics compared individuals with complete vote status with those whose vote information was missing to establish that the categories were similar enough for analysis.

Table 5

Table of Votemiss by Gender: Female			
	Gender		Total
	Male	Female	
Vote Reported	238	299	537
Percent	44.32	55.68	44.31
Vote Missing	328	347	675
Percent	48.59	51.41	55.69
Total	566	646	1212
Percent	46.7	53.3	100
Frequency Missing = 0			

Table 6

Table of Votemiss by Internet Access			
	Have Internet Access		Total
	No	Yes	
Vote Reported	143	394	537
Percent	26.63	73.37	50.38
Vote Missing	159	370	529
Percent	30.06	69.94	49.62
Total	302	764	1066
Percent	28.33	71.67	100
Frequency Missing = 146			

Table 7

Table of Votemiss by Partisan				
	Partisan Status			Total
	GOP	Democrat	Independent	
Vote Reported	166	177	167	510
Percent	32.55	34.71	32.75	45.21
Vote Missing	181	205	232	618
Percent	29.29	33.17	37.54	54.79
Total	347	382	399	1128
Percent	30.76	33.87	35.37	100
Frequency Missing = 84				

Table 8

Table of Votemiss by Race: White			
	Race		Total
	Non-White	White	
Vote Reported	128	406	534
Percent	23.97	76.03	44.35
Vote Missing	200	470	670
Percent	29.85	70.15	55.65
Total	328	876	1204
Percent	27.24	72.76	100
Frequency Missing = 8			

Table 9

Descriptive Statistics of Categorical Variable: Votemiss by Age					
	N	Mean	Std. Dev	Min	Max
Vote Reported	537	47.53	17.1284	18	90
Vote Missing	675	47.06	17.1617	18	90

Appendix A, Part A: Descriptive Statistics Continued

Table 9

Table of Votemiss by Income				
	Income Level			Total
	\$0-24,999	\$25,000-69,999	\$70,000 +	
Vote Reported	130	200	152	482
Percent	26.97	41.49	31.54	45.05
Vote Missing	154	236	198	588
Percent	26.19	40.14	33.67	54.95
Total	284	436	350	1070
Percent	26.54	40.75	32.71	100
Frequency Missing = 142				

Table 10

Table of Votemiss by Efficacy			
	Agree with "People like me don't have any say in what the government does"		Total
	Disagree	Agree	
Vote Reported	313	224	537
Percent	58.29	41.71	50.38
Vote Missing	306	223	529
Percent	57.84	42.16	49.62
Total	619	447	1066
Percent	58.07	41.93	100
Frequency Missing = 146			

Table 11

Table of Votemiss by Education			
	Education		Total
	High School or Less	More than High School	
Vote Reported	199	338	537
Percent	37.06	62.94	44.31
Vote Missing	267	408	675
Percent	39.56	60.44	55.69
Total	466	746	1212
Percent	38.45	61.55	100

Table 12

Table of Votemiss by Interest			
	"How interest are you in the Political Campaign"		Total
	Somewhat or Not Much	Very Much	
Vote Reported	325	212	537
Percent	60.52	39.48	50.38
Vote Missing	389	286	675
Percent	57.84	42.16	49.62
Total	714	498	1212
Percent	57.63	42.37	100
Frequency Missing = 0			

Appendix A: Continued

Difference of Means T-Test

Part B: Table 13 is a t-test for difference of means that compares individuals with voter status missing to those with voter status reported for each variable. An insignificant p-value means the two categories are statistically indistinguishable from each other. Race is the only significant variable ($p < 0.0228$). This significant finding means that the sample is perhaps slightly biased towards white voters.

Table 13

Difference of Means T-Test -- Comparing Vote to Votemissing					
Variable	Method	Variances	DF	t Value	Pr > t
Female	Pooled	Equal	1210	1.48	0.1389
Internet	Pooled	Equal	1064	1.24	0.2147
Income	Pooled	Equal	1068	-0.62	0.5363
Partisan	Pooled	Equal	1126	-1.66	0.0974
White	Pooled	Equal	1202	2.28	0.0228*
Educ	Pooled	Equal	1210	0.94	0.3495
Efficacy	Pooled	Equal	1064	-0.15	0.8839
Age	Pooled	Equal	1210	0.48	0.6326
Interest	Pooled	Equal	1210	-1.02	0.3098

* Significant at the 5% level

Appendix B: Determining the Proper Model and Specification

Assessing the Functional Form of the Model

A Stata link-test was used to determine whether a model is specified properly. A statistically significant value for \hat{y} (the predicted value of the model) coupled with an insignificant value for \hat{y}^2 (predicted value squared) indicates that the model is not mis-specified. Table 15 and 16 are Stata link-test results, for each model, a statistically significant \hat{y} and insignificant \hat{y}^2 indicate that the model is correctly specified.

Linktest Model 1: $\text{Log}(P/1-P) = \text{Vote}$

$$Y_1 \text{Vote} = B_0 + B_1 \text{Internet} + B_2 \text{highinc} + B_3 \text{age} + B_4 \text{female} + B_5 \text{nonwhite} + B_6 \text{interest} + B_7 \text{college} + B_8 \text{efficacy} + B_9 \text{gop} + B_{10} \text{independ} + \varepsilon$$

Table 14

Number of observations = 458			Wald $\chi^2(2) = 68.02$	
Pseudo R-squared = .2229			Prob > $\chi^2 = 0.0000$	
Vote	Coef.	Robust Std. Error	z	P>z
\hat{y}	0.938052	0.25633	3.66	0***
\hat{y}^2	0.022017	0.072326	0.3	0.761 [†]
cons	0.01507	0.21179	0.07	0.943

*** Significant at the 1% level

[†] should be insignificant

Linktest Model 2: $\text{Log}(P/1-P) = \text{Donate}$

$$Y_1 \text{Donate} = B_0 + B_1 \text{Internet} + B_2 \text{highinc} + B_3 \text{age} + B_4 \text{female} + B_5 \text{nonwhite} + B_6 \text{interest} + B_7 \text{college} + B_8 \text{efficacy} + B_9 \text{gop} + B_{10} \text{independ} + \varepsilon$$

Table 15

Number of observations = 885			Wald $\chi^2(10) = 91.87$	
Pseudo R-squared = 0.1902			Prob > $\chi^2 = 0.0000$	
Donate	Coef.	Robust Std. Error	z	P>z
\hat{y}	1.305041	0.264124	4.94	0***
\hat{y}^2	0.075392	0.054448	1.38	0.166 [†]
cons	0.207845	0.274679	0.76	0.449

*** Significant at the 1% level

[†] should be insignificant

Multicollinearity and Correlation Coefficients

Part 2: To test for multicollinearity, correlations were run between the different independent variables in the model. Table 16 shows multicollinearity problems that existed in the original model considered for this study. Webmedia (a dummy variable indicating whether a person used the Internet for campaign information) was removed because it was found to be almost perfectly collinear with simply having Internet access. The Income and Education variables were originally divided into three dummy categories, but this caused correlation values in excess of 0.7. Therefore, low and medium income were combined to form a dummy variable representing individuals who are not high income. High school and less than high school were combined to form a dummy variable for individuals with no college education. Table 17 shows the resulting correlation table with multicollinearity problems removed; there was no correlation above 0.50 between independent variables in the final model.

Correlation Table for Independent Variables in the Original Model:

Table 16

	Inter- net	web- media	med- inc	high- inc	age	fe- male	non- white	tv	paper	inter- est	high- sch	post- high	effi- cacy	gop	inde- pend
Inter- net	1.00														
web- media	.	1.00													
med- inc	-.04	-0.01	1.00												
high- inc	0.30	0.01	-0.73	1.00											
Age	-.29	-0.16	-0.01	0.12	1.00										
fe- male	-.07	-0.02	0.12	-0.16	-0.01	1.00									
non- white	-.02	0.02	0.00	-0.09	-0.20	-0.02	1.00								
tv	0.07	0.12	0.02	0.03	0.09	-0.08	0.02	1.00							
paper	0.04	0.12	-0.08	0.11	0.22	-0.05	-0.06	0.18	1.00						
inter- est	0.05	0.09	-0.03	0.10	0.21	-0.15	-0.04	0.20	0.33	1.00					
high- sch	-.24	-0.20	0.03	-0.13	0.03	0.02	0.01	-0.09	-0.14	-0.02	1.00				
post- high	0.35	0.21	-0.02	0.15	0.00	0.02	-0.02	0.11	0.15	0.03	-0.93	1.00			
effi- cacy	-.07	-0.06	-0.01	-0.06	0.01	0.03	0.06	-0.06	-0.09	-0.10	0.07	-0.09	1.00		
gop	0.11	-0.07	0.01	0.08	0.06	-0.01	-0.27	0.00	-0.01	0.04	-0.01	0.02	-0.18	1.00	
inde- pend	0.02	0.03	-0.02	-0.06	-0.09	-0.11	0.04	-0.05	-0.04	-0.09	0.01	-0.02	0.15	-0.54	1.00

Appendix B Part 2: Correlation Coefficients Continued

Correlation Table for Final Independent Variables Used in the Models

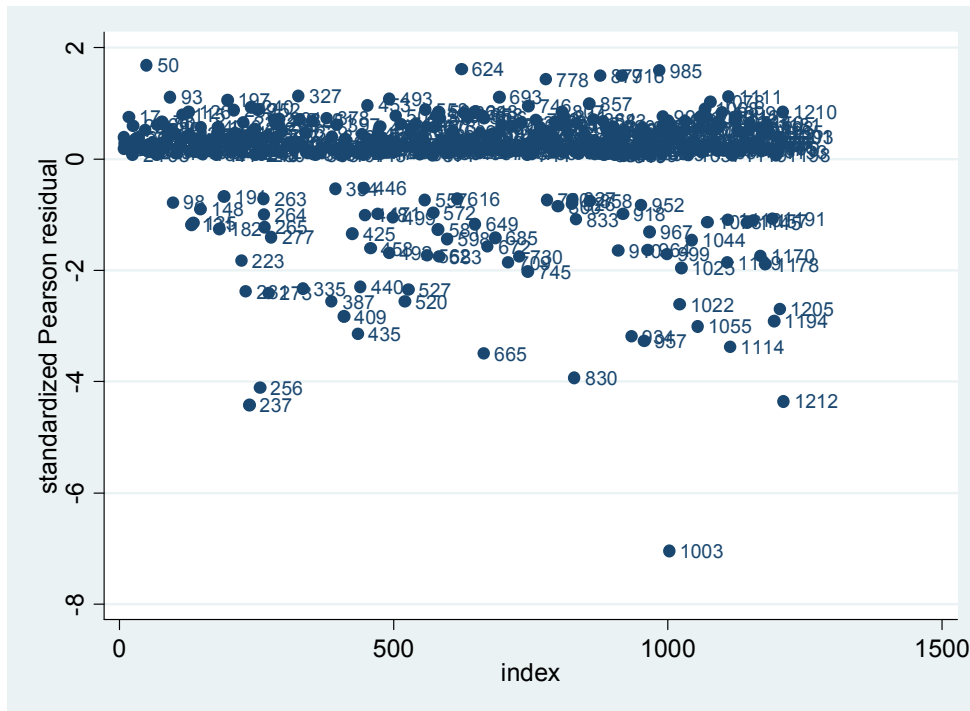
Table 17

	Internet	High-Inc	Age	Female	Non-White	Interest	College	Efficacy	GOP	Independ
Internet	1									
High-Inc	0.2968	1								
Age	-0.2749	0.0359	1							
Female	-0.078	-0.1532	0.0323	1						
Non-White	-0.0698	-0.1155	-0.189	-0.0258	1					
Interest	0.0531	0.1341	0.1861	-0.117	-0.0809	1				
College	0.3492	0.2518	-0.119	-0.0226	-0.0512	0.0841	1			
Efficacy	-0.1108	-0.0959	0.0235	0.0383	0.0626	-0.0794	-0.1162	1		
GOP	0.1058	0.1341	0.0311	-0.0175	-0.2874	0.0804	0.0848	-0.1205	1	
Independ	0.0148	-0.0487	-0.1	-0.1191	0.0383	-0.0877	-0.0256	0.0644	-0.4972	1

Appendix B: Influential Observations

Part 3: Using a scatter plot (Figure 12) of the residuals for Model 1, an outlier observation (#1003) was found. To test the impact of this observation, it was omitted from the regression and the logit was re-run (Table 18). The results were not significantly different from those with the outlier included. The raw values of observation number 1003 were also compared to other observations as seen in Table 19, and no significant reason for its outlier status was found. Because there was no valid reason to remove this observation from the data set, it was included in the reported regression results.

Figure 12
Scatter Plot of Residuals for Log (P/1-P) = Vote Model



Appendix B Part 3 Influential Observations Continued:

Table 18

Results for Log (P/1-P) = Vote Model, Run Without the Outlier

Number of observations = 457				Wald $\chi^2(10) = 81.47$	
Pseudo R-squared = .2360				Prob > $\chi^2 = 0.0000$	
<hr/>					
Dependent Var. = Vote	Odds Ratio	Coef.	Robust Std. Error	z	P>z
Internet	1.928348	0.6566638	0.3263	2.01	0.044**
highinc	2.785901	1.024571	0.441082	2.32	0.02**
age	1.017568	0.0174153	0.009127	1.91	0.056*
female	1.423039	0.3527948	0.31206	1.13	0.258
nonwhite	0.5378451	-0.6201847	0.344849	-1.8	0.072*
interest	4.755532	1.559308	0.37901	4.11	0***
college	2.786854	1.024913	0.310911	3.3	0.001***
efficacy	0.6804371	-0.3850199	0.295135	-1.3	0.192
gop	1.528259	0.4241292	0.467377	0.91	0.364
independ	0.4705056	-0.7539473	0.358425	-2.1	0.035**
_cons		-0.406156	0.633978	-0.64	0.522

Table 19

Selected Summary of Individuals including the Outlier

index #	Internet	highinc	age	female	nonwhite	interest	college	efficacy	gop	independ
1000	1	0	39	1	1	0	1	1	0	0
1001	1	0	57	1	0	0	0	0	0	1
1002	1	1	51	1	0	0	1	0	0	1
1003*	1	1	68	1	0	0	1	0	1	0
1004	1	0	33	1	0	0	1	0	0	1
1005	0	0	23	1	1	0	1	1	0	0
1006	0	0	61	1	1	0	1	1	0	0
1007	0	0	50	1	0	0	11	0	1	0
1008	.	0	53	1	0	0	0	.	0	1
1009	1	0	36	1	0	0	0	0	0	1
1010	1	0	26	1	0	0	1	0	1	0

*Outlier Observation

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