

DIGITAL GOVERNMENT, TRUST AND CYNICISM:
AN EMPIRICAL ANALYSIS OF SOCIAL CAPITAL
AND THE USE OF TECHNOLOGY BY
GOVERNMENTAL INSTITUTIONS

By

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To the faculty of Washington State University:

The members of the Committee appointed to examine the
dissertation of ERIC GRULKE find it satisfactory and recommend that it
be accepted.

Chair

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Any errors, deletions, omissions, or other assorted mistakes that this dissertation may have are solely my responsibility and not of my committee.

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Abstract

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Digital government resources are being implemented in the United States (and the world) at an increasing pace. In Robert Putnam's widely cited work, *Bowling Alone*, the Harvard Political Scientist who is housed in the Kennedy School of Government focuses considerable attention on television viewing as an inhibitor of social capital formation. Replacing human interactions with television watching is argued to reduce the amount of social capital that will arise within a community

This doctoral dissertation investigates the question of whether participating in digital government activities and one's satisfaction with digital government has a predictive effect on community-level social capital formation.

Using two different data sources, the *Stowell Datasets of Washington State University* and the *Pew Internet and American Life eGovernment Survey*, this dissertation develops a measure for community-level social capital and uses it as an independent variable in relation to both individual-level trust in government, preferences for different types of digital government activities, use of different types of digital government resources and whether respondents perceive digital government as being an improvement in communicating with different levels of government: Federal, State and Local.

Along with salient demographic variables, this dissertation looks at whether digital government is increasing, decreasing or doing neither in the arena of community-level social capital. The findings reported here indicate that digital innovations associated with e-government are having neither the negative effects many critics had feared nor the dramatic positive outcomes many proponents had hoped for from innovations in information technology applied to government.

The reality is both more complex than either of these groups predicted, and more interesting to study. The generational differences found within the impact of e-government are of particular interest in this regard and are well documented here.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS.....	iii
ABSTRACT	v
LIST OF TABLES.....	x
LIST OF FIGURES.....	xiii
DEDICATION	xiv
CHAPTER	
1. INTRODUCTION	1
Technology	1
Social capital theory	2
Technology and social capital theory	6
Digital government	8
Access to the Internet and digital government	13
Citizen’s expectations of digital government.....	14
Using social capital theory framework to examine digital government.....	16
Using past bureaucratic encounter as a general map to explore digital government outcomes.....	17
Where digital government is taking us	19
The questions this dissertation examines.....	20
2. LITERATURE REVIEW	25
Social capital and technological innovation	25
The emergence of social capital theory in the social sciences	26
Defining social capital.....	28
Dimensions of social capital.....	33
Types of social capital	34
Social capital and economic theory.....	35
Social capital and digital government	36
The Internet as the primary venue for digital government.....	37

Electronic voting	46
The structure of the Internet	49
Internet and digital government activities.....	56
Technological frameworks as an integral part of digital government	61
Aging and technology.....	64
Primary types of digital government activities.....	66
3. DATA & METHODS	72
The Stowell Datasets of Washington State University and the Pew Internet and American Life eGovernment Survey of June, 2003.....	72
Using the Stowell Datasets of Washington State University to develop a trust/cynicism measure	74
Using the Pew Internet and American Life eGovernment Survey of June, 2003 to examine digital government usage and satisfaction	89
Content within the Pew Internet and American Life eGovernment Survey of June, 2003.....	96
Measures and methods used.....	111
Data and methods conclusion.....	113
4. ANALYSIS AND FINDINGS.....	116
Plan for analysis.....	116
Uni-variate analysis.....	119
Bi-variate analysis.....	139
Multiple-linear regression	155
Trust/cynicism measure as the dependent variable	177
Internet use as a dependent variable	178
Weaknesses of the study.....	179
5. DISCUSSION.....	181
Are we able to accurately produce a convincing measure of community-level social capital to use in this dissertation?....	183
Is digital government playing a negative role in interactions with government?	187
Are all digital government activities equal or is there a different effect for different activities?	190
What are the important differences in the digital	

government services of today and the more traditional services (and associated satisfaction) found in Bureaucratic Encounters?.....	191
Social capital was lowered by the introduction of television, according to Putnam. Is community-level social capital being lowered by the introduction and implementation of digital government.....	193
BIBLIOGRAPHY	197
APPENDIX	
A. PEW EGOVERNMENT SURVEY INSTRUMENT.....	213

LIST OF TABLES

1. Network communications - the seven layers.....	40
2. Sample size of Stowell Datasets of Washington State University (1997+).....	77
3. Correlation matrix across variables.....	81
4. Ranking of major media market areas from highest to lowest using the trust/cynicism score.....	83
5. The trust/cynicism score as related to Putnam’s social captial scale in the American states.....	86
6. Area codes of major media market media areas used.....	93
7. Major media market areas merged with count of Pew respondents	95
8. Internet usage - Pew Internet and American Life Project eGovernment Survey, June 2003.....	122
9. Internet usage - Stowell-Pew merged dataset	122
10. Age groupings with internet access in Pew Internet and American Life Project eGovernment Survey, June 2003.....	123
11. Current Internet access by age	126
12. Education groupings with Internet Access	127
13. Education groupings with Internet access from merged Stowell-Pew dataset.....	128
14. Income groupings	131

15. Income groupings in merged Stowell-Pew dataset	132
16. Ethnicity groupings	135
17. Ethnicity groupings within merged Stowell-Pew datasets	135
18. Gender	136
19. Gender within the merged Stowell-Pew datasets.....	136
20. Gender and Internet access	137
21. Gender and Internet access within merged Stowell-Pew datasets.	137
22. Government employees	138
23. Government employees in merged Stowell-Pew dataset.....	138
24. Correlation matrix of Internet usage in relation to age, income and education.....	142
25. Correlation matrix of Internet usage in relation to party affiliation	143
26. Correlation matrix of individual-level trust in different levels of government	145
27. Correlation matrix of individual-level trust in different levels of government in relation to age, education and income.....	146
28. Correlation matrix of individual-level trust in different levels of government in relation to digital government activities	147
29. Correlation matrix of individual-level trust in different levels of government in relation to how the Internet has improved communications with different levels of government.....	148
30. Correlation matrix of individual-level trust in different levels of government in relation to political affiliation.....	149

31. Correlation matrix of computed transactional and informational variables in relation to trust in different levels of government.....	149
32. Correlation matrix of computed transactional and informational variable in relation to digital government activities	150
33. Correlation matrix of computed transactional and informational variables in relation to political affiliation.....	150
34. Correlation matrix of digital government activities in relation to age, education and income	151
35. Correlation matrix of digital government activities in relation to government employment	152
36. Correlation matrix of how the Internet has improved communications with different levels of government.....	152
37. Correlation matrix of how the Internet has improved communications with different levels of government in relation to age, education and income	153
38. Correlation matrix of how the Internet has improved communications with different levels of government in relation to digital government activities	154
39. Multiple linear regression of individual-level trust in different levels of government as the dependent variable	161
40. Multiple linear regression of use of digital government activities as the dependent variable	166
41. Multiple linear regression of the computed transactional and information variables as dependent variables	172
42. Multiple linear regression of how using the Internet has improved communication with different levels of government as the dependent variable	176

LIST OF FIGURES

1. Progression of Social Capital Literature from 1984 to 2003.....	27
2. Example of a WiMAX structure.....	55
3. Frequent Internet activities in the United States	57
4. Writing and reading blogs (general population)	58
5. Reasons for not going online in the United States	65
6. Robert Putnam’s Social capital in the American states map	84
7. Percentage of U.S. adults online	121
8. Age groupings with Internet access comparing Pew Internet and American Life Project eGovernment Survey respondents with the merged Stowell-Pew dataset	124
9. Education groupings within the merged Stowell-Pew dataset	129
10. Education groupings with Internet access (2007)	130
11. Income groupings within merged Stowell-Pew datasets	133
12. Income groupings with Internet access within merged Stowell-Pew datasets	134

DEDICATION

This dissertation is dedicated to my friends who left this world far too soon.

CHAPTER ONE

INTRODUCTION

a. Technology

Computer technology continues to enhance its role in the lives of our citizens. With the introduction and development of the Internet and World Wide Web in the early-1990s, the way the world's inhabitants communicate with each other has forever been changed. Americans use the Internet at a significant rate, especially when viewed in comparison to other common forms of civic activity, such as voting in elections, participating in campaigns and reading newspapers to gain information on current events.

The extent and range of use of the Internet for governmental purposes are virtually exploding in the United States. Using Robert Putnam's theory of social capital as a take-off point, the primary purpose of this study is to determine if the replacement of human interactions in the delivery of services to the citizenry by online interactions can be used to predict a loss of social capital, less satisfaction with the digital services provided by government, and less trust in government overall. Stated succinctly--a primary goal of the research is to assess whether individual use of digital government resources, the perception of how digital government has improved individual

communication with different levels of government, and how participating in different digital government activities might serve as a way to predict scales of community-level social capital.

b. Social capital theory

In Robert Putnam's widely cited work, *Bowling Alone*, the Harvard Political Scientist who is housed in the Kennedy School of Government focuses considerable attention on television viewing as an inhibitor of social capital formation. Replacing human interactions with television watching is argued to reduce the amount of social capital that will arise within a community. This doctoral dissertation investigates the question of whether participating in digital government activities has a predictive effect on community-level social capital formation.

Social capital theory has nearly as many critics as it does advocates. Some of the criticisms of the theory call into question the methodological soundness of the research done in this area of social science. Some critics of social capital theory argue that it lacks empirical operationalization; there is a tendency in the literature on social capital towards a lack of attention to gender and ethnicity dynamics (Davies, 2001); a number of scholars note that much of the existing work is based on secondary analysis of data collected for other purposes (Sixsmith, Boneham and Goldring, 2001). Despite some

serious and penetrating criticisms, it must be observed that a virtual flood of social science research has been produced exploring the utility of and testing the limits of the social capital theory framework (Halpern, 2005).

Trust is a major and ongoing theme found within the social capital literature (Lin, 2001). It is seen by some as a product of high levels of social capital (Woolcock and Narayan, 2000; Woolcock, 2001), and by others as an element of social capital itself (Cote and Healy, 2001). Trust is used in many studies as an important measure to approximate social capital levels. Putnam (2000) takes a two-pronged approach to trust – that of social networks, and of trust in others by individuals. “Exclusive” social capital is that interpersonal trust found within groups such as church organizations and friendship circles. “Inclusive” social capital is defined by Putnam as demographically heterogeneous groups such as the civil rights movement featuring weaker bonds, but a more socio-demographically diverse scope of associations.

This differentiation is supported by the work of Easton (1965) who takes a slightly different approach in framing trust in government by distinguishing between specific and diffuse forms of trust. Diffuse trust is the generalized outlook, which a citizenry has towards public institutions. Specific trust is defined as the transactional evaluations of citizens with respect to government actions and services.

Trust of both types run the spectrum from bureaucratic performance to political outcomes. A virtual mountain of empirical evidence has shown that trust attitudes substantially affect the behavior of voters in the United States and other nations (Hetherington, 1999; Hetherington, 2005; Belander and Nadeau, 2002). A number of researchers have documented the fact that trust in government by American citizens has been in a steady state of decline over the past thirty years (Rosenstone and Hansen, 1993; Hibbing and Theiss-Morse, 1995; Hibbing and Theiss-Morse, 2002). Another framework for illustrating the importance of trust in government was produced by Thomas (2001), who used different social settings wherein individuals act upon an expectation of return on their actions. The “culture of rights” which has arguably been increasing in the United States is the cause of an elevation in citizen’s expectations of government. When either stagnation in performance or obvious failure to perform by government (e.g., government response to Hurricane Katrina) takes place, distrust in government tends to grow (Mansbridge, 1997; Thomas, 2003; Thomas and Streib, 2003).

What does the research indicate as far as the basis for this growing distrust in government? The primary type of reasons cited by citizens in repeated public opinion polls is overwhelmingly economic in nature. A symptom of misunderstanding more than a measure of performance can be found in the public perception of government

misuse of tax dollars being seen as a primary cause of distrust driven by the forces of special interests and the ever-present 'governmental waste of money' (Lawrence, 1997).

The ability to do anything about the perceived problems with government leads to a discussion of political efficacy. Political efficacy is defined as a citizen's perceived ability to have influence over decisions made by the sovereign. A similar, yet distinct, definition was posited by Bandaur (1986), stating:

People's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance. It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses (p. 391).

Trust, much like social capital itself, has no inherent normatively good or bad inherent quality. Trust can be used to advance positive social change or it can be used as a predicate for illegal and destructive activities, or it can lead to apathy and inaction. That said, trust is an essential element within the social capital theoretical framework and is used in this dissertation as a primary segmentation of two different populations – those residing within robust social capital contexts and those residing within low social capital contexts (Bandaur, 1986).

Norms are an important feature of group activity, and while not having the force of law their power within social circles nonetheless can be powerful indeed. Norms are arguably essential to civilization, and as with the decline in political participation and in citizen trust in government, there is reason for concern about the weakening of some

reciprocity norms over the years among the many scholars working in the social capital arena. The norms were seen as a problem by de Tocqueville noting that people in American society felt pressured to conform to groups or association views. Social capital can be seen as being an asset of a group, though some individuals may very well have more ties to the community and the group than others do. Measuring social capital requires asking individuals in a group or community questions about trust and reciprocity norms and aggregating those responses to arrive at conclusions regarding low, medium and high levels of social capital being present within a particular geographic community, organization or group. Social capital, in and of itself, has neither an inherent good nor evil nature. A negative aspect, which Putnam labels the “Dark Side” of social capital (Putnam, 2000), is the potential for strong bonds to deprecate non-group members. The deprecation could create the foundation for socially harmful actions toward others (Brody and Lovrich, 2002; Elliot, 2001) On the positive side, high social capital is associated with lower crime rates, as indicated by the research done on cross-neighborhood comparisons in larger cities (Cote and Healy, 2001; Green et al., 2000; Halpern, 1999; Halpern, 2005; Sampson, Raudenbush and Earls, 1997). Communities that are characterized as high in anonymity, feature the presence of unsupervised peer groups, and manifest low levels of civic engagement are at greater risk for higher levels of crime and interpersonal violence than for local communities wherein social capital is strong (Sampson et al., 1997; Cote and Healy, 2001).

c. Technology and social capital theory

Advances in technology have played a major role in the development of social capital theory. Putnam identifies the growing influence of television in the post-World

War II period as a independent variable in relation to the decline of social capital in the United States.

He notes that in the early 1950's roughly ten percent of American homes had one or more television sets, but by 1959 approximately 90% of American households had one or more televisions in the home. He posits that the increase of television ownership along with the need for time to watch the compelling programming offered leaves progressively less time for those many forms of interpersonal exchanges and social activities which sustain existing and build new social bonds which lie at the core of social capital. While Putnam's research points toward technology as the driver lowering levels of social capital in the television-viewing example, other researchers have developed theories regarding the connection between technology and social capital that take a completely different perspective. For example, Fountain (1998) describes positive changes with respect to social capital associated with the economic structure of the world in the contemporary technological age. It is precisely this area of inquiry (Fountain, 1998; Fountain, 1999; Fountain, 2001) where this dissertation seeks to make a contribution to our knowledge in the area of digital government.

An important question explored in this dissertation is if the replacement of actual human beings by introducing computer technology use alters some of the positive

effects of direct citizen/bureaucratic contact found in the classic study by Katz entitled *Bureaucratic Encounters* (1975). The study introduces social capital theory by segmenting study participants contacted in telephone interview surveys conducted in twenty-four major metropolitan areas into well-defined quantitative community-level social capital contexts. It is quite possible, of course, that the effects of the replacement of human interactions by computer-human interactions will have different effects on citizen satisfaction and trust in government in differing social capital settings.

d. Digital government

Digital government is generally defined as the availability of government information and services through access to the Internet (Fountain, 2002; Fountain and Gil-Garcia, 2006). Typical services of digital government include maintaining collective security, administering justice, providing the institutional infrastructure of the economy, ensuring that vital social services are available and community assets are developed through improvements in health and education and through strengthened families, neighborhoods and communities. The services of digital government should have positive outcomes in all of these areas (Dawes, Bloniartz, Kelly and Fletcher, 1999; Dawes, Gregg and Agouris, 2004; Dawes and Helbig, 2007).

A more stringent definition of digital government which takes into account a higher level of analysis than we will need would include:

...(t)he use and implications of the Internet for all forms of civic engagement from the development and articulation of individual and group values and interests in public affairs to the many relationships between and among communities, the polity, and

the state ... (w)ith respect to formal government systems, (digital government)...encompasses the use and implications of information and communication technologies in all branches of government – the legislature, executive and judiciary – as well as at all levels of government including local, state, federal, transnational, and global(Fountain, 2002).

The primary medium of digital government is through the Internet. The word Internet is derived in major part from the term inter-networking – connecting computers and networks to form ever-larger networks. The Internet is a large, worldwide collection of computer networks that use a common protocol to communicate with each other (Jessup and Valacich, 1999).

Though the Internet received wide notice in the mid-1990s, it was actually an outcome of a Department of Defense project initiated in the 1960s. The United States Defense Advanced Research Projects Agency (DARPA) created a wide area network which linked together universities and research institutions within the framework of ARPANET (Advanced Research Projects Agency Network). This core network grew by connecting to other networks, demonstrating the great value of information access for a wide range of public and private uses.

A specific use of the Internet is found within the World Wide Web. By using a

web browser such as Internet Explorer, Mozilla Firefox or Apple's Safari, an individual can connect through an Internet Service Provider (ISP) to display web pages with graphical, multimedia and textual material which is stored in digital form within web servers (see Figure 1). Using the HTTP (Hypertext Transfer Protocol) to request the resources needed by the user and URL (Universal Resource Locator) to point where on the Internet the resource can be found, the computer user can reach a great variety of informational resources. To summarize, when a user wants to access a resource, s/he types in the appropriate URL (such as <http://www.wsu.edu>) into the web browser and the appropriate web page is loaded into the web browser via electronic transmission.

An additional point of consideration is the form of electronic transmission used to connect to the Internet. Originally it was the case that electronic transmission could only occur through a cable or optical line. With the introduction of the wireless Internet, the ability to access the Internet in a more convenient fashion with extended municipal "hot spots" makes digital government, as a broadly understood concept, even more accessible to its citizenry. The development of broadband cellular, while still in its beta stages, would appear to show an increasing trend in this ever-expanding quest of mobile computing.

In addition, the Internet is used as an information exchange medium between

organizations as well, including activities such as “real-time querying¹ of remote (shared) databases, as well as larger exchanges of complete GIS data sets or other databases integrated into data warehouses” (Dawes, 2008; Dawes et al., 1999) An example of shared database use by global governmental actors include the Nuclear Suppliers Group Information Sharing System (NISS), a secure system of 32-member-nations regarding the movement of nuclear weapons proliferation-sensitive equipment, materials and advanced technology (Fountain, 2002).

Communication technologies such as email, online discussion forums, and wireless devices (such as the Apple iPhone) have been adopted widely throughout American society and now make frequent communication with physically separated others much easier than at any other time in history. In comparison to the private sector, however, government has been rather slow to respond to the many opportunities to employ modern communication technology to enhance citizen-to-government interaction (NSF, 2003).

As with their private sector counterparts, the adoption of new information technologies by government agencies resulted in some problems that are inherent within the process of complex information technology system development. A number of studies have documented the fact that the failure rate of new information systems in large organizational structures is in the range of 80%; failure in this context is defined as either not achieving established objectives or experiencing a serious breakdown in the process of implementation (Hofer, George and Valacich, 2002; Heels, 2003).

The primary reasons noted for such a high rate of failure have been those of inadequate planning and too little involvement by the system's end users. Very often the information technology models for large, complex systems develop at a slower rate than the technologies they use, and this two-track timeframe is much more of a problem when a governmental information system is being developed involving political interests to be accommodated and/or managed (Hofer et al., 2002; Dawes et al., 1999).

The ability of the technology itself (in design and implementation) to meet or not meet the requirements of the digital government user is another important element of this study. Can the end user increase her or his trust in government without an effective technological infrastructure, and what role (if any) does the design of the technology

play in the end user's overall satisfaction with the governmental contact experience?

e. Access to the Internet and digital government

Social science research has shown that Internet access itself is not equitably distributed across socio-economic groups in American society (Smolenski, 2000). Income and education correlate positively with levels of access to and familiarity with the Internet (UCLA Center for Communication Policy., 2000; Wilhelm, 2000). Consistent results have come from studies showing ethnicity and age as significant factors in Internet usage even when socioeconomic status is controlled for statistically (Goslee, 1998; Cooper, 2000).

Access is more common amongst college graduates (87% versus 48% of those with high school diplomas only); professionals (86% versus 58% of blue collar workers); young adults (78% of 18-34 years of age versus 43% of those 65+ years of age) and Caucasian (70% versus 59% of African-Americans) users, with little evidence of a gender gap (Hart-Teeter, 2003). Smolenski (2000) provides a model of three separate digital divides of major concern: high and low socioeconomic status; Internet-experienced and Internet-inexperienced; and infrastructure access available versus infrastructure access limited. Other distinctions include non-user groups who find the technology overly structured and non-inviting and technology-rejecters (i.e., luddites).

More recent studies indicate that these divides are being bridged as a consequence of the work done by public schools to connect and acquaint students with the Internet technologies available (Cattagni and Westat, 2001) and Internet users are more likely than non-users to contact government (Horrihan, 2003). *Bureaucratic Encounters* found that demographic characteristics (with the exception of age) were poor predictors of satisfaction with governmental services.

f. Citizen's expectations of digital government

When Internet use activities are segmented into two categories, information seeking and service transaction, the vast majority of governmental website users are engaged in *seeking information*. Nearly two out of three (62%) Internet users are actively seeking out information on public policy issues, and about a third use governmental websites to contact government officials. One possible cause for the uneven use of governmental websites for information seeking purposes instead of transactional uses is the fact that digital government is seriously lagging behind eCommerce by a considerable extent (NSF, 2003). As a general rule, government agencies have had a tendency to excel at making information available and lag behind in the technological advancements that would encourage increased use of transactional services. Survey research on citizen preferences regarding digital government indicates that the public has a strong interest in using digital government for a wide range of transactional

purposes (Horrigan, 2003).

When American Internet users were asked if they would be interested in using digital government sites for a transactional purpose (specifically, changing their address online), nearly two out of three (65%) responded that they would be very or somewhat interested in using that service and having it distributed to other (such as local and state) digital government sites¹(Hart-Teeter, 2003).

Interest in other transactional purposes is also at a high level. This comports well with earlier studies showing the limited opportunities for transactional activities and the proliferation of informational activities in digital government developments (Horrigan, 2003). The measure of success of a digital government site versus an eCommerce site is quite different, of course. While an e-commerce site's success is relatively easy to measure (profit) as assessed by cost/benefit calculation, a digital government site has a number of different variables associated with its success. These variables, moreover, may be different across governmental levels and vary from branch to branch of government and across government agencies.

Starting with an examination of the traditional bureaucratic encounter, 63% of

1. n=1023, margin of error +/- 3.1%, nationwide survey

government patrons state that they had a successful outcome when they contacted a government agency (Horrigan, 2003). The mode of contact – digital government or telephone, letter or personal contact – played no role in greater claims of success in the governmental encounter in one study. Over three in four (76%) governmental patrons state that their very last encounter with government went either very well or somewhat well. In that set of findings the mode of contact does not initially appear to be a factor in citizen assessment of encounters with government. From this evidence, one could well posit the possibility that the Internet is used primarily for its convenience.

A review of the relevant research will show what the digital government phenomenon is all about, how it works, and what it is primarily used for. In addition, two important segments of governmental service delivery provided by digital government will be investigated. The hypothesized connection between social capital and digital government will be studied, and a review of the growing literature on social capital theory in political science will be set forth.

g. Using social capital theory framework to examine digital government

Social capital theory is widely used in social science disciplines (Putnam, 2000; Halpern, 1999; Halpern, 2005; Sampson et al., 1997; Putnam, 2000; Putnam, 2002; Putnam, 2006). The theory features three primary elements: interpersonal trust,

reciprocity norms and networks of association. Research has shown that high levels of social capital can be associated with a variety of favorable policy outcomes (Putnam, 2000). The most well known social capital theorist in political science is Robert Putnam; his monograph *Bowling Alone: The Collapse and Revival of American Community* is the work typically referred to when applying social capital to political phenomena.

In *Bowling Alone*, Putnam asserts that “we (once) bowled in leagues, usually after work—but no longer.” This observation leads Putnam to examine other avenues of disconnection American society has experienced over the last four decades. He sees great societal value in these connections, and associates their demise with a decline in political participation by America’s citizenry. As he develops a concept originated from Progressive Era reformer L.J. Hannifin called ‘social capital’, Putnam quotes Hannifin as observing that social capital can be viewed as:

...those tangible substances [that] count for most in the daily lives of people: namely good will, fellowship, sympathy, and social intercourse among the individuals and families who make up a social unit.

h. Using past bureaucratic encounter as a general map to explore digital government outcomes

This study relies on (1) *Bureaucratic Encounter’s* findings, in a general sense, of satisfaction with individual’s interactions with governmental agencies; (2) *the Pew*

Internet and American Life eGovernment Survey of June 2003, and (3) Stowell Datasets of Washington State University.

Bureaucratic Encounters showed demographic characteristics to be weak predictors of satisfaction, with the exception of age. As the work states: "...satisfactions and dissatisfactions that people experience with government services are not explainable to any great extent in terms of demographic variables" (*Katz and University of Michigan. Survey Research Center., 1975*).

While demographic characteristics were weak predictors of satisfaction, the frequency of user interactions with the agency showed that as the level increases, the "reports were dominantly favorable" (*Katz and University of Michigan. Survey Research Center., 1975*). Age was seen as the "most powerful determinant of satisfaction". Older respondents were seen as being significantly more satisfied with the (person-to-person contact) experience than younger respondents. Does this have an opposite effect when computer technology is introduced to a different generation than the ones who devised it? Or is this a pattern of thinking illustrated in the works of *When Generations Collide* who counsel us to "take this as an opportunity not to stereotype the generations, but to learn something about them you might not have known before" (Lancaster and Stillman, 2002).

i. Where digital government is taking us

As mentioned previously, digital government is being implemented at an ever expanding rate. The questions that arise is where is this implementation taking us and who is it leaving behind? While few digital government assets are implemented on a singular basis, most can be seen as more of a “supplemental” implementation. Basically, use it if you like and if not, there are other more traditional alternatives at your disposal. It’s seen as a cost-saving method, outreach tool and a way to address the needs of those who prefer to transact electronically.

Taking this paradigm into consideration, a preliminary observation is that is very unlikely to be a largely negative effect on social capital. If the implementation was singular in nature and no other alternative service delivery method existed, then it could be reasonably argued that the expansion of digital government services would have a negative effect, on those who are not able to access the resources. The methods that digital government is largely implemented in the United States, we should be looking for either a positive or zero effect on social trust and political cynicism when using a scale of digital government activities/preferences/satisfaction as our dependent variable.

j. The questions this dissertation examines

This study looks at one large “umbrella question” and four associative questions to explore how the implementation of digital government is affecting us.

The primary research question--the “umbrella question”--is to examine this: “Social capital was lowered by the introduction of television, according to Putnam. Is community-level social capital being lowered by the introduction of digital government opportunities to the citizenry?” The associative questions include: “Are we able to produce a convincing measure of community-level social capital?” While individual-level trust in government has been examined in relation to the use and satisfaction of digital government, the examination of community-level social capital in this field is rare. Developing a sound and accurate measure of community-level social capital is paramount to this study and associates to the primary research question in terms of methodology, but is so essential to the success of this study that it rises to a most important level. The data gives us the opportunity, as well, to look at the individual-level of trust in government and analyze its correlation with a community-level social capital measure which includes political cynicism as one of its primary components.

“Is digital government playing a negative role in interactions with government?” This second associative question posits whether levels of satisfaction or other indicators

showing a negative effect caused by the implementation of digital government resources to the exclusion, in some cases, of more traditional approaches? There is evidence in the campaign literature (e.g., Sam Eldersfield) that a personal approach shows more positive effect than that of telephone contact. This takes a similar viewpoint as Putnam does in forwarding his claim that television viewing is said to cause, or effect, community-level social capital.

The third associative question is whether all digital government activities are made equal or is there a different effect for different activities. Government agencies have been criticized in the past for failing to keep up with their private sector “counterparts” especially in the arena of transactional (either monetary or exchanges, such as delivering a license application and fee then receiving a license or permit).

The last associative question looks back many years to how well citizens were satisfied with the “encounters” they had with governmental bureaucracies.

Taking specific findings found within *Bureaucratic Encounters*, this associative question proposes to assess the level of satisfaction – or perceived value of – digital government encounters instead of the more traditional bureaucratic interactions studied in *Bureaucratic Encounters*.

The issue of satisfaction and its definition is important in the scope of this study.

While *Bureaucratic Encounters* was specially designed for measuring satisfaction with an agency, *The Pew Internet and American Life eGovernment Survey of June 2003* measures the improvement of the interaction with more traditional means (telephone, in-person, mail) serving as a baseline and then determining if the Internet improved this encounter across the three different levels of government – Federal, State and Local. This study suggests that if you’re asking a respondent how much the use of the Internet has improved the way one interacts with government, there’s an underlying assumption that the respondent is using the more traditional means as her/his baseline and can serve as an indicator of her/his satisfaction with the event.

While this study doesn’t claim to replicate the work done by Katz and his colleagues, what it offers is the introduction of a technology not available to the participants in that classic study, a measure of citizen satisfaction across levels of government and a segmentation providing insight into differences between individuals living in areas of different levels of political cynicism and social trust.

This study segments a portion of the *Pew* study into twenty-four major metropolitan area set of studies and assigns each several different measures of community-level social trust and political cynicism.

To review, the aim of the research is to make use of the social capital construct as

a theoretical framework in the investigation of satisfaction among users of digital government and how the use of digital government has changed the world of governmental services as it was once traditionally known in the work of *Bureaucratic Encounters*.

In a broader sense, the study asks what, if any, role has the use and satisfaction with digital government played with community-level social capital? Is it perhaps the case that the value of human contact is so low in 'bureaucratic encounters' that the increased dependency on computer technology (e.g., digital government) and its presumed increased efficiency outweighs any benefit associated with citizen-bureaucrat real time interaction?

One related argument can be found in *Stealth Democracy: Americans' Beliefs about How Government Should Work* (Hibbing and Theiss-Morse, 2002) where the authors posit that citizens really don't want to be involved in political decision making. Government, according to Hibbing & Theiss-Morse's work is more of a "consumer venture" where the citizen is more like a customer and the government is more like a business than a social entity which enters into a social contract with its citizenry for continuous political oversight.

This study uses survey research to determine whether satisfaction with the way

digital government has (or hasn't) improved their interactions with different levels of government in the United States has had a different affect than that examined in *Bureaucratic Encounters* so many years ago.

Looking at the major findings of the original *Bureaucratic Encounters* work, this dissertation will look at the effect that digital government use and satisfaction has on different demographic characteristics of it users.

By having the ability to assign a measure of community- level social trust and political cynicism, this study will test the differences between the two and determine whether social capital theory has a significant place in the arena of digital government or if cyberspace has an equalizing effect when dealing with governmental agencies.

CHAPTER TWO LITERATURE REVIEW

a. Social capital and technological innovation

As stated previously, social capital and technology have had a long history of connection within the research of scholars writing on both of these subjects. For example, Robert Putnam viewed television as a primary force in the declining levels of social capital attributed to the United States since the 1960's (Putnam, 2000). In this research Putnam showed, however, that when higher education was controlled for, there was little difference in the area of civic engagement between Internet users and non-Internet users (Putnam, 2000)

It could be argued that these declining levels of social capital also reflect the declining trust in government that Americans have expressed over the past four decades. One of the important questions which this dissertation poses is whether new technologies contribute to or negatively affect people's trust and satisfaction in their government. There is little consensus in the existing literature on how modern information technologies affect social capital, nor of its ultimate value to democracy itself. Citing "no inherent link between successful e-government and strengthened democracy", Coleman and Gotze posed the question of the actual worth of digital

government in the building of social capital (Antoniou et al., 2007). This dissertation examines the impact of digital government and the role that social capital plays in its implementation by measuring the level of social trust and political cynicism in twenty-four major media market areas and examining their levels of satisfaction with digital government, as well as assessing their attitudes towards differing levels of government. A primary hypothesis of this study is that the use of and satisfaction with digital government increases in areas of differing degrees of community-level social capital.

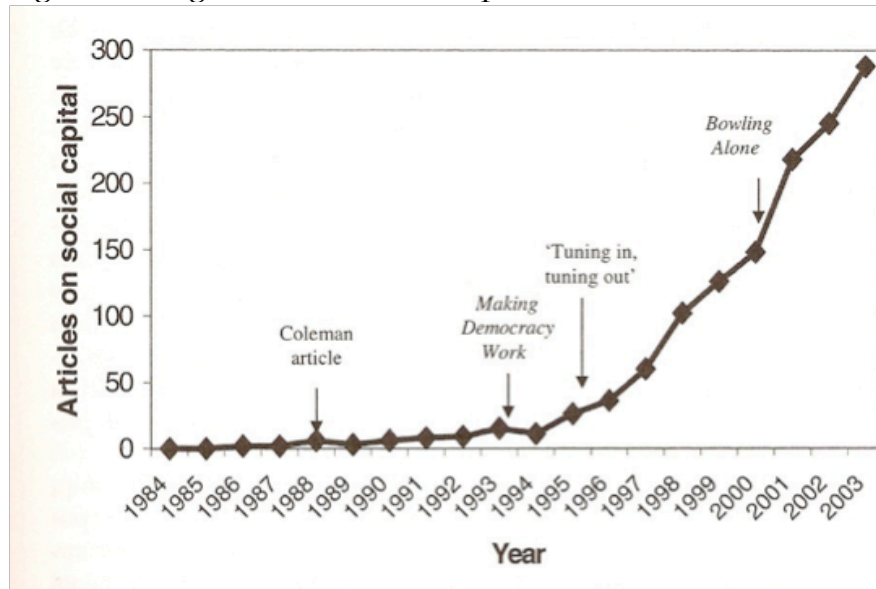
b. The emergence of social capital theory in the social sciences

Social capital theory has received a significant amount of attention from scholars in numerous social and behavioral science disciplines. Halpern (2005) performed a combined search using four different literature search engines (*Econlit*, *Psychlit*, *Crimlit* & *Medline*) to develop a timeline that helps to document the increase in scholarly articles from a variety of disciplines (see Figure 1).

Why the sudden interest in social capital in the eighties and the sustained interest since then? Two significant factors can be seen in Halpern's analysis. First, the work of Robert Putnam, publishing *Making Democracy Work* and then following it up with *Bowling Alone*, each preceded a respectable spike in the rate of publication of scholarly articles on the topic. Noting the decline in the conventional forms of social

capital within the United States, it can be argued that calling attention to this phenomenon sparked considerable interest across the social science and behavioral science disciplines to test the limits of social capital theory by performing empirical tests of its principle assumptions.

Figure 1: Progression of Social Capital Literature from 1984 to 2003.



Source: *Social Capital*, David Halpern

When we think of social capital, what are the major factors that are thought to drive the theory? Essential to the theory is the conceptualization of social networks. Social networks entail three vital core components: *norms, values/expectations* and *sanctions* that give both benefits and sanctions to establish and maintain the framework

of the network orderly (Halpern, 2005). Applying the theory to the real world, a social network is perhaps most apparent in a neighborhood or a community setting. A community has all three elements: norms (e.g., the norm of reciprocity); values/expectations (e.g., preferences, standards, rituals) and sanctions (e.g., verbal reprimands, shaming). While any neighborhood might have one or more of the components of social capital, the level of social capital present in any community is an empirical matter that requires systematic measurement.

For example, the City of Las Vegas features a different level of social trust than the City of Seattle does, as has been documented in many different studies (Pierce and Nicholas P. Lovrich, 2003; Hendryx, Ahern, Lovrich and McCurdy, 2002). How social capital is measured is also another source of contention for researchers. While an empirically-based approach is the preferred method of many researchers, one question asked by scholars is how do we get to an empirically validated result with the limited community-level data available?

c. Defining social capital

Researchers define social capital in several different ways, often depending on the orientation of the work being done. Examining three contemporary researchers who have been widely cited in the field of social capital and investigating how they each

view social capital from its definition to how they approach researching the subject might prove useful in giving the theory the context needed to make use of it in this study of the connection between the widespread adoption of information technology in connecting citizens to their government and social capital theory (Claridge, 2005).

Three well known researchers and widely cited in the field of social capital – Pierre Bourdieu, James Coleman and Robert Putnam – investigate the dynamics of social capital theory using varying definitions and methodologies. In doing so, they illustrate that the theory itself isn't one of unmoving rigidity, but rather show it to be a concept capable of encompassing many fields of social science and behavioral science research (Claridge, 2005; Halpern, 1999; Halpern, 2005). These three researchers each identify with a different level of social capital, ranging from the individual (Bourdieu), to the group (Coleman), and to the community (Putnam). For example, one of the earlier contemporary social capital researchers, Bourdieu defines social capital as follows:

The aggregate of the actual or potential resources, which are linked to possession of durable network of more or less institutionalized relationships of mutual acquaintance and recognition or in other words, to membership in a group which provides each of its members with the backing of the collectively-owned capital, a credential which entitles them to credit, in the various senses of the word (Halpern, 2005; Bourdieu, 1986)

Bourdieu's approach to his study of social capital was within the framework of his theory of society (Bourdieu, 1977). Bourdieu, a noted French sociologist, saw social capital as being an effect of social class status, and while he did not dismiss the importance of both social capital and economic capital, he noted in his work that one's cultural tastes are characteristics of which "one has to take account of all the characteristics of social condition which are statistically associated from earliest childhood with possession of high or low income and which tend to shape tastes adjusted to these conditions" (Bourdieu, 1977; Bourdieu, 1986).

To summarize, Bourdieu's approach to social capital research stresses the actions of one's environment as being the primary driver of the level of social capital being measured on the individual level.

Coleman's definition of social capital differs from Bourdieu's in that for Coleman the following idea should guide research into social capital phenomena:

Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors, whether persons or corporate actors within the structure (Claridge, 2005; Coleman, 1988; Coleman, 1990).

Coleman was a sociological theorist known for his work in education and public policy. One of the more important comparisons between Bourdieu's and Coleman's

definitions of social capital is the direction that research is to take. Bourdieu's work emphasized the individual and approached the theory from more of a single actor framework.

Coleman introduces a more 'group-orientated' approach to social capital theory that looks at the outcomes of groups. Under Coleman's method, the individualistic attribute of social capital is dropped in favor of a wider social group framework (Claridge, 2005; Adam and Roncevic, 2003).

Putnam's definition of social capital clearly outlines his 'community' based approach to social capital theory. Putnam states the following in this regard:

Social capital here refers to features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions (Putnam, Leonardi and Nanetti, 1993).

Putnam, a political scientist, brought social capital theory into the limelight of American political life with the publication of his work, *Bowling Alone*, a work in which he applied the framework for studying community-level social capital phenomena in Italy [Making Democracy Work] to the United States.

Bowling Alone is premised on the decline of social capital in the United States. Measuring social capital is done by Putnam in looking at the decline in organizational

memberships and the trend towards more individualistic activities (i.e., bowling by yourself instead of in a bowling league) which leads to a decline in social capital (Putnam, 2000).

How social capital is determined – what the primary driver is – constitutes a source of contention for researchers of social capital. A significant contribution towards our understanding of social capital is theoretical and works off of empirical work instead of being empirical in nature itself (Claridge, 2005; Halpern, 1999; Halpern, 2005).

The questions the theory raises are so complex and multifaceted that noted scholars come to many different conclusions. Putnam and Fukuyama have looked to an evolution of culture itself as a driver of social capital (Claridge, 2005; Halpern, 2005; Putnam et al., 1993; Putnam, 2000; Fukuyama, 1995; Fukuyama, 2006). Scholars have examined economics, family life, social mobility, class background and personal values as determinants as well. Grime (2003) posited a biological explanation for one of the most important dimensions of social capital, that being interpersonal trust, viewing humans as being “hard wired” to trust each other. Using biology as an explanation for social capital itself tends to lose favor when the same beings inhabit both areas of high and low social capital (Halpern, 1999; Halpern, 2005). Yet biological factors can offer more light to social capital theory when the variable is age. Halpern (2005) uses the

British General Household Survey to illustrate a differential in the frequency of contact with friends for young persons versus people of the 50+ age range. Education is another facet of study to examine causes of differing social capital levels. Higher levels of social capital appear to be positively correlated with higher levels of education in numerous empirical studies done in this connection.

d. Dimensions of social capital

Beyond how social capital is driven, dimensions of social capital are apparent in many examples of the social capital literature (Claridge, 2005; Halpern, 1999; Halpern, 2005) Social capital works with different dimensions including: trust (Coleman, 1988; Fukuyama, 1995; Fukuyama, 2006; Collier, 1998; Collier and Gunning, 1999; Kilpatrick, 2000; Lemmel, 2001; Putnam et al., 1993; Woolcock and Narayan, 2000; Woolcock, 2001), rules and norms (included is the norm of reciprocity)(Coleman, 1988; Collier, 1998; Collier and Gunning, 1999) (Shulman, Thrane and Shelley, 2005; Shah and Kesan, 2007; Fukuyama, 1995), types of social interaction and networks (resources and characteristics) (Collier, 1998).

Researchers within the field debate the number and type of different dimensions within the social capital construct (Halpern, 1999; Claridge, 2005). Liu and Besser (2003) cite four distinct dimensions: informal social ties, formal social ties, *trust* and norms of

collective action.

e. Types of social capital

Social capital theory also encompasses the idea of differing types as well (Halpern, 2005; Claridge, 2005). Types of social capital help to conceptualize the theory by providing distinctions within the elements of the theory. Two important types of social capital are bridging and bonding (Dolfsma and Dannreuther, 2003; Wallis, 1998). Bonding social capital refers to a type that is found within a group or community and fundamentally stays within that framework. Bridging social capital is a type that takes that community or group and reaches out to other groups and creates 'bridges' between entities that might not necessarily be alike. Higher levels of trust have been found by some researchers to be present in bonding types of social capital versus bridging where groups are associating with others from beyond their community (Putnam, 2000; Putnam, 2002; Putnam, 2006; Anheier and Kendall, 2002; Gittel and Vidal, 1998; Halpern, 1999; Halpern, 2005; Claridge, 2005).

Structural social capital is also important in the understanding of different types of social capital. Structural social capital refers to the existing framework that an individual may enter in – where roles and networks are already established and an order is present (Krishna and Uphoff, 2002; Hitt, Lee and Yucel, 2000; Grootaert, 2001; Claridge, 2005; Uphoff, 1999; Uphoff and Wijayaratna, 2000). These typologies can be

strong or weak, vertical or horizontal, open or closed, close or distant (Putnam, 2000; Putnam, 2006; Wallis, 1998; Hetherington, 1999; Hetherington, 2005).

f. Social capital and economic theory

Social capital theory also has rich roots within economic theory. In *Social Capital: Implications for Development Theory, Research and Policy*, Woolcock & Narayan illustrate four separate views on the building of social capital and economic development (Woolcock and Narayan, 2000; Woolcock, 2001). The authors segment out several important topics to be considered when examining social capital and economic development. Dating back to the work of Hanifan, the authors review how social capital theory has been used as an element in the explanation of community living improvements (Hanifan, 1916).

Woolcock & Narayan cite four examples of the effect of social capital within the field of economic development: communitarian sentiments, networks, institutional structures and synergy of collective action. To summarize, they argue that social capital isn't a theory that is ingrained in black and white. They provide a number of different ways to look at the theory using the elements of vertical and horizontal perspectives, the use of bridging social capital within networks, the need for strong organizational and community level organizations, and the ability to come together to benefit social

and economic well being (Halpern, 1999; Halpern, 2005; Claridge, 2005) .

g. Social capital and digital government

Those who have examined social capital and digital government in a meaningful fashion (Fountain, 1998; Fountain, 1999) are led to pose the core question: *Does social capital have to be built face-to-face?* Experts in this field of research currently disagree whether face-to-face interaction is a needed element in producing trust. The ability to serve the needs of an individual a continent away is, in the opinion of some researchers, sufficient to establish relationships of trust without a physical presence being required. Yet, most of the research conducted on industry networks notes the great importance of physical proximity (Fountain, 1990; Fountain, 2002) and generally concludes with the call for “more empirical study” to understand the importance (or lack of) of developing social capital without the use of human-to-human interaction.

As Fountain describes, an economic model, which showcased “large, centralized bureaucracies emphasizing division of labor and functional specialization” has been substantially transformed into smaller networks with “team-based approaches” to problem solving calling for greater cooperation between the parent organization and the contracting of “outside firms for other tasks.” This change affects the aforementioned larger firms in creating a need for those organizations to become open

to input from “long term external suppliers” for mapping change in the process of manufacturing. In Fountain’s argument, these industrial changes – most prevalent in the technological field – call for “ (a)ctors in a collaborative network exhibit (ing) form (s) of collective learning.” This argument can be seen in practically any large software firm (such as Microsoft) using ‘outsourcing’ to break off work patterns from the central organization, yet still having the need to maintain strong communicative relationships. The implications of this widespread development from the perspective of social capital theory can argue either a loss of social capital based in the reduction of direct human contact or an increase in social capital based in the new form of communication networks made possible through “cyber channels” (Pierce and Nicholas P. Lovrich, 2003). It is within this general area of inquiry that this dissertation seeks to make a contribution to our knowledge in of digital government.

h. The Internet as the primary venue for digital government

The Internet is the primary venue for digital government. To gain a meaningful understanding of how the Internet functions, two important features should be examined. Communication and activities are two elements that help to form what we know as the Internet. Communication will be examined by segmenting how computers “talk” with each other over the Internet and by focusing on an important municipal activity – WiMaX – which is designed to help extend connectivity over large distances.

Activities examined are those essential to digital government functionality – browsing, database connectivity, email and blogging.

The Internet, though usually thought of in macro-terms, is simply a series of interconnected computers /servers who “agree” on a way to communicate and work together. The structure established among computers reflects the need for something less than anarchy in addressing the day-to-day concerns of the users of any institution. The Internet also has a governing body, The World Wide Web Consortium (www.w3.org) which has the responsibility of policing the most important elements of the Internet. InterNIC (and some other registrars) control domain names and Internet addresses (such as www.cnn.com) and make certain that unique addresses are maintained, so there aren't two www.wsu.edu addresses available. Also, instead of having one huge big national network, the computer/server theoretical framework has also been devised to help segment service so that should one area have trouble, that problem doesn't affect the network as a whole.

As described, the Internet is a series of computer/servers connected together. The next logical question would be how do these computer/servers know how to talk with each other? What language do they speak so that effective communication can take

place?

Network communication is an important and complex field in the area of information technology. Computers need to understand each other, and on the Internet they do this by using Transmission Control Protocols (Stallings, 1998; Stallings, 2007). The Transmission Control Protocol (TCP) takes the data and breaks it down into 'packets' for transmission for quick and easy transportation throughout the Internet. Without these packets, the Internet would become hopelessly clogged up and slow in the transmission of information (Stallings, 2007).

If a packet is leaving Pullman, Washington and going to Las Vegas, Nevada – it's a distinct possibility (or probability) that the signal might weaken on the way. Repeaters are used to help strengthen that signal so it can travel to its destination in a complete and unbroken manner. A repeater is exactly that – it copies the packet and sends that copy out again at a certain physical location – with full strength at that physical location. For the example used, Sacramento might be a good place to reinvigorate the signal.

Table 1: Network communications - the seven layers
Source: Stallings, 2002

Layer	Function
Application	Converts the transmission from the user's computer into bits
Presentation	Translates the message (ASCII)
Session	Opens communication and sets parameters
Transport	Secures the message being sent
Network	Maps the route for the message
Data-Link	Supervises transmission – addresses and duplicates packets.
Physical	Encodes into an analog or digital signal.

It is important to note that this is just one element of how computers talk with each other on the Internet. Internet communications have different dimensions upon which it depends. The layer mentioned above is known as the transport layer. Also important are the *application layer*, *presentation layer*, *session layer*, *network layer*, *data link layer* and *physical layer*. To the typical user, the most important of the layers used is the application layer.

When an individual sits before a computer terminal and looks at a web page or prepares an email to be sent, they are only viewing one of many layers

(the application layer) that is used to transmit/present the data to her. While only one layer is being viewed, in fact, there are many different layers (i.e., negotiations for debate times, negotiations for debate location, etc) that go unnoticed by the typical citizen-viewer.

These layers are important to the field of digital government, not only in that it gives light to the functioning of the Internet itself, but also because they clearly illustrate significant areas of opportunities where cyberterrorists and hackers have opportunities to attack the privacy of communications taking place between citizens and their government. The debate in the public policy arena about cyberterrorism centers on the lack of knowledge of the degree of threat – whether its actual or high probability or just a possible scenario that is unlikely to truly pan out (Ingles-leNobel, 1999).

The Gartner Group conducted a series of tests which simulated a “digital Pearl Harbor” where essential services were attacked, networks were collapsed and power plants were rendered impotent due to cyberterrorism. After the simulation, 79% of the experts predicted that such a “Pearl Harbor” type of attack would occur within the next

two years. One argument against the likelihood of such a monumental attack is that the simulation occurred in 2002, and as of yet no such actual attack has taken place (Mimoso, 2003). In fact, senior information technology experts in both governmental and private institutions scoff at the conceptualization of a “digital Pearl Harbor” (Clark, 2003). The threat to information technology, to many industry experts, is found primarily within organizations as opposed to outside of them.

The oft-quoted example is that of the disgruntled employee sabotaging critical systems and of a company, which doesn’t want anyone to know about the incident—keeping the vulnerability a secret. This is actually a much more likely scenario than a coordinated cyber attack carried out by terrorist organizations, to many researchers in the field of computer security (Mimoso, 2003). This trend of secrecy by private organizations to current threats to the technological infrastructure becomes important in the realm of digital government when initiatives for privatization are proposed for governmental information technology assets. Researchers in the field of digital government have been examining the effects of privatization in the digital government realm, noting that while subterfuge can occur in both the private and public sector, the level of oversight for private industry is lower and yet the potential for a decrease of trust in those same technological assets stays the same for the public institutions that

contract them out. To summarize, the risk of harm to trust and reliability stays principally with the public sector while the profits generate within the private sector.

The Gartner Group's analyst, Richard Hunter, states that " (B)eing a victim of cybercrime is like being a victim of a sexually transmitted disease in the 1940s... (i)t certainly happens to a lot of people, but you don't want anyone to know about it" (Clark, 2003). Even with the fear of this "negative side" of digital government, this fear doesn't appear to have much of a dampening impact on the increasing use of such services. In addition, privacy concerns and fears of governmental intrusion into the private lives of individuals are legitimate and well debated points in the discussion of technological implementation in the public sector. Despite such concerns and fears, however, the adoption of digital government applications continues to broaden in scope and range in American government at the federal, state and local levels alike (Horrigan, 2003; NSF, 2003).

Yet, with the memories of Sept. 11th never far from our thoughts, the implications of a terrorist attack on the information infrastructure is a highlight of many works done by scholars in the digital government community. One profound study examined the reaction and rebuilding of the damaged technological assets destroyed during the attacks (Seifert, 2002; Seifert and Relyea, 2004a; Seifert and Relyea, 2004b). Seifert (2002)

emphasizes the need for a three-pronged approach to address the immediate threat: the establishment and practice of comprehensive continuity and recovery plans, the decentralization of operations, and the development of extensive system redundancies to desensitize solitary points of weaknesses.

The USA PATRIOT Act is arguably one of the most transparent reactions in the digital world to the terrorist attacks of September 11th (Ebenger, 2008; Jaeger, 2002a; Jaeger, Bertot and McClure, 2003; Jaeger, 2002b; Jaeger, 2004a; Jaeger, 2004b). In an effort to “enhance domestic security” within the USA PATRIOT Act, numerous researchers have identified the new-found ability of law enforcement to “(have) authority for the surveillance, interception, and disclosure of private emails” (Ebenger, 2008). Ebernger (2008) notes that privacies once given under the Electronic Communications Privacy Act (ECPA) were now gone, yet the privacy policies of three educational institutions, three private ISPs (Internet Service Providers) and three public ISPs showed that the policies were fairly stagnated at the point that they were before the September 11th attacks, except for public ISPs. Looking from the institution’s perspective, information technology has been both a blessing and a curse for law enforcement within the United States. On the positive side, information technology has been an asset to law enforcement in multiple areas. Support for victims of domestic

violence is one area which researchers have argued could be enhanced by information technology assets (Westbrook, 2007; Lin, Fu and Hsung, 2001; Gottschalk, 2007).

Westbrook (2007) highlights that domestic violence touches the lives of over five million individuals in the United States and the growing technological infrastructure holds immense possibilities in providing resources to those victims and those service providers who attempt to assist them. In this study, Westbrook examined responses for information to safe-houses and identified major problems in cyber-safety awareness and “uneven implementation of professional standards for virtual reference services.” Once again, technology has been shown to have much potential for assisting the citizenry, yet the potential anarchic nature of the medium also shows the “dark side” of digital governance. On the technological side, digital government relies heavily and evermore increasingly on web-based services to access the applications to connect the government with its citizenry. At the same time, government agencies are collecting, storing, and sharing information garnered from these applications while still trying to assess what the limitations and expansions of citizen privacy expectations are within the realm of the Internet. While telephone taping and bugging have a respectable amount of case law to guide those within the bureaucracy, technology such as the Internet is still in its early evolutionary period as earlier technologies once were

(Abdelmounaam, Mourad, Athman and Brahim, 2002). By no means is this problem exclusive to the United States, but rather represents a dilemma throughout the world and serves as a focus of systematic research within the digital government community (Abdelmounaam et al., 2002; Abhilash, 2002; Abie et al., 2004; Acaud and Lakel, 2003).

Privacy concerns are exacerbated even more when the subject of electronic voting is posited as a replacement to more traditional means of distributing and collecting ballots (Boughton, 2006; Cetinkaya and Cetinkaya, 2007).

i. Electronic voting

The potential for using the Internet for democratic elections is a volatile subject within the research community as to what is appropriate in the furtherance of the democratic institution itself (Boyd, 2007) in pilot projects in the U.S. and other nations, as well (Braun and Brandli, 2006; Bryl, Dalpiaz, Ferrario, Mattioli and Villafiorita, 2007). Many researchers see the topic of electronic democracy as a broader umbrella that encompasses e-voting. The use of e-voting is becoming quite widespread in elections outside of governmental institutions (Cetinkaya and Cetinkaya, 2007), and the successful use of socio-technical systems, which are combinations of both technological and human based organizations, is used as evidence to help support the more positive aspects of e-voting (Bryans, Littlewood, Ryan and Strigini, 2006; Bruschi, Fovino and

Lanzi, 2005; Caporusso, Buzzi, Fele, Peri and Sartori, 2006).

One example of successful implementation of e-voting technologies can be found in the Geneva elections conducted between January 2003 and April 2005. Over 90,000 citizens of that city were allowed to use remote e-voting systems as a pilot program to complement the more traditional voting method. The e-voting system worked so well that it went from the pilot stage to the implementation state, passed by the Geneva municipal parliament in 2006 (Chevallier, Warynski and Sandoz, 2006). An important feature in this pilot program that will be even more important in later chapters, is that it used to complement the existing infrastructure of governance (or in this example, voting) – not to replace it (Chappelet, 2004).

Trust is an essential element in e-voting systems (Antoniou et al., 2007). Antoniou, et. al. (2007) argues that the importance of trust and the citizen's lack thereof is a troubling roadblock to the implementation of effective e-voting systems. Using a trust-based approach, which is built on transparent design and implementation, is a promising solution to the acceptance of e-voting. They propose a three-stage approach: the decomposition of e-voting systems into "layers of trust" to reduce the complexity of managing trust issues into smaller, more manageable layers; the application of a risk analysis methodology to identify and document security-critical aspects of said e-voting

systems and a cryptographically secure e-voting protocol. It could be argued that the strength of this proposal is found within its primary paradigm – that once the trust of the citizenry is obtained through reasonable and transparent measures, the acceptance of an e-voting style of elections maybe more likely to occur.

International efforts at implementing digital government solutions suggest that while the technological costs are significant, the overriding problem in implementation lies in human factors (Al-Shafi and Weerakkody, 2007). Al-Shafi, et al. (2007) performed a survey research project in the country of Qatar. Qatar, having few problems in neither attracting information technology professionals nor providing the funding for a digital government infrastructure, came across significant problems in the implementation of its digital government initiatives. This study found that though Qatar possesses a superior information technology infrastructure, the big hurdles encountered in implementation were a lack of citizen awareness, uneven bureaucratic practices, and low citizen satisfaction levels with the existing digital government offerings. At no point was the technology itself (with the exception of potential human-computer interaction challenges) the operative problem – getting the word out about services offered, having a coherent digital government policy, and gaining citizen “buy-in” to the project were the real challenges for the Country of Qatar. And while this study

emphasized Qatar, it developed a theme that reoccurs in many other nations, as well (Al-Solbi and Mayhew, 2005).

In Canada, the First Nation digital government offerings had similar problems to those of Qatar and other governments across the globe (Alexander, 2001). The First Nation people were seen in Alexander's study (2001) to have unique "non-technical policy issues" ranging from unique privacy concerns to this particular community and cultural considerations that may hinder the typical attempts to implement the use of digital government assets.

j. The structure of the Internet

The theoretical structure that underlies the Internet is that of client/server computing. Throughout the years, many different types of computing theories have been implemented by businesses and organizations to transport data in ever more efficient ways. Generally, client/server computing takes a client computer (i.e., your home computer) and has it ask for resources from the server (i.e., the Internet). In order to draw information from the Internet and have it properly translated, you typically need the use of a browser to view (or interact) with web pages. The browser's primary mission is to translate the HTML (Hypertext Markup Language) or other web languages through the HTTP (Hypertext Transfer Protocol) connection. Once the

browser draws in the communication of interest, the HTTP connection is broken off until the user needs to use it again (Stallings, 1992; Stallings, 1998; Stallings, 2007).

In order for computers to communicate with each other, they need to know whom to interact with or from whom to receive information. The Domain Name System (DNS) coordinates this aspect of the network. If a user desires to go to www.cnn.com, the Domain Name System takes those letters and turns them into numbers – the Internet Protocol address. That process enables the computer to head to the right location without fear of being misguided. Type in a few wrong characters (e.g., www.whitehouse.org instead of www.whitehouse.gov) and one will quickly learn that the computer and the Domain Name System are entirely dependent on the user to tell it precisely where to go.

One of the current (and arguably more important) initiatives across municipal digital government is wireless networking (WiMAX) (Ebrahim and Irani, 2005). Instead of plugging a computer into a cable in the wall, wireless networking allows the user to focus into a signal and perform all of the above activities without the need of a cable-to-computer connection. Wireless networks can be set up relatively easily in a household with limited range and security features. This type of network is known as a 802.11 network. For our brief examination of city government WiMAX initiatives, the

802.11 network provides an excellent starting point.

The 802.11 network starts with a wireless router, which plugs into an Internet access line. The wireless router, in its most basic sense, is a radio receiver and transmitter featuring an interface layer. When plugged into the Internet access line, the wireless router emits a signal, which can conceivably encompass an entire household (and sometimes beyond). Security measures (such as WEP) are implemented so that non-authorized individuals within the range of the wireless router signal cannot tap into and use the Internet connectivity, in theory. In order to access that signal, the computer must have an 802.11-compatible network card either installed or as an add-on. Similar to that of the previous description of how Internet communication occurs, the computer sends out packets to the wireless router (Requests to Send) that contain information about the data request, destination, how long the transmission will take, and other essential information items.

The network is regulated so that a cavalcade of data requests doesn't bog down the wireless router's ability to do its job. In addition, when two (or more) computers are connected to the wireless router, the opportunity exists for the two computers to set up a sub network (peer-to-peer network) so that they may share resources, such as documents, printers, etc. amongst themselves or other computers that are authorized to

share within the wireless network.

That constitutes a brief description of a small-scale network that can be set up in a short period of time. This network is technically known as a 802.11 network, but for the rest of this study we will refer to it as a WiFi network.

Going from a WiFi network to the municipal initiatives undertaken to promote digital government, we switch to the WiMAX (802.16 standard) network. WiMAX is an acronym for *Worldwide Interoperability for Microwave Access*. WiMAX and WiFi are similar only in their structure. WiMAX seeks to cover miles and miles where a WiFi network is smaller and it uses unlicensed spectrums to broadcast its signals. A WiFi network generally works on a 2.4 gigahertz wireless spectrum.

A wireless spectrum is simply the 'airwave' within which the signal is contained. In more detail, the wireless spectrum in question is "the range of electromagnetic radiation from the highest frequency to lowest. It encompasses everything from X-rays to gamma rays to visible light and radio waves" (Hofer et al., 2002).

In a WiFi network at home, should one use a cordless phone the signal will be (most likely) interrupted and Internet connectivity will probably be lost. That is the case because the cordless phone is also working on a 2.4 gigahertz wireless spectrum and is

interfering with the WiFi connection (via the 2.4 gigahertz wireless router). This issue has been minimized in recent years with the introduction of inexpensive 5.8 gigahertz cordless phones, but one essential difference between WiFi and WiMAX can be found in that scenario. WiMAX uses licensed wireless spectrums.

The licensing of wireless spectrums has been going on since the introduction of radio and TV (on much lower spectrum levels). Taking three examples of wireless spectrum users (radio stations, satellite radio stations & satellite television), we can examine what levels of wireless spectrum each uses. A typical radio station is running in the 535 to 1605 kilohertz spectrum. It can reach a long ways out from the point of transmission, but doesn't have the range of satellite radio beaming the Earth from orbit and through repeater stations on land. Satellite radio is found in the areas of 2.3 megahertz. These spectrums were licensed by both XM and SIRIUS Satellite radio for \$173.2 million from the Federal Government in 1997 (McGregor and Holman, 2004)

Direct Broadcast Satellites (such as DIRECTV) are in the 12.2 to 12.7 gigahertz spectrum. Of these particular spectrums, each is licensed and the United States Federal Communications Commission (FCC) regulates their use.

WiMAX, for the most part, is interested in using both the 2.3 gigahertz spectrum

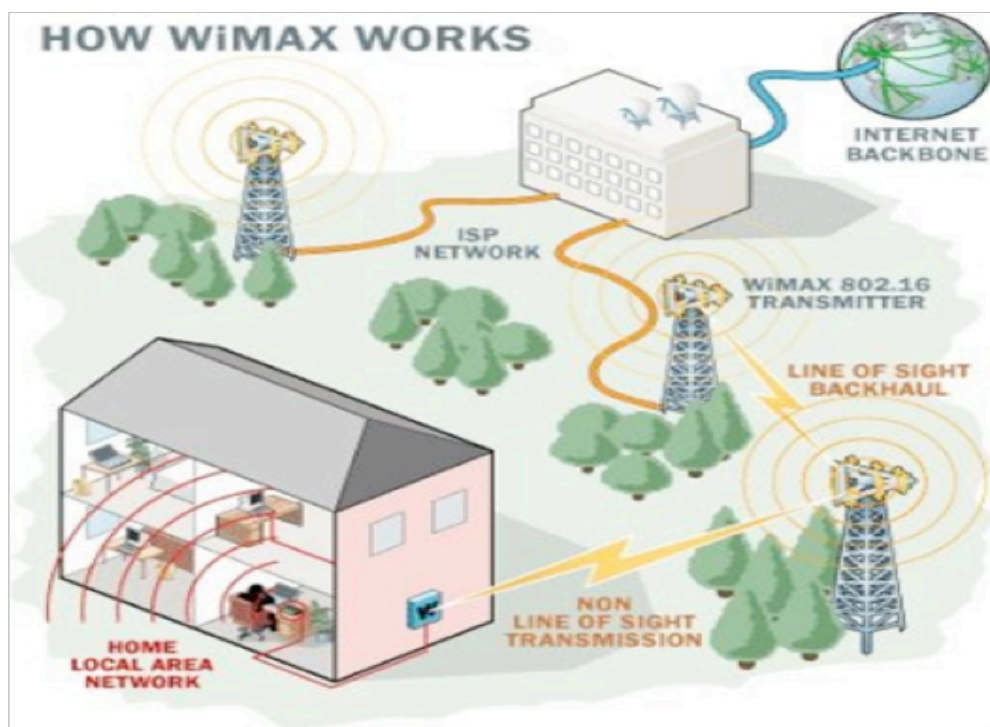
and, when analog television is discontinued, the 700mhz spectrum has been discussed for use (McGregor and Holman, 2004).

The current municipal initiatives scattered across the country seek to make entire segments of cities wireless access areas without a need for any other Internet connection other than what the city in question provides (Stallings, 1992; Stallings, 1998; Stallings, 2007) . Many cities have invested heavily in these programs in recent years.

Why is this seen as a priority item for the proponents of digital government? The ability to convert a city to WiMAX allows for greater saturation of access to a wider audience, thus providing the opportunity to increase the percentage of households which are users of digital government services and theoretically closing what is assumed to be one of the most pressing social justice problems of the Internet – namely, “the digital divide” separating the “haves” from the “have nots” in American society.. Yet, recent research suggests that the primary reason for taking advantage of online services is directed toward computer ownership more than the presence of Internet connectivity. Whether it be a matter of greater connectivity or broader ownership, however, there are strong influences at the municipal level throughout the United States pushing cities and towns toward WiFi and WiMAX systems.

The structure of a WiMAX network is somewhat similar to the WiFi example, except that it takes place on a grander geographic scale. A WiMAX network is based on servicing a large number of users and, as a consequence, requires a strong, reliable Internet connection. From Figure 2, we can see that not only can a WiMAX setup serve people in public places, but with the use of a small and inexpensive antenna device a house also can be “wired” via the WiMAX without ever subscribing to a cable or DSL provider.

Figure 2: Example of a WiMAX structure



Source: www.stephenrahm.com

A WiMAX uses broadcast towers (which each can beam signals out in a thirty-to-forty mile circle) instead of a wireless router as exists in the WiFi example.

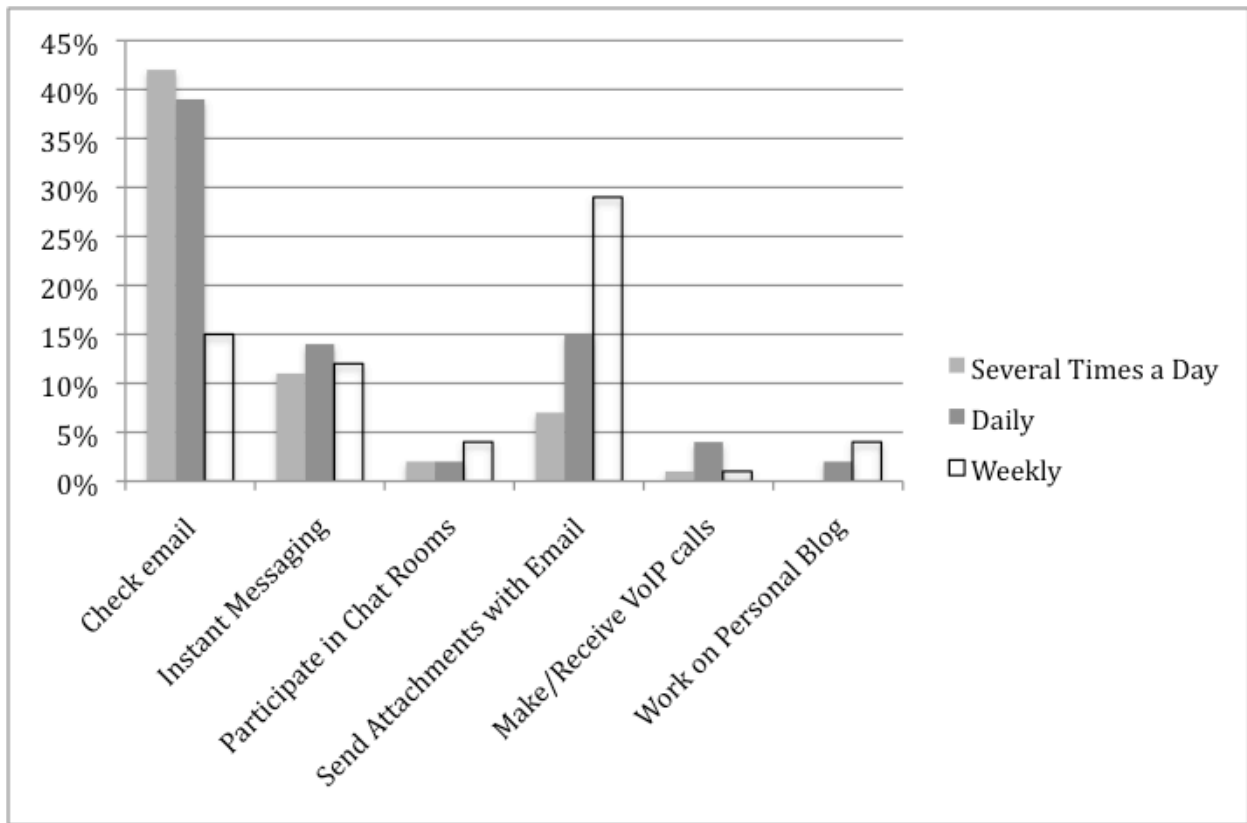
k. Internet and digital government activities

One of the more important features of the Internet is the email services available . As seen in *The 2008 Digital Future Report* from the University of Southern California Annenberg School's Center for the Digital Future, email consistently outperforms other Internet activities such as instant messaging, participating in chat rooms and making/receiving VoIP (Voice over Internet Protocol) calls in terms of frequency of use (Lebo, 2008).

Emailing government officials and agencies also repeatedly comes up in studies done as a vital contemporary digital government activity (Horrigan, 2003) . Email works similarly to the way any form of data is transmitted throughout the Internet. Email is also sent via information packets through the TP/IP protocol or "language." The most important addressing mechanism is the email address (whomever@wherever.com) which is structured so that the routers can devise (a) the best route and (b) the correct destination for the transmission. The packets transmit to the correct location and then they are electronically combined to be presented to the receiver (Stallings, 1992; Stallings, 1998; Stallings, 2007).

The software email uses in order for the end user to read the message being conveyed is similar to that of the browser. The software accumulates packets and enables the end user to read that which was a short time earlier by means of undecipherable data packets.

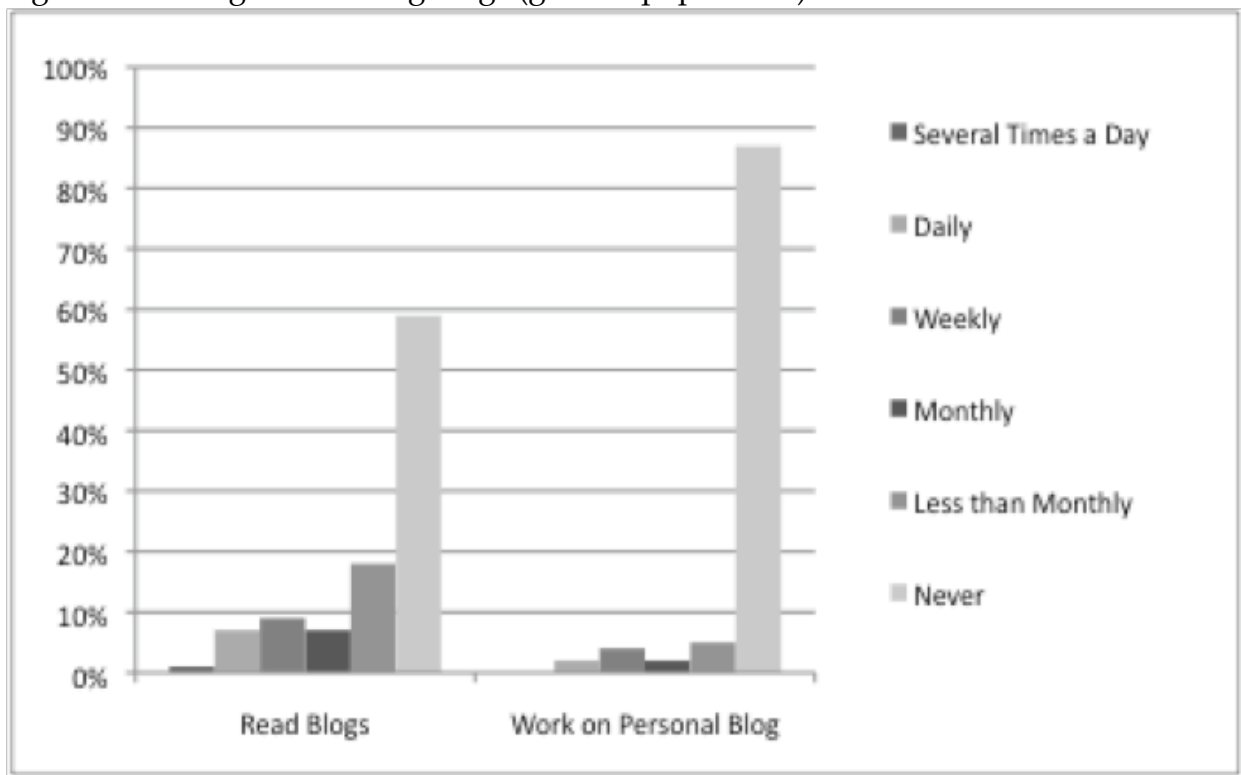
Figure 3: Frequent Internet activities in the United States



Source: The 2008 Digital Future Report, USC Annenberg School

Web logging (also known as blogging) is increasing in its use and popularity across governmental institutions (Lebo, 2008). Blogging is the ability of an author to publish her or his work on a site that can be accessed by parties interested in reading what that individual is writing.

Figure 4: Writing and reading blogs (general population)



Source: *The 2008 Digital Future Report*, USC Annenberg School

In *The 2008 Digital Future Report*, the Annenberg Center for the Digital Future tracked the prevalence of blogging throughout the general population. An important feature of the data worthy of note is the fact that the number of those persons who are working on blogs is considerably less than the number of people who are reading blogs.

Blogging serves as an avenue for the general public to address either a large or small audience. In addition, many elected public and appointed officials maintain blogs as a means of staying in touch with people who show an interest in their work. From the President of Washington State University to United States Senators, the use of this tool to address issues that they believe are important is escalating.

A potential blogger has many options to start their dissemination of public expressions. Software dedicated to blogging (such as MacJournal) allows the blogger to compose their work offline, and then upload it at their leisure. Sites such as wordpress.com and blogger.com give complete solutions for the potential blogger by simply setting up an account and publishing their work online, virtually immediately upon publication. Many blogs are associated with RSS (Really Simple Syndication) to serve as a “filter” for the blog’s information. RSS allows individuals to subscribe to the blog and be able to read the blog without actually visiting it. With the use of an RSS reader (which can be a “plug-in” within a browser or email client), the blog “pings” the

RSS reader to announce when a new entry in the blog is made and the blog entry is “pushed” into the RSS reader. The RSS reader allows the reader to keep current with the blog (or any number of blogs) without the trouble of visiting numerous sites.

Numerous researchers see blogging as a “personalized media form” which covers both events of a global nature and that of a more personal one (Griffiths, 2004). As a tool, blogging has been seen as having many points of concern that cover many aspects of professional and personal life, such as business, politics and cultural dimensions (Kline, Burstein, De Keijzer and Berger, 2005; MacKinnon, 2005).

Content analysis studies examining political blogging in relation to other areas of participation in the political arena suggest that blogs are used more often to make statements rather than to encourage political participation, in the form of feedback or discourse (Wallsten, 2008). Wallsten conducted a large scale content analysis of 5,000 lesser known political blogs and 5,000 of what is known as “A-list political blogs” and found that blogs are extremely dynamic and flexible in their ability to go from being used as a “soapbox” to being used as a method to get out the vote and seek feedback from readers depending on the events occurring within the political world. The time before an election would show a “greater propensity, be it a popular or less popular blogger, to seek feedback from readers on the days of the presidential debates and in

the weeks immediately following an election.” Political blogging is seen in this context as a complex form of political participation that blends hypertext links, opinionated commentary, calls to political action, and requests for feedback in different ways at different moments in time.” (Wallsten, 2008).

1. Technological frameworks as an integral part of digital government

When a digital government service is offered to its citizens, many times its associated with a database found on the “backend.” A database is an organized collection of records that is stored on a server so that users can either access it to answer questions (queries) or enter information into the database (Connolly and Begg, 2002). There are different models upon which databases can be framed. The “relational” model is the dominant framework in modern database design.

Edgar Codd (1970) was the theorist who first developed the relational model based on predicate (ordered) logic and set (object orientated) theory. Relations are linked to tables based on logic and the access needs of the end user (Connolly and Begg, 2002).

For example, if an individual wishes to renew their driver’s license online, a database is at work behind the scenes so that the individual interacting with the site can be identified, financial transactions can be recorded, and drivers’ records can be

accessed to determine whether or not the individual is eligible to renew online. Many different digital government activities are dependent on database access of this type. Web search engines, such as Google, are dependent on databases in order to send users to the correct page or give her the options she needs to reach the Internet location required. Different technological programming packages (Perl, PL/SQL & .NET) are offered for online web access to databases.

Common Gateway Interface (CGI) is a communication device for database enabled web pages. When a request is made of the web-enabled database, a “script” is used to package the database request within the HTML code. The search parameters are found within the script and the request is sent to the web server – specifically where CGI scripts are located within the server. The database then executes the request (such as the request for a driver’s record) searching and accessing that file entry, which matches the search criteria blanketed in the request. The response is then shipped back to the requesting webpage within a CGI script and typically creates a new page with the information requested provided – should the process work at all necessary steps.

This process is of great interest to the digital government researcher because of all of the opportunities for poor programming present and criminal interception (amongst others) to provide a mechanism for greater cynicism of digital government.

Some prominent researchers of digital government argue that the Internet is simply another technological achievement like the printing press or telephone; a counter-argument to this suggests that the complexity of the venture likely causes it to reflect a different paradigm than underlies earlier technological advancements. While a printing press was sporadically improved over time, *Moore's Law* would appear to drive information technology. *Moore's Law* holds that the primary "powerhouse" of the computer – the microchip – will double in speed every eighteen months. With dual, quad and greater core processing – the invention reinvents itself in critical ways every two years.

With processing power increasing at such a rapid and predictable rate, information technology and the engineers behind it actually have the potential to cure some of the social problems that it creates, such as identity theft, Internet stalking, child victimization, etc. Understanding the technology behind the movement is clearly important to the social scientist examining the social phenomena stemming from the all-pervading technology. The research available to date indicates that over two-thirds (68-70%) of the national population uses the Internet (Pew, 2008), and more than 50% of those Internet users have visited one or more digital government websites (Horrigan, 2003). Examining the issue of digital government in any context requires the inclusion

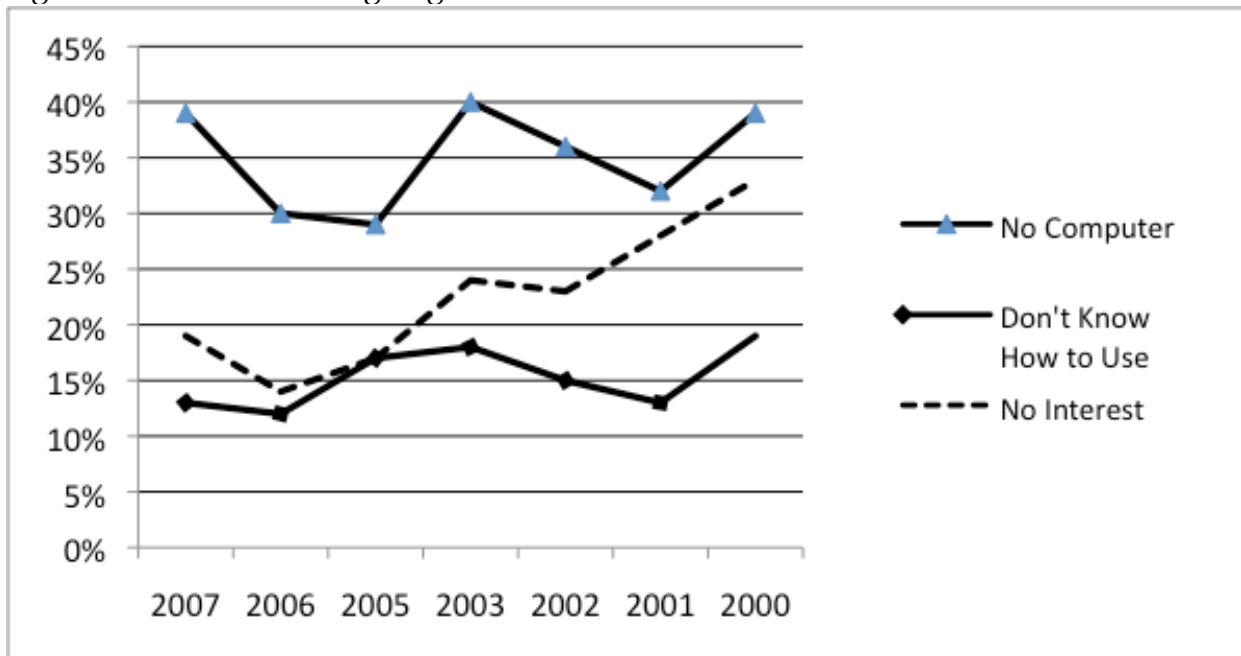
of those who don't (by choice or circumstance) use the Internet and carrying out an examination of why each avoidance occurs.

The USC Annenberg School's Center for the Digital Future recently issued its *2008 Digital Future Report* which identifies some interesting trends in the reasons offered for not going online. While fluctuating greatly throughout a seven-year timeframe, not having a computer at one's residence is by far the most important reason for not going online. While opportunities for going online exist at many areas of public service provision (such as libraries, schools, and public offices), the ownership or presence of a computer within the residence is an essential element for Internet usage. A lack of knowledge of its usage is consistently the last reason given for not using the Internet. Interest in using the Internet has gone from a historic high of 32% to a current rate of 19%.

m. Aging and technology

One ongoing theme that is evident from *The 2008 Digital Future Report* is that age is an apparent factor in the distribution of Internet usage. The number of working computers at home drops considerable from age 45-54 to 85+. While this is not an indicator of trust or satisfaction with those who do use digital government services, it

Figure 5: Reasons for not going online in the United States



Source: *The 2008 Digital Future Report*, USC Annenberg School

raises an important question of service delivery and whether the medium is inherently problematic when serving an older population.

While the social science literature is providing many more answers as to why this pattern of use occurs, the information technology literature also provides some fruitful avenues for examination. Noted Human-Computer Interactions scholar Jakob Nielsen provides qualitative evidence that would indicate that older Americans aren't considered by younger website designers who are running on the incorrect assumption that all users have "perfect vision and motor control, and know everything about the

web” (Nielsen, 2002).

Generally stated, the problem (in Nielsen’s view) isn’t developed by the aptitude nor abilities of older Americans, but by the inability of the site to meet the range of usability needs of its full range of potential users. Once enough discouragement is provided, Nielsen further argues that usage by this segment is depressed. In the study of usability issues as a factor in the implementation of digital government, Nielsen is by no means alone in his contentions. Numerous scholars see usability as being a central issue in assessing the strengths and weaknesses of digital government (Huang, 2003; Inglesant and Sasse, 2005; Kaaya, 2004).

The 2008 Digital Future Report documents a strong drop-off in presence of a working computer at home for older Americans and a strong response amongst respondents that having a computer at home is important for using the Internet. These are *serious* impediments to digital government expansion.

n. Primary types of digital government activities

When a client of governmental services goes online in the United States to get information or transact business, eighty percent of the end users come away stating that they do find what they seek. Federal and state websites are far more popular than local governmental websites, and end users state that they find what they are looking for

more easily from Federal and State websites than from those maintained by local government (Horrigan, 2003);

Yet, at the same time, more recent studies suggest that local digital government usage is strongly correlated to increased trust when attitudinal and demographic factors are controlled for in a multivariate analysis (Tolbert and Mossberger, 2006). Should we assess digital governmental websites by the level of satisfaction they generate among their users (as befits the entrepreneurial system evident in Hibbing and Theses' *Stealth Democracy*), or should we assess them by the level of trust their users exhibit in the institutions they represent? Even more importantly, does trust in the realm of digital government have a different definition than trust in the "real world"?

In their article, *The Effects of E-Government on Trust and Confidence in Government*, Mossberg and Tolbert (2006) identify two distinct types of trust found in digital government. In their two-stage model designed to measure the effect of digital government and trust, the authors distinguish between process-based trust and institutional trust (Tolbert and Mossberger, 2006). *Process-based trust* is cited as being concerned with levels of responsiveness and accessibility. *Institutional-based trust* is concerned with transparency (access to government documents, contact information, etc.) and responsibility (such as digital government's ability to secure its technological

infrastructure from hackers, being able to keep information transmitted private, etc.).

While finding little conclusive evidence of digital government usage leading to an increased trust in government (except on a local level that could be explained by other factors not addressed in the data), Mossberg and Tolbert argue that the more important element of trust is process-based trust.

Using the hypotheses that process-based trust is built over time and through repeated interactions (Salhofer and Ferbas, 2007), Mossberg and Tolbert state that their study shows the following:

The fact that improved evaluations of government responsiveness appeared to lead to increased trust in local government seems to be driven by process rather than institutional factors. Citizen attitudes related to institutional trust, such as government transparency, did not lead to increased trust in government at any level (Tolbert and Mossberger, 2006).

The authors continue by illustrating two different paradigms that the digital government literature identifies concerning reform related to digital government-to-citizen relationships. The first is an entrepreneurial approach, where the primary task of government is framed as a customer-driven and service-orientated 'business'-type of venture (Osborne and Gaebler, 1992).

The second paradigm is a participatory approach that emphasizes citizen participation and public dialogue as a critical process for “fostering greater government accountability, transparency and responsiveness” (Bimber, 2000; Norris, 2003; Tolbert and Mossberger, 2006; Abdelmounaam et al., 2002; Al-Kibsi, Boer, Mourshed and Rea, 2001; Alport and Macintyre, 2007; Asgarkhani, 2005).

A large part of the digital government literature addresses how to go about implementing the technology, how to make certain citizens are satisfied with their digital government experiences, and how to make the online experience as functional and error-free as possible. There is a gap in the literature examining whether this type of information technology is affected by people’s attitudes towards government and whether levels of community trust and cynicism during encounters between governmental agency websites and the public they server matter.

Asking a series of satisfaction questions gives the researcher a picture of what the individual thinks at that particular moment in time (an effort which indeed renders valuable information), but does little to assess whether that same individual shows an increase or decrease in his or her level of trust in government or to determine if the amount of social capital-related norm formation and/or reinforcement generated from

the experience is either noteworthy or nonexistent.

As the introduction noted, government is “behind the curve” in implementing information technology when compared to the private sector. Examining the levels of social capital and trust in government over the course of the informational evolutionary stage in which digital government finds itself might well provide an informative picture of social capital and citizen trust in government trends as digital government expands more fully into the more challenging transactional arena – a trend broadly predicted by systematic observers of the digital government phenomena.

Having the ability to measure the level of trust on a community level and compare it against survey research relevant to important issues in digital government affords the opportunity to explore differences and similarities between communities in their perceptions and attitudes of how well, if at all, digital government serves them, and whether trust is affected in any meaningful fashion.

This study strives to go beyond the construct of citizen satisfaction with how the technology works, and we ask whether the process of a computer-mediated interaction between citizens and their government expands both social capital and trust in government, or whether the effect is similar to that of Putnam’s research in civic

engagement and Internet usage. While the technological literature tends to focus on whether or not a particular hardware or software advancement can be implemented, adding whether or not the citizens being delivered a service are actually increasing their trust in government while using a digital government channel of communication is an important enhancement to existing research in the field. This dissertation strives to make a solid contribution to both the technological studies and social science fields.

CHAPTER THREE DATA & METHODS

a. The Stowell Datasets of Washington State University and the Pew Internet and American Life eGovernment Survey of June, 2003

As discussed in earlier chapters, this dissertation takes two separate, independently collected datasets and incorporates measures for (a) community-level social trust and political cynicism and (b) extent of use and level of satisfaction with digital government resources. The two datasets used are the *Stowell Datasets of Washington State University* and *The Pew Internet and American Life eGovernment Survey of June 2003*

Both the *Stowell Datasets of Washington State University* (Moon, Lovrich and Pierce, 2000; Pierce and Lovrich, 2003) and *The Pew Internet and American Life eGovernment Survey* (Tolbert and Mossberger, 2006) have been successfully employed by a number of scholars for research that has resulted in publication in peer-reviewed journals and other scholarly presentations. Some examples of the use of the *Stowell Datasets of Washington State University* are: “Internet Technology Transfer and Social Capital: Aggregate and Individual Relationship in American Cities” by John Pierce and Nicholas Lovrich (published in **Comparative Technology Transfer and Society**); “Access to Health Care and Community Social Capital” by Michael Hendryx, Melissa

Ahern, Nicholas Lovrich and Arthur McCurdy (published in **Health Services Research**); “Social Capital and Protecting the Rights of the Accused in the American States: An Investigation of the Dark Side of Social Capital” by David Brody and Nicholas Lovrich (published in **Journal of Contemporary Criminal Justice**); “Political Culture in the Urban West—Is It Really Different? A Research Note” by C. David Moon, John C. Pierce and Nicholas Lovrich (published in **State and Local Government Review**); “Political Culture in Canada and the U.S.: Comparing Social Trust, Self Esteem and Political Liberalism in Major Canadian and American Cities” by John Pierce, Nicholas Lovrich and C. David Moon (published in **Social Science Quarterly**). [Full citations listed in the reference section of the dissertation]. The Pew Research Trust’s work has been used in scholarly articles such as: “The Effects of E-Government on Trust and Confidence in Government” by Caroline J. Tolbert and Karen Mossberger (published in the **Public Administration Review**) and “Days and Nights on the Internet: The Impact of a Diffusing Technology by Philip E. N. Howard, Lee Raine and Steve Jones (published in the **American Behavioral Scientist**). [Full citations listed in the references section of the dissertation].

b. Using the Stowell Datasets of Washington State University to develop a trust/cynicism measure

The *Stowell Datasets of Washington State University* were gifted to Washington State University by one of the foremost market research firms in the Pacific Northwest, Leigh Stowell and Company, Inc. Using the combined resources of Washington State University's Division of Governmental Studies and Services and the Digital Archive Division of the Washington State University Libraries, the datasets were reformatted into SPSS datasets and made available for use by social science researchers through the Washington State University Digital Archives. More recently these datasets have been hosted on "the Institute for Quantitative Social Science at Harvard University (ISQ) *Dataverse Network Website*, which is part of the NSF-funded **Dataverse Network Project** being carried out by Professor Gary King. On this network, you can locate and gain access to not only the Stowell Datasets, but to all the many datasets shared on the IQSS Dataverse Network."

The Stowell datasets consist of surveys conducted for major television network affiliates of CBS, NBC and ABC, in addition to major newspapers located in the targeted regions. The survey data were collected under the supervision of experienced project managers within the Leigh Stowell and Company organization. Interviewers were trained and monitored, and quality was assured during the telephone interactions with participants. Participants were selected by random digit dialing technology. The survey questions themselves addressed a wide array of topics of use to these media outlets. In addition, they also contain multi-item scales for social trust, self-esteem and political liberalism derived from factor analysis and cluster analysis (Moon et al., 2000).

For this study, we concentrate on a series of questions that have been used successfully by researchers to develop measures of social trust (and political cynicism) on a community-level basis.

Five statements answered on a five-point Likert scale comprise the measure that this dissertation uses to determine the aggregate level of social trust and political cynicism shown on a community-level. The first three items relate to elements of social trust – trust in ability to provide for basic needs, trust in people to be open in communication and trust in being treated fairly over one’s life course. The last two items relate to political cynicism with respect to resignation to war and acceptance of

undue influence of wealth over political officials.

Those statements are: (1) my family income is high enough to satisfy nearly all of our important desires; (2) the best way to handle people is to tell them what they want to hear; (3) generally, I feel life has not been fair to me; (4) human nature, being what it is, there must always be war and conflict; (5) most public officials today are only interested in people with money. This study will develop an aggregate social trust/ political cynicism score for each Stowell Major Media Market Area using a formula successfully applied by social science researchers using the Stowell Datasets in previous studies.

While the Stowell Major Media Market Area Datasets contain data from many regions, the areas selected for this dissertation were those that had the most complete coverage for the five questions of interest and were collected no more than ten years from the start of this dissertation. The sample size table below displays a detailed inventory of the 24 major media market areas selected and the number of respondents garnered from the 1997-2003 period of data collection.

Table 2: Sample size of Stowell Datasets of Washington State University (1997+)

Stowell Major Media Market Area	n of cases
Albuquerque, NM	3,000
Atlanta, GA	9,600
Cincinnati, OH	5,000*
Colorado Springs, CO	2,250
Columbus, OH	3,000
Dayton, OH	7,000
Jackson, MS	2,600*
Jacksonville, FL	4,000
Kansas City, MO	5,000
Knoxville, TN	3,000
Las Vegas, NV	8,100
Little Rock, AK	4,000
Minneapolis - St. Paul, MN	7,200
Nashville , TN	8,000
Omaha, NE	5,600
Palm Springs, CA	5,250
Reno, NV	3,750
Roanoke, VA	6,400
Salisbury/Dover, DE	1,500
Seattle, WA	10,800
Shreveport, LA	4,800
Spokane, WA	3,050
St. Louis. MO	8,000
West Palm Beach, FL	1,699
Total Number of Cases	122,599

**all social trust/political cynicism questions not asked each year*

Two major media market areas, Cincinnati and Jackson, showed slight differences across years for the number of social trust questions asked, but not to a degree where the absence of a question would be likely to manifest an effect on determining a social trust/cynicism score given the large number of cases (~1000 respondents per survey involved in each major media market study).

This study takes the five-point Likert scale generated from the work done by Leigh Stowell and Company scales the questions so that trust is inverted positively, one question () in which agreement would indicate cynicism was inverted so that all questions follow the same scale of higher trust and lower cynicism is represented with a higher value:

PSY HIGHENO: My family income is high enough to satisfy nearly all of our important desires.

Agreement would indicate trust in the continued ability to provide for one's family and disagreement connotes a cynical view of relative deprivation.

1=Disagree Strongly; 2=Disagree Somewhat; 3=Neutral; 4=Agree Somewhat;
5=Agree Strongly

The variable is coded so a higher level of value indicates a higher level of trust.

PSY HANDLE: The best way to handle people is to tell them what they want to hear.

Agreement would indicate the cynical view that other people would not value a

fair appraisal, and would react negatively unless told what she/he “wants to hear.” A trusting response is indicated by disagreement with the statement and holding the belief that “honesty is the best policy.”

1=Disagree Strongly; 2=Disagree Somewhat; 3=Neutral; 4=Agree Somewhat;
5=Agree Strongly

The variable was recoded to: reflect a lower degree of cynicism with a greater value.

The recoding is:

5=Disagree Strongly; 4=Disagree Somewhat; 3=Neutral; 2=Agree Somewhat;
1=Agree Strongly

PSY NO FAIR: Generally, I feel life has not been fair to me.

Agreement would indicate that the individual holds a cynical view of life in general terms and feels that he/she has been the victim of bad circumstances.

Disagreement reflects belief that one has received their fair share of good fortune.

1=Disagree Strongly; 2=Disagree Somewhat; 3=Neutral; 4=Agree Somewhat;
5=Agree Strongly

The variable was recoded to: reflect a lower degree of cynicism with a greater value.

The recoding is:

5=Disagree Strongly; 4=Disagree Somewhat; 3=Neutral; 2=Agree Somewhat;
1=Agree Strongly

PSY HUMAN WAR: Human nature, being what it is, there must always be war and conflict.

Agreement would indicate that the individual shows a cynical view of the nature of man and tends to see the world in absolutes. Disagreement is a reflection of trust and faith in human progress, along with its potential for conflict resolution based on the inherent good reasoning and good will of mankind.

1=Disagree Strongly; 2=Disagree Somewhat; 3=Neutral; 4=Agree Somewhat;
5=Agree Strongly

The variable was recoded to: reflect a lower degree of cynicism with a greater value.

The recoding is:

5=Disagree Strongly; 4=Disagree Somewhat; 3=Neutral; 2=Agree Somewhat;
1=Agree Strongly

PSY PUBNOINT: Most public officials today are only interested in people with money.

Agreement would indicate that the individual holds a cynical view of the nature of politics, and infers that public officials are not deserving of the average citizen's trust.

1=Disagree Strongly; 2=Disagree Somewhat; 3=Neutral; 4=Agree Somewhat;
5=Agree Strongly

The variable was recoded to: reflect a lower degree of cynicism with a greater value.

The recoding is:

5=Disagree Strongly; 4=Disagree Somewhat; 3=Neutral; 2=Agree Somewhat;
1=Agree Strongly

Table 3: Correlation matrix across variables

	PSY HIGHENO n	PSY HANDLE n	PSY NOFAIR n	PSY HUMAN WAR n	PSY PUB NOINT n
PSYHIGHENO	1.00 345250	.030** 301776	.217** 311744	-.026** 328242	.112** 343743
PSYHANDLE	.030** 301776	1.00 309877	.182** 309875	.108** 304174	.096** 304175
PSYNOFAIR	.217** 331744	.182** 309875	1.00 340845	.046** 323642	.164** 334143
PSYHUMANWAR	-.026** 328242	.108** 304174	.046** 323642	1.00 330643	.065** 330643
PSYPUBNOINT	.112** 343743	.096** 304175	.164** 334143	.065** 330643	1.00 346144

**p<.01; *p<.05 (2-tailed)

Taking the recoded variables gives us a scale with trust being at the high social trust/low political cynicism being at one end and low social trust/high political cynicism being at the other end. When a correlation matrix is created, the resulting variables show overall statistically significant results.

With the exception of PSYHIGHENO against PSYHUMANWAR (-.033**), a positive correlation is shown throughout the variables, though at a low score. The low positive Pearson's r scores have a greater meaning since the n used in this testing is so large (n=122,599). After the recoding and analysis is performed, each Stowell Major Media Market Area is given a score based on the answers from the variables. By adding each variable's result and dividing by five, the resulting value is our Trust/Cynicism Score.

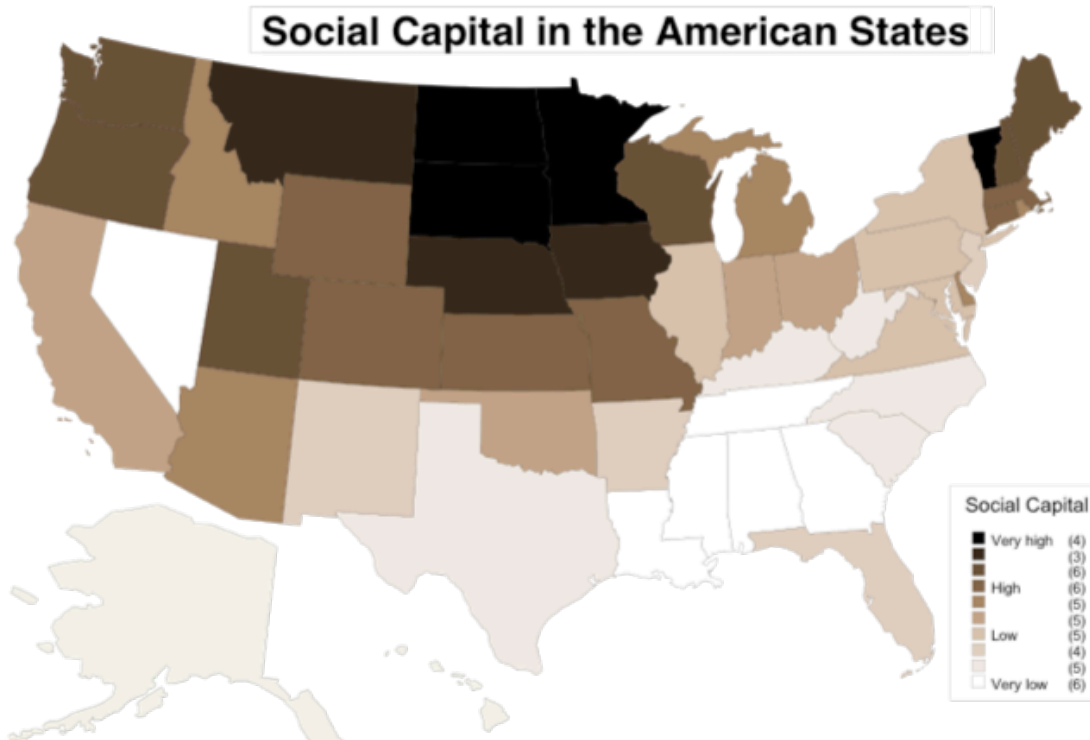
Of the *Stowell Datasets of Washington State University* major media market areas, the grand mean Trust/Cynicism score calculates to be 3.368. Areas such as Minneapolis-St. Paul and Seattle are well above the mean, while areas such as Dover and Shreveport are well below the mean.

It is interesting to note that in his work, *Social Capital: Measurement and Consequences*, Robert Putnam singles out both the Minneapolis-St. Paul region and the Baton Rouge, Louisiana region (about two hundred miles from Shreveport) as having

Table 4: Ranking of major media market areas from highest to lowest using the trust/cynicism score

#	Major Market Area	Trust/Cynicism Score
1	Minneapolis-St. Paul	3.516
2	Seattle	3.482
3	Spokane	3.428
4	Atlanta	3.412
5	Kansas City	3.412
6	Omaha	3.410
7	Columbus	3.396
8	St Louis	3.392
9	Colorado Springs	3.390
10	Palm Springs	3.380
11	Reno	3.370
12	Dayton	3.364
13	Las Vegas	3.362
14	Albuquerque	3.359
15	Nashville	3.358
16	Jacksonville	3.352
17	Little Rock	3.346
18	Cincinnati	3.342
19	Knoxville	3.308
20	Salisbury	3.302
21	Roanoke	3.294
22	Jackson	3.288
23	West Palm Beach	3.286
24	Shreveport	3.282

Figure 6: Robert Putnam's Social capital in the American states map



the potential of being described in a “barometric map with one high, centered over Minneapolis -St. Paul and one low, centered over Baton Rouge, Louisiana.”

In *Social Capital: Measurement and Consequences*, Putnam uses a thirteen-dimension measure to assess each state's level of social capital. He uses factors such as serving on committees, club meetings attended, presidential election turnout, the

number of public meetings attended, and so on.

Using a factor analysis, Putnam combined all thirteen items into one global measure of social capital, and developed a map to which he assigned the title 'Social Capital in the American States'. While Putnam's state-level index isn't as area-focused as the *Stowell Datasets of Washington State University* major media market areas, his map does provide us with an interesting picture of where Stowell dataset jurisdictions fall on a statewide level. As illustrated in the table below, the highest rated major media market area, Minneapolis-St. Paul is contained within the VERY HIGH social capital state of Minnesota. Whereas, Shreveport is within the VERY LOW social capital state of Louisiana.

Neither state is particularly large and non-homogenous (in contrast to Florida or California). Also, when the *Stowell Datasets of Washington State University* major media market areas are compared from a statewide perspective, there is only one major media market, Atlanta, which falls above the mean and is contained within a relatively low social capital state. Is there anything unusual about Atlanta that should be taken into consideration when analyzing its level of social capital?

Table 5: The trust/cynicism score as related to Putnam's social capital scale in the American states

#	Major Market Area	Trust/Cynicism Score	Putnam Score
1	Minneapolis-St. Paul	3.516	Very high
2	Seattle	3.482	High-Very high
3	Spokane	3.428	High-Very high
4	Atlanta	3.412	Low-Very low
5	Kansas City	3.412	High-Very high
6	Omaha	3.410	High-Very high
7	Columbus	3.396	Moderate
8	St. Louis	3.392	High-Very high
9	Colorado Springs	3.390	High-Moderate
10	Palm Springs	3.380	Moderate
11	Reno	3.370	Very low
12	Dayton	3.364	Moderate
13	Las Vegas	3.362	Very low
14	Albuquerque	3.359	Low-Very low
15	Nashville	3.358	Very low
16	Jacksonville	3.352	Moderate
17	Little Rock	3.346	Low-Very low
18	Cincinnati	3.342	Moderate
19	Knoxville	3.308	Very low
20	Salisbury	3.302	Low-Moderate
21	Roanoke	3.294	Low-Moderate
22	Jackson	3.288	Very low
23	West Palm Beach	3.286	Moderate
24	Shreveport	3.282	Very low

A number of researchers say “yes” to this question.

Atlanta is singled out as a “paradox “ of the South by numerous social science researchers of social capital. In *Beyond Tocqueville: Civil Society and the Social Capital Debate in Comparative Perspective*, Atlanta is singled out with Kannapolis, North Carolina in a lengthy and informative explanation of how “economic restructuring during the twentieth century has affected the production of social capital in Atlanta...” (Edwards, Foley and Diani, 2001).

The authors cite the work of Charles Heying, Michael Schulman and Cynthia Anderson in describing how Atlanta’s business community shifted from a local to national orientation and while levels of “paternalistic” social capital that reflected a top-down approach (business-to-workers) declined, unions and other community-based organizations replaced that particular void with a horizontal approach which was worker-based and served to increase levels of social capital in a much different fashion that it was accustomed to in the past.

The Andrew Young School of Policy Studies at Georgia State University also has taken note of Atlanta’s unique social capital setting. The School undertook an extensive research project to look into levels of community-level social capital in Atlanta and how (and more importantly, why) it differs so much from the rest of the region.

Finally, in *What is Social Capital and Why Does it Matter*, John C. Thomas posits that within the Atlanta community, social trust is most strongly associated within the individual neighborhood communities (Thomas, 2003).

When trust questions are localized, and perhaps personalized, and those questions are “moved closer to home,” the levels of social trust reported spikes. The social trust questions in the Leigh Stowell and Company surveys are rather personal and local in nature. In review, the social trust questions asked by Leigh Stowell and Company include: “ My family income is high enough to satisfy nearly all of our important desires’ and ‘Generally, I feel life has not been fair to me’ . Under Thomas’ paradigm, it would be completely reasonable to have a higher trust indicator in Atlanta than using the dimensions used to measure the entire state that Putnam used.

Additionally, Putnam is measuring different dimensions in an area that is known to be “paradoxical” for social capital measurement, and measuring those dimensions in a much wider geographical area. These could be factors for a better understanding of the Atlanta outlier.

From the evidence set forth, it could be argued that the Social Trust measure contained in the *Stowell Datasets of Washington State University* and Putnam’s statewide measures demonstrate a high degree of agreement. Another interesting aspect with this

comparison is that there are no VERY LOWs above the mean and there are no VERY HIGHs below the mean in the distribution of Stowell Major Media Markets within the Trust/Cynicism continuum.

To examine this premise of agreement between the two variables, we can also take the general categories of the Putnam Social Capital State Scores and give them a numerical ranking will give us the opportunity to analyze the correlation between the two scores.

The categorization to scale coding is: Very High=7; High-Very High = 6; Moderate-High = 5; Moderate = 4; Moderate-Low= 3; Low-Very Low= 2; Very Low = 1.

When the correlation between the two variables, Trust/Cynicism Score and Putnam's Social Capital Score is examined, the relationship appears to be both statistically significant ($r^2=.711$, $p>.01$) and very strong.

c. Using the Pew Internet and American Life eGovernment Survey of June, 2003 to examine digital government usage and satisfaction

The Pew Internet & American Life Project is an entity of the Pew Charitable Trusts. The Pew Charitable Trusts are composed of a group of independent non-profit research organizations funded by the sons and daughters of Sun Oil Company founder Joseph N. Pew and his wife, Mary Pew. The purpose of the Trusts is to “provide information, advance policy studies and support civic life in order to serve the public

interest” (Pew, 2008).

The work of the Pew Charitable Trusts is done through the Pew Research Center. The mission of the Pew Research Center is to “provide organizations and citizens with fact-based research and practical solutions for challenging issues” (Pew, 2008).

The seven primary projects that the Pew Research Center manages are: (1) The Pew Internet & American Life Project; (2) The Pew Research Center for the People and the Press; (3) The Project for Excellence in Government; (4) The Pew Global Attitudes Project; (5) The Pew Hispanic Center; (6) The Pew Forum on Religion and Public Life, and (7) Stateline.org

The work of the Pew Research Center is heavily cited in both mainstream and scholarly publications. In the mainstream, news organization with “tilts” from both the left and the right regularly cite the work of the Pew Research Center in their news stories. A search on the *New York Times* website under “Pew Research Center” shows no less than a hundred hits of its work being used in major articles published. The same effect is shown when it is searched on the *FOX News* site as well.

Previous implementations of the Pew Internet & American Life eGovernment Survey have been successfully published in peer-reviewed journals and presented at conferences (Tolbert and Mossberger, 2006). The 2003 Pew Internet & American Life

eGovernment Survey employs methodologies that are familiar and well known (Babbie, 1973; Babbie, 2007; Babbie, Halley and Zaino, 2003; Babbie, 2008; Dillman, 1978; Dillman and Dillman, 2000).

Using random digit dialing, Princeton Survey Research Associates (contracted by the Pew Research Center) contacted 2,925 Americans aged 18+ and state that when the total sample is accounted for, a 95% level of confidence is achieved with other random effects counting for a +/- 2% margin of error (Horrigan, 2003).

From the entire n of the survey, 1,899 (65%) were Internet users – which is comparable to the national average as stated in earlier chapters. Using random digit dialing the researchers avoided “listing” bias and provided representation in the sample for those telephone numbers which were both listed in directories and were unlisted.

As further stated in the methodology section of their final report, the Princeton Survey Research Associates generated a new sample for interviewers to use on a daily basis. The sample itself was released to the interviewers in replicates to assure that telephone numbers were distributed fairly across regions of the country. Each number was attempted at least ten times, and callbacks were staggered over different times of day and different days of the week to increase the likelihood of contact. The overall

response rate attained was 31%

In their separate analysis, the Pew Research Center used a weight that was originated from information obtained from the 2001 Census Bureau's Current Population Survey. The weight was used to produce population parameters for the demographic characteristics of adults age 18 or older, living in households that contain a telephone. They used these parameters against the sample characteristics to produce an "iterative technique that simultaneously balances the distribution of all weighting parameters" (Horrigan, 2003).

For the purposes of this study, the weighting and the methodology behind it will have little effect in that the framework of the study calls for pulling 689 Stowell media market area residing respondents from this study while the weight process is disabled. Each respondent in this study is a unique, separate individual and no weighting artifacts from the original *Pew Internet and American Life eGovernment Survey of June 2003* are present in the merged Stowell-Pew Dataset.

Using a database developed with Microsoft Access, the respondents living in the

Table 6: Area codes of major media market media areas used

Major Media Market Area	Area Codes
Albuquerque	505
Atlanta	404, 678, 706, 770
Cincinnati	513
Colorado Springs	719
Columbus	419, 614, 740
Dayton	937
Jackson	601
Jacksonville	352, 386, 904, 910
Kansas City	785, 816, 913
Knoxville	423, 865
Las Vegas	702
Little Rock	501
Minneapolis - St. Paul	320, 507, 612, 763, 952
Nashville	615, 931
Omaha	402
Palm Springs	760
Reno	775
Roanoke	434, 540
Salisbury (Dover, DE)	704
Seattle	206, 253, 360, 425
Shreveport	318, 337
Spokane	208, 509
St. Louis	314, 573, 636
West Palm Beach	561, 772, 954

Stowell Datasets of Washington State University major media market areas were pulled from the rest of the respondents in *The Pew Internet and American Life eGovernment Survey of June 2003* by area code. Since a Major Media Market Area encompasses both the metropolitan area and the areas surrounding it, the area codes were chosen as closely as possible to that of the area contained within each Major Media Market Area. For example, while 206 is the area code that covers the Metropolitan Seattle area, the Major Media Market Area (those areas that are affected by the media outlets that were examined in the Stowell and Company surveying) is much more vast in area than that. It also includes the 253 (Bellevue), 360 (Northside, including areas of Metropolitan Seattle, Everett, etc.), and 253 (Southside including Auburn, Tacoma, etc.). After the area code range was selected, *The Pew Internet and American Life eGovernment Survey of June 2003* respondents were pulled and formatted into both an SPSS and Excel dataset. The results were garnered from both sources.

Looking at the previous table , it would appear that our respondent population is skewed – but in a very predictable fashion. A total of 404 respondents were found that fall within the higher trust/cynicism scores, and 285 that represent communities with lower trust/cynicism scores. Recalling earlier chapters, which showed that areas of lower community social capital are less likely to participate in community

Table 7: Major media market areas merged with count of Pew respondents

	MMAs	Pew Respondents	
1	Minneapolis-St. Paul	60	4 0 4
2	Seattle	44	
3	Spokane	37	
4	Atlanta	61	
5	Kansas City	29	
6	Omaha	20	
7	Columbus	58	
8	St. Louis	46	
9	Colorado Springs	9	
10	Palm Springs	19	
11	Reno	6	
12	Dayton	15	
13	Las Vegas	13	2 8 5
14	Albuquerque	13	
15	Nashville	26	
16	Jacksonville	63	
17	Little Rock	7	
18	Cincinnati	20	
19	Knoxville	27	
20	Salisbury	18	
21	Roanoke	28	
22	Jackson	17	
23	West Palm Beach	29	
24	Shreveport	24	
	Total	689	

activities, it should be rather predictable that they would also be less likely to participate in a survey about their community.

While it might be troubling that the range has such a marked degree of underrepresentation, it could be argued that it lends supports to the validity of the Social Trust measure. Areas of low social capital, according to Putnam, participate less in their community than areas of high social capital and it is reasonable to posit that those same individuals might not show the same level of interest in speaking with a research interviewer about the community that they are not participating in frequently.

d. Content within the Pew Internet and American Life eGovernment Survey of June, 2003

The Pew Internet and American Life eGovernment Survey of June 2003 uses a variety of Likert scales throughout the survey for both attitudinal and experiential questions. The following paragraphs set forth the precise wording of each survey question, and indicate how survey responses were recoded. The questions are segmented in the survey into areas of interest instead of placement within the survey for clarity of presentation.

Computed variables are also present in the dataset, and were constructed by the

author. The formula used is provided, along with the logic behind each calculated variable's construction. The following summarizes the recoding done to *The Pew Internet and American Life eGovernment Survey of June 2003*, and reviews the reasoning behind these decisions.

The original *Pew Internet and American Life eGovernment Survey of June 2003* questions are set forth in italics above each recode description.

Internet User

The original survey coded a '2' for a non-internet user and a '1' for an internet user. This was recoded into a dummy variable with '1' being an internet user and '0' being a non-internet user.

Internet User (Q6)

Do you ever go online to access the Internet or World Wide Web or to send and receive email?

Response Categories:

1= Internet User (Yes); 0= Non Internet User (No); else= System Missing (DK/ref)

Trust/Satisfaction in Government

The level of trust in government measured in *The Pew Internet and American Life eGovernment Survey of June 2003* is determined by asking the explicit question ‘Do you have a very favorable, mostly favorable, mostly unfavorable or very unfavorable opinion’ of each level of government. Does trust and satisfaction have enough common elements that they would be homogenous in analysis?

While *The Pew Internet and American Life eGovernment Survey of June 2003* does not specifically ask whether the individual ‘trusts’ that particular branch, it would seem unlikely that an individual would be satisfied with a branch without also trusting that it is accomplishing those tasks expected. When two identical levels of government (level of satisfaction in Federal government and level of trust in federal institutions) are measured for correlation, it returns a statistically significant (at the .01 level – two tailed) result of .451.

Level of Satisfaction with Federal Government (GOV 3a)

I'd like your opinion of some organizations and institutions. Do you have a very favorable, mostly favorable, mostly unfavorable or very unfavorable opinion of (a) the Federal government?

Response Categories:

4=Very favorable; 3=Mostly favorable; 2=Mostly unfavorable; 1=Very unfavorable;
else=system missing

Level of Satisfaction in State Government (GOV 3b)

I'd like your opinion of some organizations and institutions. Do you have a very favorable, mostly favorable, mostly unfavorable or very unfavorable opinion of (b) your State government?

Response Categories:

4=Very favorable; 3=Mostly favorable; 2=Mostly unfavorable; 1=Very unfavorable;
else=system missing

Level of Satisfaction in Local Government (GOV 3c)

I'd like your opinion of some organizations and institutions. Do you have a very favorable, mostly favorable, mostly unfavorable or very unfavorable opinion of (c) your Local government?

Response Categories:

4=Very favorable; 3=Mostly favorable; 2=Mostly unfavorable; 1=Very unfavorable;
else=system missing

Participation in Digital Government

The Pew Internet and American Life eGovernment Survey of June 2003 separates digital government activities into two primary, and well known, categories: informational and transactional. An informational activity is one that attempts to garner information – such as recreational information or researching government documents and statistics. A transactional activity is one that typically involves a monetary exchange or some degree of exchange of information for a product – such as a license or permit.

Digital government, in its infancy, was primarily the venue of informational activities. With the advent of eCommerce, the frequency and complexity of transactional exchanges increased within governmental organizations and agencies. And while activities such as renewing a driver's license or applying for a permit online raises few eyebrows, issues such as Internet Voting would appear to be a transactional activity for which users of digital government are not yet ready (Annenberg School of Communications University of Southern California, Center for the Digital Future., 2007; Lebo, 2008).

Digital Government Activity: Advice/Information-Health & Safety (WEB-GA)

Next, please tell me if you ever do any of the following when you go online. When you go online, do you ever (GA) get advice or information for a government agency about a health or safety concern?

Response Categories:

3= Yes, within the past year; 2= Yes, 1+ year (s) ago; 1= Never; else= System Missing (DK/ref)

Digital Government Activity: Recreational Information (WEB-GB)

Next, please tell me if you ever do any of the following when you go online. When you go online, do you ever (GB) Get recreational or tourist information from a government agency?

Response Categories:

3= Yes, within the past year; 2= Yes, 1+ year (s) ago; 1= Never; else= System Missing (DK/ref)

Digital Government Activity: Research Gov Docs & Statistics (WEB-GC)

Next, please tell me if you ever do any of the following when you go online. When you go

online, do you ever (GC) Research official government documents or statistics?

Response Categories:

3= Yes, within the past year; 2= Yes, 1+ year (s) ago; 1= Never; else= System Missing
(DK/ref)

Digital Government Activity: Research/Apply for Government Benefits (WEB-GD)

Next, please tell me if you ever do any of the following when you go online. When you go online, do you ever (GD) Get information about or apply for government benefits?

Response Categories:

3= Yes, within the past year; 2= Yes, 1+ year (s) ago; 1= Never; else= System Missing
(DK/ref).

Preference for Digital Government

This series of questions asks survey respondents which method they prefer – digital government or a more traditional method. The Computed Variables measure the sum for Transactional Digital Government Preference, Informational Digital Government Preference, and a third computed variable that sums the two methods (transactional and informational) together. The variable was included to increase the

variables available for multi-linear regression.

Digital Government Preference: Personal Tax Issue (GOV 44a)

If you ever needed to contact the government about (a personal tax issue), would you prefer to do it over the phone, on the Internet or some other way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Digital Government Preference: Getting Car License (GOV 44b)

If you ever needed to contact the government about (getting a license or permit for your car), would you prefer to do it over the phone, on the Internet or some other way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Digital Government Preference: Getting Remodeling Permit (GOV 44c)

If you ever needed to contact the government about (getting a license or permit for a personal project like home remodeling), would you prefer to do it over the phone, on the Internet

or some other way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Digital Government Preference: Expressing Opinions (GOV 44d)

If you ever needed to contact the government about (expressing your opinion about an issue like taxes or schools), would you prefer to do it over the phone, on the Internet or some other way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Digital Government Preference: Researching Gov Benefits (GOV 44e)

If you ever needed to contact the government about (exploring government benefits for yourself or someone else), would you prefer to do it over the phone, on the Internet or some other

way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Digital Government Preference: Researching Government for School/Work (GOV 45a)

If you ever needed to contact the government about (doing research for school or work), would you prefer to do it over the phone, on the Internet or some other way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Digital Government Preference: Researching Government Programs (GOV 45b)

If you ever needed to contact the government about (what programs different government agencies offer), would you prefer to do it over the phone, on the Internet or some other way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Digital Government Preference: Getting a Fishing License (GOV 45c)

If you ever needed to contact the government about (getting a recreational license like fishing or hunting), would you prefer to do it over the phone, on the Internet or some other way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Digital Government Preference: Getting a Professional License (GOV 45d)

If you ever needed to contact the government about (getting a professional license like real estate), would you prefer to do it over the phone, on the Internet or some other way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Digital Government Preference: Getting Recreational Information (GOV 45e)

If you ever needed to contact the government about (recreational or tourism activities in

your region), would you prefer to do it over the phone, on the Internet or some other way?

Response Categories:

1=Prefers digital government (on the Internet); 0=Prefers traditional method (over the Phone); *else= System Missing (some other way, dk/ref)*

Computed Variable: Transactional Digital Government Preference

(compute_transact_dgov)

SUM (gov44a_recode, gov44b_recode, gov44c_recode, gov45c_recode, gov45d_recode)

Computed Variable: Informational Digital Government Usage (compute_inf_dgov)

SUM (gov44d_recode, gov44e_recode, gov45a_recode, gov45b_recode, gov45e_recode)

Improved Interactions with Government using Digital Government

This series of questions examines how much (if at all) digital government has improved the respondent's interactions with different levels of government. The Computed Variable sums up the responses across the different levels of government for an overall score.

Digital Government Improves Interaction with Federal Government (GOV47a)

How much, if at all, has the Internet improved the way you interact with...the federal government?

Response Categories:

4= A lot; 3= Some; 2= Only a little; 1= Not at all; else= System Missing (don't use Internet to contact government, dk/ref)

**Digital Government Improves Interaction with State Government
(GOV47b)**

How much, if at all, has the Internet improved the way you interact with...your State government?

Response Categories:

4= A lot; 3= Some; 2= Only a little; 1= Not at all; else= System Missing (don't use Internet to contact government, dk/ref)

**Digital Government Improves Interaction with Local Government
(GOV47c)**

How much, if at all, has the Internet improved the way you interact with...your local

government?

Response Categories:

4= A lot; 3= Some; 2= Only a little; 1= Not at all; *else= System Missing (don't use Internet to contact government, dk/ref)*

Demographics

Age (AGE)

What is your age?

Respondent gives exact age, except for 98 (Don't Know) & 99 (Refused), values which were recoded to *System Missing (dk/ref)*.

Education (EDUC)

What is the last grade or class you complete in school?

Scale is ordered from 7 being Post-Graduate to 1 being None, or grades 1-8. 9 represented no answer. The value of 9 was recoded to *System Missing (dk/ref)*

Income (INC)

Last year, that is in 2002, what was your total family income from all sources, before taxes. Just stop me when I get to the right category.

Scale is ordered from 1 being Less than \$10,000 to 8 being \$100,000 or more. The value 9 represented Don't Know/Refused. 9 was recoded to *System Missing (dk/ref)*

African American

From the RACE question, response (2) Black or African American was recoded into a dummy variable with 1= Black or African American, 0=else.

Latino

From the HISP question, response (1) Yes, Hispanic was recoded into a dummy variable with 1=Hispanic, 0=else.

Government Employee

From the GEM question, response to *"Do you work for federal, state or local government – for example, as a public school teacher, police officer, firefighter, or other government job?"*. The response was recoded with 1=Government Employee; 0=else.

Republican

From the POLAF question, response to *"In politics today, do you consider yourself a Republican, Democrat or Independent?"*, (1) Republican was maintained as 1=Republican; 0=else.

Democrat

From the POLAF question, response to *"In politics today, do you consider yourself a Republican, Democrat or Independent?"*, (2) Democrat was recoded as 1=Democrat; 0=else.

Independent

From the POLAF question, response to *"In politics today, do you consider yourself a Republican, Democrat or Independent?"*, (3) Independent was recoded as 1=Independent; 0=else.

e. Measures and methods used

The measures that we use as dependent variables can be grouped into four primary categories: individual-level trust in government; digital government activities; specific transactional and informational digital government activities; and how the Internet has improved communications with different levels of government. Using these measures,

we hope to be able to accurately predict independent variables such as age, education, income, two different ethnic origin categories that show some signs of significance in the field of digital government, governmental employment, political party affiliation and community-based social trust and political cynicism.

Measuring individual-level trust of government across levels with a measure that includes political cynicism will be of interest in differentiating the two. As posited in the literature review, the conceptualization of individual based trust and community-level trust are unique. How closely interacted the two are helps to determine the unique nature of the Trust/Cynicism score that was developed. Is it just measuring the same thing as an individual-level trust? While the Trust/Cynicism score also includes a social trust component, the correlation matrix that was performed earlier on a large number of respondents (n=300,000+), showed some relationship between political cynicism and social trust. The measure adds to our understanding of the theoretical framework this study is based on. Being able to highlight individual digital government activities is a key point in any study examining digital government. Instead of just one or two, the measure have both four separate and unique activities that can be measured against our independent variables. Transactional and informational digital government activities have been the centerpiece of debate within digital government research circles for many

years. The government was re-soundly criticized by the National Science Foundation for being “behind the curve” in providing transactional opportunities at the level private industry did. And being able to measure how well the Internet has improved the way we communicate with different levels of government provides a scale to compare to a community-level trust/cynicism measure to look at how the trend sets.

In looking at the construct of the study, is it possible that the stronger dependent variables would be the community-level trust/cynicism measure and not the digital government activities/preference and satisfaction variables? When a multiple linear regression was run using the community-level trust/cynicism measure was run, a much weaker model was produced.

f. Data and methods conclusion

In conclusion, two different data sources – the Stowell Major Media Market Areas and *The Pew Internet and American Life eGovernment Survey of June 2003* were merged to produce a new dataset consisting of 689 unique survey respondents whose level of community-level social trust and political cynicism can be accounted for through the Stowell datasets. The respondents were asked numerous questions about digital government, trust in government at all levels, and several specific demographic questions.

This study strives to examine two primary areas of interest which can be addressed with the data provided. First, what is the relationship between community-level social capital and the level of use and the degree of satisfaction with digital interactions in a variety of different dimensions of usage? How does community-level social trust and political cynicism relate to usage and satisfaction with digital government?

Next, this study uses elements of the work in *Bureaucratic Encounters* to examine people's satisfaction with digital government from different demographical dimensions and, in a very large sense, examines questions posed in that earlier pre-Internet study to the use of digital government in hopes of understanding the differences between using technology to meet citizen's needs against the use of more traditional methods.

The limitations of this study include the preliminary nature of measuring citizen's attitudes about digital government, since it is such a new area of research; neither *The Pew Internet and American Life eGovernment* nor the merged *Stowell Datasets of Washington State University* have a nationally representative sample of the population; there are a disproportionate amount of individuals in certain demographic areas (white, under age 50, college-degree educated and higher income) that appear to be overrepresented, while others are underrepresented in the study of digital government

due to Internet accessibility and trends in usage of digital government (Tolbert and Mossberger, 2006).

CHAPTER FOUR ANALYSIS AND FINDINGS

a. Plan for analysis

This chapter will use both uni-variate, bi-variate and multiple linear regression analysis to: (a) provide a comparison between the respondents of *The Pew Internet and American Life eGovernment Survey of June 2003* and the merged *Stowell-Pew Dataset*; (b) provide an analysis of the variables used and how well they correlate with each other on a bi-variate level and; (c) provide a multiple linear regression to test the hypotheses.

The primary hypothesis of this study is the use of and satisfaction with digital government increases in areas of high community-level social capital. The hypotheses using multiple linear regressions that will be examined include:

H¹: Community-level social trust has a positive effect on individual favorability (or trust) towards the Federal Government.

H²: Community-level social trust has a positive effect on individual favorability (or trust) towards State Government.

H³: Community-level social trust has a positive effect on individual favorability (or trust) towards Local Government.

H⁴: Community-level social trust has a positive effect on individual favorability (or trust) towards Federal institutions

H⁵: Community-level social trust has a positive effect on getting advice on a health or safety issue from government agencies online.

H⁶: Community-level social trust has an positive effect on researching government documents or statistics online.

H⁷: Community-level social trust has an positive effect on getting recreational or tourist information from government agencies online.

H⁸: Community-level social trust has an positive effect on getting data about government benefits from government agencies online.

H⁹: Community-level social trust has an positive effect on a preference for transactional interaction with digital government.

H¹⁰: Community-level social trust has an positive effect on a preference for informational interaction with digital government.

H¹¹: Community-level social trust has an positive effect on the perception of whether the Internet has improved their interactions with the Federal Government.

H¹²: Community-level social trust has an positive effect on the perception of whether the Internet has improved their interactions with the State Government.

H¹³: Community-level social trust has an positive effect on the perception of whether the Internet has improved their interactions with Local Government.

Using multiple linear regression analysis, *Stowell Datasets of Washington State University* and *The Pew Internet and American Life eGovernment Survey of June 2003* enable the testing of the above eleven hypotheses in furtherance of our understanding of digital government.

While being able to develop a measure for community-level social trust, this merging of the two datasets takes away the random sample of the initial *Pew Internet and American Life eGovernment Survey of June 2003*. As highlighted in Donald Dillman's *Mail and Internet Surveys: The Tailored Design Method*, one primary factor in generalizable survey research is the presence of a random sample. *The Pew Internet and American Life eGovernment Survey of June 2003* possessed such a random sample, through the use of random digital dialing. That sampling was affected when the respondents from the twenty-four major media market areas from the *Stowell Datasets of Washington State University* were included from the study and all others were excluded—creating the *Stowell-Pew Datasets*.

Performing a comparison between the wired respondents found within the *Stowell Datasets of Washington State University* respondents and those of the broader *Pew Internet and American Life eGovernment Survey of June 2003* will be produced. Taking the data from *The Pew Internet and American Life eGovernment Survey of June 2003* and comparing it against the data from the merged *Stowell-Pew Dataset* will show how close the new dataset (e.g., *Stowell-Pew Dataset*) is to the random sample.

b. Uni-variate analysis

Performing a comparison between the wired respondents found within the *Stowell Datasets of Washington State University* and those of the broader *Pew Internet and American Life eGovernment Survey of June 2003* will be produced. Taking the data from *The Pew Internet and American Life eGovernment Survey of June 2003* and comparing it against the data from the merged *Stowell-Pew Dataset* will show how close the new dataset (e.g., *Stowell-Pew Dataset*) is to the random sample with regards to those variables of import.

In a previous study using an earlier incarnation of the *The Pew Internet and American Life eGovernment Survey of June 2003*, Tolbert and Mossberger (2006) used multiple linear regressions and concluded that visiting a local government website was associated with increased trust in local government-- though the effect was very slight. The trust being measured by Tolbert and Mossberger could be classified as individual-level trust (Tolbert and Mossberger, 2006; Fukuyama, 1995; Hetherington, 2005).

Other studies have used similar data in a statistical analysis showing a greater range of positive attitudes toward government among digital government users (Tolbert, Mossberger and McNeal, 2008; Larsen and Milakovich, 2005).

The factors that will be used in the multiple linear regression analysis are many

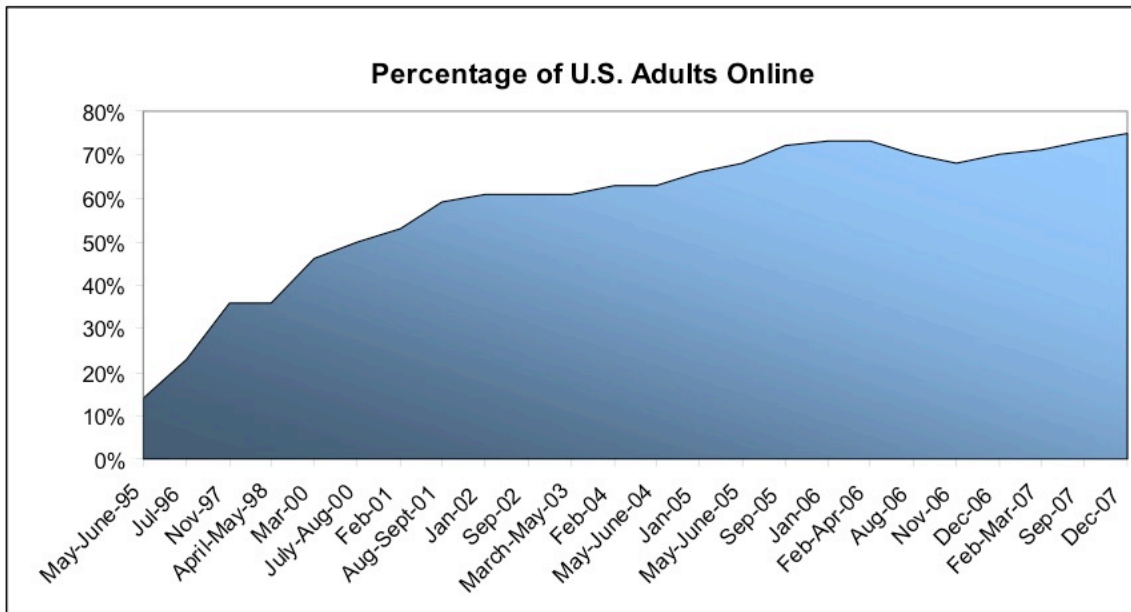
of the elements that we will be examined in this initial analysis comparing *The Pew Internet and American Life eGovernment Survey of June 2003* as related to the *Stowell-Pew Dataset*. For example, if the *Pew Internet and American Life eGovernment Survey of June 2003* showed an Internet usage rate of 65% (close to the national average) and the respondents of the *Stowell-Pew Dataset* showed a rate in the 30% range – that could be an area of concern for the study itself.

In reality, that is not the case. The *Stowell-Pew Dataset* showed a rate in the 60-65% range. In fact, the *Stowell-Pew Dataset* and *The Pew Internet and American Life eGovernment Survey of June 2003* look very similar in most areas of interest to this study.

Internet usage nationwide at the time of *The Pew Internet and American Life eGovernment Survey of June 2003* study was approximately 65% by U.S. adults – as shown in Figure 7 and highlighted in other studies (Belanger, Carter and Schaupp, 2005; Bélanger and Carter, 2006; Ferro, Gil-garcia and Helbig, 2007).

Figure 7 illustrates the use of online resources from the start of widespread use of the Internet by the general public (May-June 1995) to the most current results (December 2007).

Figure 7: Percentage of U.S. adults online



Source: Pew Internet and American Life Center

The Pew Internet and American Life eGovernment Survey of June, 2003 shows a general Internet usage rate of about 65%. The current percentage of U.S. adults online figure shows the percentage of Internet users found within the study 65% and non-users at 35%. This is a rather suggestive indicator that the sample reflects the population as a whole in terms of Internet usage during the timeframe of *The Pew Internet and American Life eGovernment Survey of June 2003*.

Table 8: Internet usage - Pew Internet and American Life Project eGovernment Survey, June 2003

Yes		No	
Number in Sample	Percentage in Sample	Number in Sample	Percentage in Sample
1899	65.0%	1023	35.0%

The merged Stowell-Pew Dataset shows an Internet usage rate of 65.7%, which is illustrated in the Table 9. Comparing it against Table 8, it shows a roughly similar value in the realm of Internet usage.

Table 9: Internet usage - Stowell-Pew merged dataset

Yes		No	
Number in Sample	Percentage in Sample	Number in Sample	Percentage in Sample
453	65.7%	236	34.3%

Age and Internet usage is an area of great concern to many researchers of digital government (Phang et al., 2006; Medjahed and Bouguettaya, 2005; Nielsen, 2002; Phang, Li, Sutanto and Kankanhalli, 2005).

With an increasing population of older Americans and the increase of information technology assets, the research question of whether digital government can

meet the service needs of this growing population has become one of great interest to many researchers. Phang (2006) states that the information technology and gerontology literature does little to explain the gap between the digital government resources available and the lack of use by older Americans of these resources.

Table 10 illustrates the percentage within the age range with Internet access and the drop off at the post-60 years of age range is rather troubling and serves as a warning sign in our exploration of the associative question which asks if digital government is

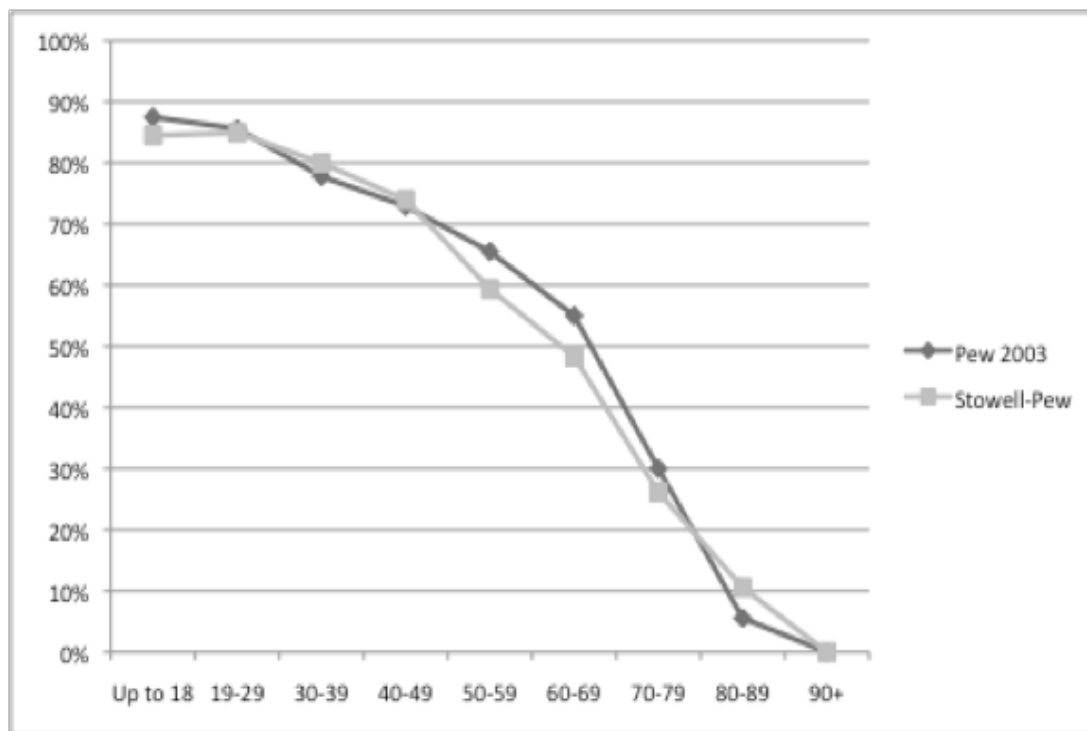
Table 10: Age groupings with internet access in Pew Internet and American Life Project eGovernment Survey, June 2003

Age Range	Number in Age Range	Overall Percent In Age Range	Number with Internet Access	Percentage in Age Range
Up to 18	71	2.4%	60	84.5%
19-29	458	15.6%	389	84.9%
30-39	500	17.0%	400	80.0%
40-49	526	17.9%	389	74.0%
50-59	576	19.6%	342	59.3%
60-69	354	12.0%	171	48.3%
70-79	264	9.0%	69	26.1%
80-89	123	4.2%	13	10.5%
90+	13	0.4%	0	0%
NA	57	1.94%	35	61.4%
	2942			

playing a negative role in interactions with government. While hardly conclusive, it is an area that we will want to note for future inquiry.

Pham constructs a model that argues “senior citizens’ use intention is driven by the perceived usefulness and ease of use of the service”. Computer anxiety by senior citizens is seen as an important element of this ease of use variable. Pham’s quantitative

Figure 8: Age groupings with Internet access comparing Pew Internet and American Life Project eGovernment Survey respondents with the merged Stowell-Pew dataset



work aligns itself well with Jakob Nielsen’s argument that seniors have a more difficult time in using the technology (ease of use) heightened by a perceived lack of

empathy by web designers, who typically target younger markets and tend to be under thirty years of age themselves (Nielsen, 2002).

Age being an important factor, the comparison between the two and the number of those with Internet access is also included in this analysis.

Looking at the random sample within the *Pew Internet and American Life Project eGovernment Survey, June 2003* shows the extreme downward trend of Internet access found within each age range. The youngest (18-29) ranges show the highest rate of Internet connectivity. The oldest (60+) age range shows an incrementally lower rate of Internet connectivity as the respondent's age increases. Internet access. When the respondent's age grouping moves into the sixties, an already present downward slope falls even greater.

Comparing the different data sources illustrates the drop in a dramatic fashion comparing *The Pew Internet and American Life Project eGovernment Survey, June 2003* respondents with the *Stowell-Pew* dataset respondents. The drop is consistent in both sets of data and the variance between the two is minimal.

The most recent data would indicate that there is little change to be found in this effect. While the groupings in this table are much more restrictive than those found within the *Pew-Stowell* merged dataset, it still indicates that the older the respondent,

the less likely it is that individual has access to the Internet.

Table 11: Current Internet access by age

<i>Age and Internet access within each grouping</i>	
18-29	92%
30-49	85%
50-64	72%
65+	37%

Source: The Pew Internet and American Life Project, 2008

Another factor to be considered is the education level of each respondent. Education is a strong indicator of whether one is connected and how they use the Internet (Akman, Yazici, Mishra and Arifoglu, 2005; Axelsson and Melin, 2007; Bynner and Eggerton, 2001; Elovaara et al., 2004; Ferro et al., 2007).

Table 12: Education groupings with Internet Access

Education Level	Number in the Education Level	Percentage in the Education Level	Number with Internet Access	Percentage with Internet Access In Education Range
None, or grades 1-8	66	2.23%	8	12.1%
HS Incomplete	212	7.3%	63	29.7%
High School Grad	871	29.8%	439	50.4%
Vocational School	132	4.5%	86	65.2%
Some College	707	24.1%	514	72.7%
College Graduate	580	19.8%	484	83.4%
Post Graduate	341	11.7%	300	88.0%
NA	16	0.6%	5	31.5%
	2925		1899	

Source: *Pew Internet and American Life Project eGovernment Survey, June 2003*

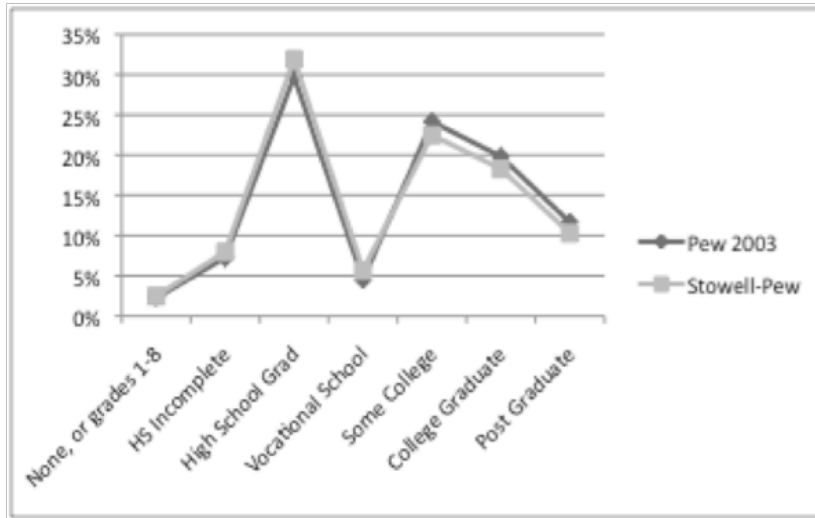
The differences in the education levels (See Tables 12 and 13) between the *Pew Internet and American Life Project eGovernment Survey, June 2003* as related to *Stowell-Pew Dataset* are minimal, as the comparative tables show.

Table 13: Education groupings with Internet access from merged Stowell-Pew dataset

Education Level	Number in the Sample	Percentage in the Education Level	Number with Internet Access	Percentage with Internet Access In Education Range
None, or grades 1-8	17	2.47%	2	11.8%
HS Incomplete	55	7.98%	16	29.1%
High School Grad	220	31.9%	113	51.3%
Vocational School	39	5.7%	25	64.1%
Some College	155	22.5%	126	81.3%
College Graduate	126	18.3%	105	83.3%
Post Graduate	71	10.3%	64	90.1%
NA	6	0.9%	2	33.3%
	689		453	

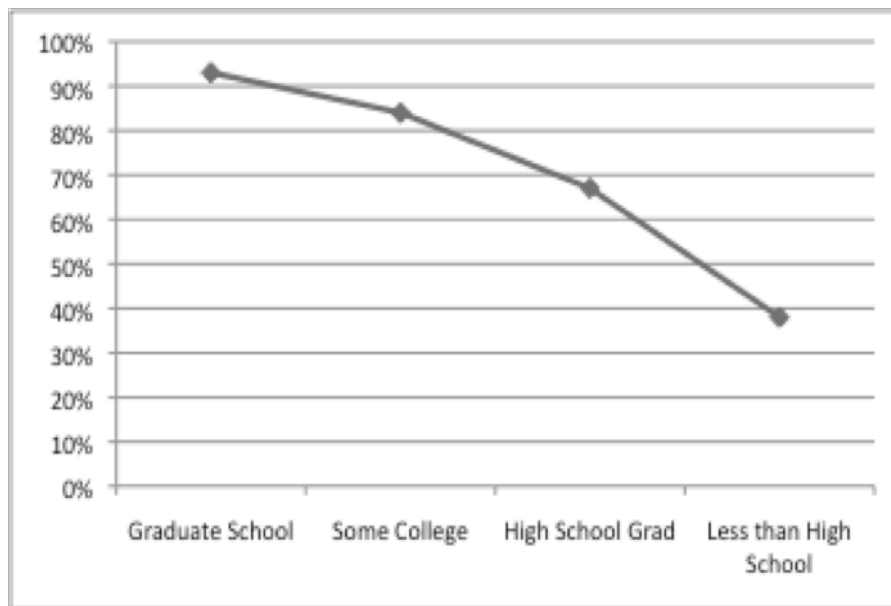
The similarities between *The Pew Internet and American Life Project eGovernment Survey, June 2003* and the Stowell-Pew Dataset when comparing those with Internet access are very consistent, with the exception of a slight variance with those who attended Business or Vocational - Technical School. The figure below graphically illustrates these similarities and the margin of difference with those who attended Business or Vocational - Technical school.

Figure 9: Education groupings within the merged Stowell-Pew dataset



According to the most recent data, education and Internet access still have a strong trend that continues. Those who are better educated are much more likely to have Internet access than those with little or no education. Using data from both the Pew Internet and American Life Project and FEDSTATS, a graphical illustration (See Figure 10) was developed that clearly shows the downward slope of those with Internet access in groupings of those with higher education to those with less. The most prominent decrease goes from high school graduates to those with less than a high school education.

Figure 10: Education groupings with Internet access (2007)



Source: *Pew Internet and American Life Project and FEDSTATS*

Income continues to be a salient factor in the study of digital government and the ability of individuals to access the Internet (Reddick, 2005) (Sipior and Ward, 2005; Wilson, Wallin and Reiser, 2005).

Table 14: Income groupings

Income Range	Number in Income Range	Percentage in Income Range	Number with Internet Access	Percentage with Internet Access in Income Range
Less than \$10K	170	5.8%	54	31.8%
\$10K to under \$20K	275	9.4%	121	44.0%
\$20K to under \$30K	346	11.8%	164	47.4%
\$30K to under \$40K	316	10.8%	214	67.7%
\$40K to under \$50K	264	9.0%	188	71.2%
\$50K to under \$75K	458	15.7%	375	81.9%
\$75K to under \$100K	276	9.4%	235	85.1%
\$100K+	262	9.0%	239	91.2%
NA	558	19.1%	309	55.4%
	2925		1899	

Source: *Pew Internet and American Life Project eGovernment Survey, June 2003*

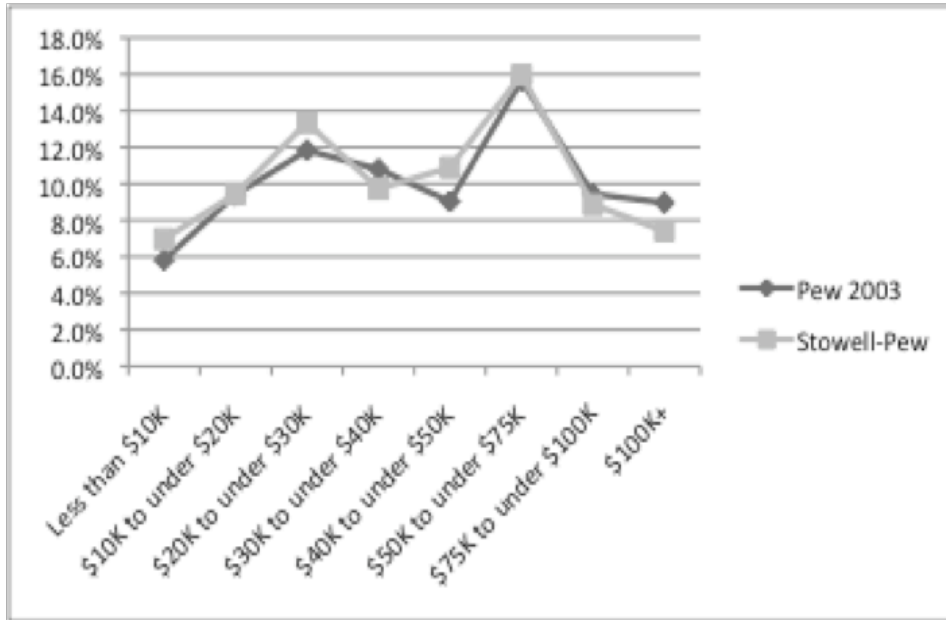
Income is measured in *The Pew Internet and American Life Project eGovernment Survey, June 2003* by asking: “ Last year, that is in 2002, what was your total family income from all sources, before taxes. Just stop me when I get to the right category.” Income responses are scaled ordered from 1 being Less than \$10,000 to 8 being \$100,000 or more.

Table 15: Income groupings in merged Stowell-Pew dataset

Income Range	Number in Income Range	Percentage in Income Range	Number with Internet Access	Percentage with Internet Access in Income Range
Less than \$10K	48	7.0%	14	29.2%
\$10K to under \$20K	65	9.4%	31	47.7%
\$20K to under \$30K	92	13.4%	48	52.2%
\$30K to under \$40K	67	9.7%	46	68.6%
\$40K to under \$50K	75	10.9%	56	74.7%
\$50K to under \$75K	110	16.0%	94	85.5%
\$75K to under \$100K	61	8.9%	50	82.0%
\$100K+	51	7.4%	46	90.1%
NA	120	17.4%	68	56.7%
	689		453	

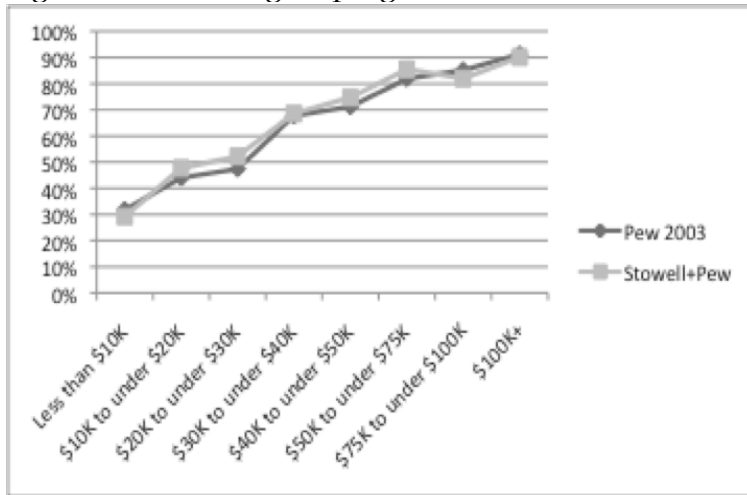
The two tables (See Tables 14 and 15) compare the data sources and two charts providing a graphic illustration of the the income groupings in general and the income groupings associated with Internet access. All show how the two data sources compare when calculated by percentage of those with Internet access and those without.

Figure 11: Income groupings within merged Stowell-Pew datasets



With the exception of two ethnic groups (African-American and Latino), ethnicity has not been shown to play a vital role in digital government when other variables are controlled for (Denman-Maier and Parycek, 2004; Warner, 1963; McNeal, Tolbert, Mossberger and Dotterweich, 2003; Ferro et al., 2007; Cotterill and King, 2007).

Figure 12: Income groupings with Internet access within merged Stowell-Pew datasets



The comparative tables (See Tables 16 and 17) show the breakdown of ethnic groupings and their level of connectivity.

The two different data sources are similar in their representation of the groups and their level of connectivity. The most severe differentiation can be found in the number of Hispanics with Internet access in the two data sources.

Table 16: Ethnicity groupings

Ethnic Group	Number in Ethnic Group	Percentage in Ethnic Group	Number with Internet Access	Percentage within Ethnic Group
Hispanic	180	6.2%	113	62.8%
White, Non Hispanic	2349	80.3%	1539	65.6%
African American	232	7.9%	123	53.0%
Asian/Pac Islander	43	1.5%	38	88.4%
Mixed Race	27	0.9%	16	59.3%
Native American	36	1.2%	28	77.8%
Other	7	0.2%	5	71.4%
NA	51	1.7%	37	72.5%
	2925		1899	

Source: Pew Internet and American Life Project eGovernment Survey, June 2003

Table 17: Ethnicity groupings within merged Stowell-Pew datasets

Ethnic Group	Number in Sample	Percentage in Ethnic Group	Number with Internet Access	Percentage within Ethnic Group
Hispanic	35	5.1%	26	74.3%
White, Non Hispanic	554	80.4%	363	65.5%
African American	64	9.3%	36	56.3%
Asian/Pac Islander	6	0.9%	6	100.0%
Mixed Race	8	1.2%	5	62.5%
Native American	7	1.0%	5	71.4%
Other	1	0.1%	1	100.0%
NA	14	2.0%	11	78.5%
	689		453	65.0%

While gender has not been shown to be a major factor in the Internet access nor digital government (Sixsmith et al., 2001; Subramanian, 2007; Akman et al., 2005; Tolbert and Mossberger, 2006). The next tables (See Tables 18 and 19) show a fairly equal divide regarding gender in both *Internet and American Life Project eGovernment Survey, June 2003* than the *Stowell-Pew Dataset*.

Table 18: Gender

Female		Male	
Number in Sample	Percentage in Sample	Number in Sample	Percentage in Sample
1519	51.9%	1406	48.1%

Source: *Pew Internet and American Life Project eGovernment Survey, June 2003*

Table 19: Gender within the merged Stowell-Pew datasets

Female		Male	
Number in Sample	Percentage in Sample	Number in Sample	Percentage in Sample
358	52.0%	331	48.0%

The difference between the two data sources are equally minimal when Internet usage is accounted for as in the following two tables.

Tables 20 and 21 show little differentiation in Internet use nor between data sources.

Table 20: Gender and Internet access

Female			
Internet Users	Percentage of Internet Users	Non Internet Users	Percentage of Non Internet Users
950	62.6%	568	37.4%
Male			
Internet Users	Percentage of Internet Users	Non Internet Users	Percentage of Non Internet Users
949	67.6%	455	32.4%

Source: *Pew Internet and American Life Project eGovernment Survey, June 2003*

Table 21: Gender and Internet access within merged Stowell-Pew datasets

Female			
Internet Users	Percentage of Internet Users	Non Internet Users	Percentage of Non Internet Users
227	63.4%	131	36.6%
Male			
Internet Users	Percentage of Internet Users	Non Internet Users	Percentage of Non Internet Users
226	68.3%	105	31.7%

As highlighted in Tolbert and Mossberger's (2006) study (which first used the *Pew American and Internet Life* data to measure individual level social capital and digital government usage), government employees tend to trust government more than the average citizen (Tolbert and Mossberger, 2006; Brewer, Neubauer and Geiselhart, 2006).

Table 22: Government employees

Yes, Gov't Employee		No, Gov't Employee	
Number in Sample	Percentage in Sample	Number in Sample	Percentage in Sample
357	12.2%	2568	87.8%

Source: *Pew Internet and American Life Project eGovernment Survey, June 2003*

The two data sources (See Table 22 and 23) used in this study shows a difference of 2.6% more governmental employees in *Pew Internet and American Life Project eGovernment Survey, June 2003* than the *Stowell-Pew Dataset*.

Table 23: Government employees in merged Stowell-Pew dataset

Yes, Gov't Employee		No, Gov't Employee	
Number in Sample	Percentage in Sample	Number in Sample	Percentage in Sample
66	9.6%	623	90.4%

Looking at the two different data sources in a descriptive sense, the differences found within the vital elements of the study are negligible. Party affiliation between the two was similar, as well.

While the *Pew Internet and American Life eGovernment Survey, June 2003* holds with it a random sampling, taking the respondents that were available from the *Stowell Datasets of Washington State University* areas doesn't appear to change the makeup of the respondents severely .

c. Bi-variate analysis

This section will look at how the variables we intend to examine relate to each other on a bi-variate level. The survey variables include *trust in the federal government, trust in state government, trust in local government, trust in federal institutions, getting advice on the internet for governmental matters; getting recreational information on the Internet; researching documents and statistics; researching governmental benefits on the Internet; preference for transactional Governmental interactions on the Internet; preference for informational Governmental interactions on the Internet; improvement of communications with the Federal government because of the Internet; improvement of communications with State government because of the Internet; and improvement of communications with Local government because of the Internet.*

The demographic variables include: *age, education and income, ethnicity, employment type and political affiliation. Internet use, gender and the Trust/Cynicism score* developed from the *Stowell Datasets of Washington State University* are also included in this bi-variate analysis.

Examining internet use in relation to the three primary demographic variables paints an interesting picture of how they are associated with one another and the strength of said association. Internet use and age showed the largest effect of all three. That effect was moderate in strength, statistically significant and profoundly negative. As supported by the lack of use of the Internet as the population increases in age, Internet use and age were negatively correlated (-.422).

Taking the uni-variate analysis and weighing it in relation to the bi-variate result would appear to show that the older the population being examined is, the less likely it is the population will use the technology. How we approach addressing this in the arena of digital government is of both great consequence and controversy. First, we need to determine which paradigm that we plan on subscribing to. Is it, as Jakob Nielsen would suggest, that the older the population gets, the more time it takes them to accomplish tasks on the Internet and thus, the frustration level increases turning into a more defeatist attitude or is it simply the need for more training and greater sensitivity by

web designers of the needs of the older population? This will be an issue that receives more attention later in this work.

In stark difference, education and income were both statistically significant and positively correlated to Internet use. As illustrated in the uni-variate analysis, education (.417, $p < .01$) and income (.381, $p < .01$) would appear to be good indicators of Internet usage. In the uni-variate analysis, those with some college to post graduate were in the low-70s to high-80s in relation to Internet connectivity, scaled upward as the level of education sloped upward. Income didn't show as severe an effect as age nor education, but the greater one's income level, the more likely it is that the individual was connected. In the bi-variate analysis, the effect was statistically significant and positive, supporting the descriptive statistics which gave us a snapshot of the sample we are examining.

Looking at the highly negative correlation between age and Internet use, this brings into the light one of our associative research questions. If this level of Internet use, a staple in digital government, is showing such a harsh negative association between Internet use and age--could digital government in fact be playing a negative role in interactions with government by those who are increasing in age? Or is it simply a matter of the individual choosing to use an alternative method other than digital gov-

ernment to meet her/his needs and it is playing no real effect in their interactions?

While these questions are beyond the scope of this dissertation, they supply interesting research questions for further study.

Table 24: Correlation matrix of Internet usage in relation to age, income and education

	Age	Education	Income
Internet Use	-.422**	.417**	.381**

**p<.01; *p<.05 (2-tailed)

Political party has been shown in past studies to have some effect on use and satisfaction with digital government, and when we look at the relationship between political party affiliation and party, the effect is minimal, yet apparent in some areas.

A Republican party affiliation showed a minor, yet statistically significant positive correlation in relation to Internet use. Democratic party affiliation showed a slightly greater negative effect, but still slight in its strength and also statistically significant. Independent party affiliation showed no effect in relation to Internet usage. It would be of interest to see how well this relationship holds up when other variables are controlled for, such as education and income. Whether or not party matters in the arena of digital government is the venue for further examination.

Table 25: Correlation matrix of Internet usage in relation to party affiliation

	Republican	Democrat	Independent
Internet Use	.089*	-.121**	.048

**p<.01; *p<.05 (2-tailed)

Individual-level trust in government within its different levels and definitions is of great interest to researchers of digital government issues. How trust in one level of government is related to trust in another area of government might have some effect on how trust is developed in the usage of digital government resources.

The survey instrument asks the respondents about both their trust in each level of government and in that of Federal institutions. Is there a relationship between trusting a local governmental body and that of the Federal government? The relationships between the different levels are all statistically significant, but range in their level of strength from minor to moderately strong. Trusting local government and Federal institutions showed the lowest level (.166, p<.01) of positive correlation and yet, this correlation gained in strength (.265, p<.01) when the institution was framed as the “Federal government” which might raise questions on the level of comfort that the wording of the survey questions conveyed to the respondent. The same effect is shown on the state

level. When asked whether there is trust in the Federal government (.386, $p < .05$), a lower positive correlation is shown when asked whether there is trust in Federal institutions (.241, $p < .01$). Does a “Federal Institution” sound harsher and more threatening than that of “Federal government”? That premise is somewhat questionable when the trust in Federal government and in Federal institutions is correlated at a much higher rate (.432, $p < .01$), which might be an effect of the wording of the two being so similar.

This poses queries with one of the associative questions that were posed in the introduction of this dissertation. Is how an individual trusts one level of government the same as how she or he trusts all the other levels? Can this be accurately transferred to how the individual trusts how digital government is improving their levels of communication with different levels of government? Probably not. Since the resources of one level is most likely not equivalent to another level of government, the above observation is probably too general to be of use as a “shortcut” in determining satisfaction with digital government.

Table 26: Correlation matrix of individual-level trust in different levels of government

	Trust in Federal Government	Trust in State Government	Trust in Local Government	Trust in Federal Institutions
Trust in Federal Government	1.00	.386**	.265**	.432**
Trust in State Government	.386**	1.00	.428**	.241**
Trust in Local Government	.265**	.428**	1.00	.166**
Trust in Federal Institutions	.432**	.241**	.166**	1.00

**p<.01; *p<.05 (2-tailed)

Age, education and income showed little effect in trust in the different levels of government, but showed a statistically significant, yet small effect when trust in Federal institutions is questioned. Age showed the only statistically significant negative correlation as related to trust in Federal institutions.

Table 27: Correlation matrix of individual-level trust in different levels of government in relation to age, education and income

	Age	Education	Income
Trust in Federal Government	-.052	.070	.092*
Trust in State Government	-.029	-.018	.089*
Trust in Local Government	-.019	.008	.112*
Trust in Federal Institutions	-.119**	.102**	.189**

**p<.01; *p<.05 (2-tailed)

A higher level of trust in Federal institutions was positively correlated with the frequency of researching documents and statistics at government agency websites.

While the correlation is weak, one could easily posit a trust in Federal institutions might drive a trust in the information that the institutions produce.

Table 28: Correlation matrix of individual-level trust in different level of government in relation to digital government activities

	Get Advice - dg	Get Recreation- al Info - dg	Research Docs and Stats - dg	Gov Benefits - dg
Trust in Federal Government	-.068	.072	.032	-.033
Trust in State Government	-.077	-.036	-.039	-.062
Trust in Local Government	.124*	.055	.077	.022
Trust in Federal Institutions	-.020	.047	.131**	.036

**p<.01; *p<.05 (2-tailed)

Trust in Local government had a rather consistent statistically significant, but weak positive correlation with how well the Internet has improved communication across all levels of government. The Internet improving communication with Local government also has a positive correlation with trust in State and Local government. as highlighted in Table 29.

Table 29: Correlation matrix of individual-level trust in different levels of government in relation to how the Internet has improved communications with different levels of government

	Net Improved Fed	Net Improved State	Net Improved Local
Trust in Federal Government	.100*	.022	.076
Trust in State Government	.033	.054	.144**
Trust in Local Government	.150**	.109*	.137**
Trust in Federal Institutions	.138**	.090	.090

**p<.01; *p<.05 (2-tailed)

Party seemed to matter the most when trust in the Federal government was being examined, as shown in Table 30. While Republicans (with a Republican in the executive at the time of the study) showed a positive correlation, Democrats and Independents showed a negative correlation--statistically significant, but weak.

Table 30: Correlation matrix of individual-level trust in different levels of government in relation to political affiliation

	Republican	Democrat	Independent
Trust in Federal Government	.238**	-.126**	-.105**
Trust in State Government	.068	-.036	-.018
Trust in Local Government	.004	.028	.008
Trust in Federal Institutions	.207**	-.177**	-.028

**p<.01; *p<.05 (2-tailed)

The types of digital government interactions (transactional or informational) appeared to have little-to-no strength of association when related to trust in different levels of government, as shown in Table 31.

Table 31: Correlation matrix of computed transactional and informational variables in relation to trust in different levels of government

	Trust in Federal Government	Trust in State Government	Trust in Local Government	Trust in Federal Institutions
Transactional	.015	-.012	.075	.026
Informational	.060	.045	.101*	.066

**p<.01; *p<.05 (2-tailed)

Yet, a preference for informational digital government activities shows a weak to moderate effect (See Table 32), both statistically significant, in the arena of getting recreational information online and researching documents and statistics.

Table 32: Correlation matrix of computed transactional and informational variable in relation to digital government activities

	Get Advice - dg	Get Recreational Info - dg	Research Docs and Stats - dg	Gov Benefits - dg
Transactional	.100*	.131**	.169**	.094*
Informational	.111*	.171**	.233**	.087

**p<.01; *p<.05 (2-tailed)

Party would appear to play a small role in the most trusting of digital government activities, transactional, and only with those of a Republican party affiliation. This would confirm points in the literature review that showed some evidence of Republicans trusting Federal government at a higher level, in some instances.

Table 33: Correlation matrix of computed transactional and informational variables in relation to political affiliation

	Republican	Democrat	Independent
Transactional	.105**	-.058	-.019
Informational	.072	-.094*	.037

**p<.01; *p<.05 (2-tailed)

Once again, education shows a consistent positive correlation (See Table 34) with most different types of digital government activities, except for those dealing with government benefits. Income also had a weak, but statistically significant positive correlation with researching documents and statistics, and an even weaker one with getting recreational information online.

Table 34: Correlation matrix of digital government activities in relation to age, education and income

	Age	Education	Income
Get Advice-dg	.072	.150**	.086
Get Recreational Info - dg	.015	.179**	.118*
Research Docs & Stats - dg	-.028	.289**	.152**
Gov Benefits - dg	.000	.090	-.103*

**p<.01; *p<.05 (2-tailed)

A weak, but statistically significant result (See Table 35) was shown when examining the status of being a government employee as it relates to researching government documents and statistics online at governmental agency websites.

Table 35: Correlation matrix of digital government activities in relation to government employment

	Government Employee
Get Advice-dg	.079
Get Recreational Info - dg	.084
Research Docs & Stats - dg	.133**
Gov Benefits - dg	.096*

**p<.01; *p<.05 (2-tailed)

When respondents thought that the Internet has improved communications with one level of government, it would appear that there is a strong correlation (See Table 36) to their perception of it improving communications with the other levels of government, as well.

Table 36: Correlation matrix of how the Internet has improved communications with different levels of government

	Net Improved Fed	Net Improved State	Net Improved Local
Net Improved Fed	1.00	.623**	.526**
Net Improved State	.623**	1.00	.614**
Net Improved Local	.526**	.614**	1.00

**p<.01; *p<.05 (2-tailed)

As in the earlier correlation matrices, education plays an important role in whether individuals perceive the Internet as improving communication within differing levels of government. Age was seen as a negative correlation when determining whether the Internet has improved communication with Local government.

Table 37: Correlation matrix of how the Internet has improved communications with different levels of government in relation to age, education and income

	Age	Education	Income
Net Improved Fed	-.059	.154**	.090
Net Improved State	-.039	.158**	.119*
Net Improved Local	-.139**	.045	.095

**p<.01; *p<.05 (2-tailed)

Differing types of digital government activities (See Table 38) all showed a statistically significant positive correlation with whether they believe that the Internet has improved communication across the different levels of government.

Table 38: Correlation matrix of how the Internet has improved communications with different levels of government in relation to digital government activities

	Get Advice - dg	Get Recreational Info - dg	Research Docs and Stats - dg	Gov Benefits - dg
Net Improved Fed	.214**	.345**	.349**	.339**
Net Improved State	.228**	.191**	.233**	.211**
Net Improved Local	.163**	.204**	.206**	.259**

**p<.01; *p<.05 (2-tailed)

For our trust/cynicism score, there were few statistically significant correlations. African-Americans showed a slight, but statistically significant negative correlation ($r^2=-.146$, $p=.000$) in relation to the community level trust/cynicism score developed. Political independents showed a very slight, statistically significant positive correlation ($r^2=.084$, $p=.027$) in relation to the community-level trust/cynicism score. There was no statistically significant measure of association between trust in all different levels of government and community-level social capital.

In conclusion, the purpose of this bi-variate analysis was to review the significant findings of the variables that we are using in testing. It would appear that the digital

government literature which suggests these variables for examination are fairly accurate and should assist in the testing of the hypotheses.

d. Multiple-linear regression

As stated previously, the primary hypothesis of this study is the use of and satisfaction with digital government increases in areas of high community-level social capital. In a previous study using an earlier incarnation of the The Pew Internet and American Life eGovernment Survey of June 2003, Tolbert and Mossberger (2006) using multiple linear regressions, concluded that visiting a local government website was associated with slightly increased trust in local government. The trust being measured by Tolbert and Mossberger could be classified as individual-level trust (Tolbert and Mossberger, 2006; Fukuyama, 1995; Fukuyama, 2006; Hetherington, 2005).

Other studies have used similar data in a statistical analysis showing a greater range of positive attitudes toward government among digital government users (Tolbert and Mossberger, 2006; Larsen and Milakovich, 2005).

This study uses a different measure of trust in developing a score for community-based social trust and political cynicism across two different data sources and utilizes statistical analysis to examine the available data. In addition, we also have the ability to measure variables that are relevant to the study of digital government. The most

obvious, internet user is coded as a dummy variable, as is African American, Latino, government employee, and party affiliation.

Age, education and income are also included as scale-level variables. Gender was excluded because of the overwhelming lack of evidence that it has any effect in the area of digital government (Larsen and Milakovich, 2005; Tolbert and Mossberger, 2006; Horrigan, 2003).

The **first hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on individual-level favorability (or trust) towards the Federal government. The null hypothesis is that community-level social capital does not have a positive (nor negative) effect on individual favorability towards the Federal government in a positive direction. The dependent variable uses the *Stowell-Pew Dataset* which asks : “*I’d like your opinion of some organizations and institutions. Do you have a very favorable, mostly favorable, mostly unfavorable or very unfavorable opinion of (a) the Federal government?*” The scale for this question is: 4=very favorable; 3=mostly favorable; 2=mostly unfavorable; 1=very unfavorable.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism

Score ($\beta=-.026$, $p=.546$, $R^2=.067$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively related to individual favorability (or trust) in the Federal government. The other independent variables showed some strength with the dependent variable include Age ($\beta=-.095$, $p=.046$, $R^2=.011$); Government employment ($\beta=-.098$, $p=.026$, $R^2=.067$) and; Republican party affiliation ($\beta=-.282$, $p=.002$, $R^2=.067$).

The **second hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on individual favorability (or trust) towards the State Government. The null hypothesis is that community-level social capital does not have a positive (nor negative) effect on individual favorability towards the State government. The dependent variable uses the *Stowell-Pew Dataset* which asks : "*I'd like your opinion of some organizations and institutions. Do you have a very favorable, mostly favorable, mostly unfavorable or very unfavorable opinion of (b) the State government?*" The scale for this question is: 4=very favorable; 3=mostly favorable; 2=mostly unfavorable; 1=very unfavorable.

Using our developed measure of community-level social capital, the hypotheses

cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.000$, $p=.987$, $R^2=.007$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively related to individual favorability (or trust) in the Federal government. The other independent variables showed no effect in our model.

The **third hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on individual favorability (or trust) towards their Local government. The null hypothesis is that community-level social capital does not have a positive effect on individual favorability towards their government. The dependent variable uses the *Stowell-Pew Dataset* which asks : *“I’d like your opinion of some organizations and institutions. Do you have a very favorable, mostly favorable, mostly unfavorable or very unfavorable opinion of (c) your Local government?”* The scale for this question is: 4=very favorable; 3=mostly favorable; 2=mostly unfavorable; 1=very unfavorable.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.006$, $p=.898$, $R^2=.014$) within our model as not having a statistically

significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to individual favorability (or trust) in the Federal government. The other independent variables showed some strength with the dependent variable including: Income ($\beta = -.108$, $p = .037$, $R^2 = .014$); Government employment ($\beta = -.098$, $p = .026$, $R^2 = .067$) and; Republican party affiliation ($\beta = -.207$, $p = .033$, $R^2 = .014$); Democratic party affiliation ($\beta = -.224$, $p = .016$, $R^2 = .014$); and Independent affiliation ($\beta = -.225$, $p = .015$, $R^2 = .014$). The role of party showed a much greater effect when other variables were controlled for than what was presented in the bi-variate analysis. That this study is centered in major metropolitan areas, the stronger relationship between party and trust in Local government might be an effect of the greater size and greater provision of services that a large city might have to offer in relation to a smaller city. This might provide an interesting avenue for scholars of the role party plays in urban areas and their associated level of trust in their government.

The **fourth hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on getting information from government agencies online. The null hypothesis is that the community-level social capital does not have a positive effect on

getting information from government agencies online. The dependent variable uses the Stowell-Pew Dataset which asks : *“Next, please tell me if you ever do any of the following when you go online. When you go online, do you ever (GA) get advice or information about a health or safety issue?”* The scale for this question is: 3= Yes, within the past year; 2= Yes, 1+ year (s) ago; 1= Never.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.041$, $p=.326$, $R^2=.083$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to individual favorability (or trust) in the Federal government. The other independent variables showed some power with the dependent variable including: Age ($\beta=-.153$, $p=.001$, $R^2=.083$) and; Income ($\beta=.114$, $p=.018$, $R^2=.083$). The negative correlation with age holds up with what was reported in the bi-variate analysis, as well as income showing a slight positive correlation.

In reviewing the first four hypotheses which group trust in different levels of government and of Federal institutions, the evidence would appear to suggest that, as the literature and scholars cite, that community-level social capital (which is inclusive of a measurement of political cynicism) plays little role in the level of trust that an individual

Table 39: Multiple linear regression of individual-level trust in different levels of government as the dependent variable

	Trust Federal Gov		Trust State Gov		Trust Local Gov		Trust Federal Institutions	
	β	p	β	p	β	p	β	p
Internet user	-.056	.268	.073	.169	-.045	.400	-.075	.131
Age	<i>-.095</i>	<i>.046</i>	-.033	.508	-.060	.225	<i>-.153</i>	<i>.001</i>
Education	.039	.439	-.051	.329	-.004	.945	.053	.279
Income	.008	.864	.081	.115	<i>.108</i>	<i>.037</i>	<i>.114</i>	<i>.018</i>
African-American	-.057	.215	.057	.219	-.027	.571	-.066	.132
Latino	.010	.820	-.078	.083	-.066	.144	-.014	.740
Gov Emp	<i>.098</i>	<i>.026</i>	.006	.897	.052	.257	.015	.730
Republican	<i>.282</i>	<i>.002</i>	.066	.481	<i>.207</i>	<i>.033</i>	.154	.057
Democrat	.042	.630	.002	.979	<i>.224</i>	<i>.016</i>	-.076	.322
Independent	.048	.579	.025	.779	<i>.225</i>	<i>.015</i>	.018	.816
Trust/Cynicism	-.026	.546	.000	.987	.006	.898	.041	.326
r ²	.067		.007		.014		.083	
n	528		524		516		556	

Standardized coefficients. Adjusted R-squared. $P < .05$ is bolded and italicized.

has in her or his government--on any level.

The **fifth hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on getting information from government agencies online. The null hypothesis is that the community-level social capital does not have a positive effect on getting advice or information about a health or safety issue from government agencies online. The dependent variable uses the *Stowell-Pew Dataset* which asks : *“Next, please tell me if you ever do any of the following when you go online. When you go online, do you ever get advice or information about a health or safety issue?”* The scale for this question is: 3= Yes, within the past year; 2= Yes, 1+ year (s) ago; 1= Never.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.060$, $p=.242$, $R^2=.026$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to individual favorability (or trust) in the Federal government. One independent variable showed some interaction with the dependent variable. Education ($\beta=-.132$, $p=.019$, $R^2=.026$) showed a positive, but weak correlation in the model.

The **sixth hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on researching government documents or statistics online. The null hypothesis is that the community-level social capital does not have a positive effect in researching government documents or statistics online. The dependent variable uses the *Stowell-Pew Dataset* which asks : “Next, please tell me if you ever do any of the following when you go online. When you go online, do you ever research official government documents or statistics?”The scale for this question is: 3= Yes, within the past year; 2= Yes, 1+ year (s) ago; 1= Never.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.045$, $p=.365$, $R^2=.080$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to individual favorability (or trust) in the Federal government. One independent variable showed some strength with the dependent variable. Education ($\beta=.268$, $p=.000$, $R^2=.080$) showed a positive, moderate correlation in the model.

The **seventh hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on getting recreational information online. The null hypothesis is that the community-level social capital does not have a positive effect on getting recreational information online. The dependent variable uses the *Stowell-Pew Dataset* which asks :

“Next, please tell me if you ever do any of the following when you go online. When you go online, do you ever get recreational or tourist information from a government agency?”

The scale for this question is: 3= Yes, within the past year; 2= Yes, 1+ year (s) ago; 1= Never.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.045$, $p=.365$, $R^2=.021$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to individual favorability (or trust) in the Federal government. One independent variable showed some power with the dependent variable. Education ($\beta=-.268$, $p=.000$, $R^2=.021$) showed a positive, moderate correlation in the model.

The **eighth hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on getting information about or apply for government benefits online. The null hypothesis is that the community-level social capital does not have a positive effect on getting information about or apply for government benefits online. The dependent variable uses the *Stowell-Pew Dataset* which asks : *“Next, please tell me if you ever do any of the following when you go online. When you go online, do you ever (GD) Get information about or apply for government benefits?”*

The scale for this question is: 3= Yes, within the past year; 2= Yes, 1+ year (s) ago; 1= Never.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.080$, $p=.120$, $R^2=.028$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to individual favorability (or trust) in the Federal government. Two independent variables showed some strength with the dependent variable. Education ($\beta=-.106$, $p=.060$, $R^2=.028$) showed a positive,

moderate correlation in the model. Income ($\beta = -.131$, $p = .017$, $R^2 = .028$) showed an equally weak negative correlation in the model.

Table 40: Multiple linear regression of use of digital government activities as the dependent variable

	Get Advice		Docs & Stats		Rec Info		Gov Benefits	
	β	p	β	p	β	p	β	p
Internet user	--	--	--	--	--	--	--	--
Age	.032	.551	-.085	.106	-.024	.658	.007	.889
Education	.132	.019	.268	.000	.147	.010	.106	.060
Income	.053	.330	.062	.246	.056	.311	<i>-.131</i>	<i>.017</i>
African-American	-.015	.781	.001	.983	-.095	.082	-.007	.895
Latino	.032	.540	-.065	.201	-.027	.599	.019	.714
Gov Emp	.030	.563	.069	.179	.046	.377	.068	.196
Republican	-.074	.474	-.022	.825	-.067	.518	-.021	.839
Democrat	.096	.309	-.021	.820	-.060	.522	.094	.317
Independent	-.007	.945	.029	.758	-.041	.672	.109	.259
Trust/Cynicism	-.060	.242	.045	.365	.034	.512	.080	.120
r²	.026		.080		.021		.028	
n	382		381		382		384	

Standardized coefficients. Adjusted R-squared. P < .05 is bolded and italicized.

Examining the four hypotheses shows no statistical evidence to support the predictive ability of participating in various digital government activities on community-level social capital. In all activities though, education was shown to have a consistently positive correlation, though weak, throughout the model.

The **ninth hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on a preference for transactional interactions with digital government. Transactional interaction preference with digital government is calculated by using a grouping variable that encompasses questions that highlight transactional types of transactions. The null hypothesis is that community-level social capital does not have a positive effect on transactional interaction preferences with digital government.

The dependent variable uses the *Stowell-Pew Dataset* which asks the following questions and aggregates the score for the new computed variable which measures the amount of transactional experiences with digital government based on preference :

If you ever needed to contact the government about (a personal tax issue), would you prefer to do it over the phone, on the Internet or some other way?;

If you ever needed to contact the government about (getting a license or permit for your car), would you prefer to do it over the phone, on the Internet or some other way?;

If you ever needed to contact the government about (getting a license or permit for a personal project like home remodeling), would you prefer to do it over the phone, on the Internet or some other way?;

If you ever needed to contact the government about (getting a recreational license like fishing or hunting), would you prefer to do it over the phone, on the Internet or some other way?;

If you ever needed to contact the government about (recreational or tourism activities in your region), would you prefer to do it over the phone, on the Internet or some other way?

The scale for these questions are: 1=Prefers digital government (on the Internet); 0=Prefers traditional method.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.007$, $p=.866$, $R^2=.159$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to individual favorability (or trust) in the Federal government. Several independent variables showed some strength with the dependent variable. Internet usage ($\beta=.185$, $p=.000$, $R^2=.159$);

Age ($\beta=-.133$, $p=.003$, $R^2=.159$); Education ($\beta=-.160$, $p=.001$, $R^2=.159$); Income ($\beta=.108$, $p=.022$, $R^2=.159$); and Latino ethnic heritage ($\beta=-.075$, $p=.067$, $R^2=.159$) all showed varying levels of strength throughout the model which overall, showed a low level of strength. Once again, age is appearing to have a negative effect in the demographic categories while education and income are showing a positive effect.

The **tenth hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on a preference for informational interaction with digital government. Informational interactions preference with digital government are calculated by using a grouping variable that encompasses questions that highlight informational types of transactions. The null hypothesis is that community-level social capital does not have a positive effect on informational interaction preference with digital government.

The dependent variable uses the *Stowell-Pew Dataset*, which asks the following questions and aggregates the score for the new computed variable which measures informational experiences with digital government based on preference:

If you ever needed to contact the government about (expressing your opinion about an issue like taxes or schools), would you prefer to do it over the phone, on the Internet or some

other way?

If you ever needed to contact the government about (exploring government benefits for yourself or someone else), would you prefer to do it over the phone, on the Internet or some other way?;

If you ever needed to contact the government about (doing research for school or work), would you prefer to do it over the phone, on the Internet or some other way?;

If you ever needed to contact the government about (what programs different government agencies offer), would you prefer to do it over the phone, on the Internet or some other way?;

If you ever needed to contact the government about (recreational or tourism activities in your region), would you prefer to do it over the phone, on the Internet or some other way?

The scale for this question is: 1=Prefers digital government (on the Internet);
0=Prefers traditional method.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.018$, $p=.610$, $R^2=.326$) within our model as not having a statistically

significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to preferences for informational activities in digital government.

Several independent variables showed some association with the dependent variable. Internet usage ($\beta=.367$, $p=.000$, $R^2=.326$) ; Age ($\beta=-.158$, $p=.000$, $R^2=.326$) ; Education ($\beta=.146$, $p=.001$, $R^2=.326$); and Income ($\beta=.109$, $p=.010$, $R^2=.326$), They all showed varying levels of strength throughout the model which overall, showed a moderate level ($r^2=.326$) of strength.

The strength of the model as a whole, adds even more weight to the concern that age is a distinctly negative factor in the arena of digital government. While the descriptive statistics showed a lack of connectivity and the bi-variate statistics showed some negative correlation, this model shows that with a scale of informational digital government activities, we can predict that age will be negatively correlated, though slightly, with the increasing activities. The consistency of the negative correlation of age with both Internet connectivity and digital government activities should be an area of concern for policy makers seeking to implement digital government solutions as not a partner in service delivery, but as a replacement.

Table 41: Multiple linear regression of the computed transactional and information variables as dependent variables

	Transactional		Informational	
	β	p	β	p
Internet user	<i>.185</i>	<i>.000</i>	<i>.367</i>	<i>.000</i>
Age	<i>-.133</i>	<i>.003</i>	<i>-.158</i>	<i>.000</i>
Education	<i>.160</i>	<i>.001</i>	<i>.146</i>	<i>.001</i>
Income	<i>.108</i>	<i>.022</i>	<i>.109</i>	<i>.010</i>
African-American	-.024	.566	-.020	.593
Latino	<i>-.075</i>	<i>.067</i>	-.060	.098
Gov Emp	.015	.708	.060	.101
Republican	.036	.645	-.014	.844
Democrat	.013	.868	-.003	.966
Independent	-.032	.671	.021	.753
Trust/Cynicism	.007	.866	-.018	.610
r²	.159		.326	
n	540		544	

Standardized coefficients. Adjusted R-squared. P < .05 is bolded and italicized.

The **eleventh hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on the perception of whether the Internet has improved their interactions with the Federal Government. The null hypothesis is that the community-level social capital does not positively effect the perception of whether the Internet has improved their interactions with the Federal Government. The dependent variable uses the *Stowell-Pew Dataset* which asks : “*How much, if at all, has the Internet improved the way you interact with...the federal government?*” The scale for this question is: 4= alot; 3= some; 2= only a little; 1= not at all.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=.053$, $p=.322$, $R^2=.024$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to the perception of whether the Internet has improved their interactions with the Federal Government.

One independent variable showed some associative power with the dependent variable. Education ($\beta=.159$, $p=.007$, $R^2=.024$) showed a weak, but statistically

significant effect within the model.

The **twelfth hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on the perception of whether the Internet has improved their interactions with the State Government. The null hypothesis is that the community-level social capital does not positively effect the perception of whether the Internet has improved their interactions with the State Government. The dependent variable uses the *Stowell-Pew Dataset* which asks : “*How much, if at all, has the Internet improved the way you interact with...the state government?*” The scale for this question is: 4= alot; 3= some; 2= only a little; 1= not at all.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.054$, $p=.309$, $R^2=.055$) within our model as not having a statistically significant effect. The multiple linear regression data does not suggest that changes in community-level social capital are positively (nor negatively) related to the perception of whether the Internet has improved their interactions with the State Government.

One independent variable, once again, showed some strength with the

dependent variable. Education ($\beta=.150$, $p=.011$, $R^2=.024$) showed a weak, but statistically significant effect within the model.

The **thirteenth hypothesis** to be examined is whether community-level social capital (which changes from major media market area to major media market area) has a positive effect on the perception of whether the Internet has improved their interactions with the State Government. The null hypothesis is that the community-level social capital does not positively effect the perception of whether the Internet has improved their interactions with Local Government. The dependent variable uses the *Stowell-Pew Dataset* which asks : “How much, if at all, has the Internet improved the way you interact with...local government?” The scale for this question is: 4= alot; 3= some; 2= only a little; 1= not at all.

Using our developed measure of community-level social capital, the hypotheses cannot be confirmed with the available data. The measure shows the Trust/Cynicism Score ($\beta=-.107$, $p=.041$, $R^2=.035$) within our model as having a statistically significant effect which is very weak in nature and found within a very weak model. The multiple linear regression data does not conclusively show that changes in community-level social capital are positively (nor negatively) related to the perception of whether the

Internet has improved their interactions with the State Government.

Table 42: Multiple linear regression of how using the Internet has improved communication with different levels of government as the dependent variable

	Net Improved Fed		Net Improved State		Net Improved Local	
	β	p	β	p	β	p
Internet user	---	---	---	---	---	---
Age	-.089	.111	-.049	.374	<i>-.122</i>	<i>.026</i>
Education	<i>.159</i>	<i>.007</i>	<i>.150</i>	<i>.011</i>	.052	.365
Income	.034	.545	.073	.200	<i>.112</i>	<i>.047</i>
African-American	.013	.810	.083	.137	<i>.138</i>	<i>.013</i>
Latino	-.013	.808	-.030	.574	.020	.704
Gov Emp	.071	.186	.087	.107	.075	.160
Republican	.099	.358	-.022	.840	-.072	.491
Democrat	.119	.232	.017	.860	.040	.678
Independent	.152	.139	-.021	.839	.001	.994
Trust/Cynicism	.053	.322	-.054	.309	<i>-.107</i>	<i>.041</i>
r²	.024		.055		.035	
n	361		359		358	

Standardized coefficients. Adjusted R-squared. $P < .05$ is bolded and italicized.

Several variables showed some power with the dependent variable. Age ($\beta=-.122$, $p=.011$, $R^2=.024$) Education ($\beta=.052$, $p=.365$, $R^2=.035$); Income ($\beta=.112$, $p=.047$, $R^2=.024$) and; African-American ethnic heritage ($\beta=.138$, $p=.013$, $R^2=.024$) all showed statistically significant findings within the framework of the model.

e. Trust/cynicism measure as the dependent variable

Looking at the strongest model that we have been able to produce--using transactional and information variables--gives us a prime opportunity to test whether the dependent variable that we are testing is, in fact, that with the strongest explanatory power. Taking the community-level trust/cynicism score as the dependent variable and testing it against transactional and informational (along with our demographic variables) produced a much weaker model (adjusted $r^2 = .019$, $n=537$) with little significance for transactional and information variables as predictors.

f. Internet use as a dependent variable

Another possibility would be using Internet use as the dependent variable--that knowing whether one uses the Internet would be a strong way to predict community-level trust/cynicism. When a multiple linear regression was run using Internet use as the dependent variable, the model itself was weak and produced little results. Though when Internet use was used in a correlation matrix against the transactional (.333, $p < .01$) and informational (.505, $p < .01$) computed variables, a moderate effect was seen. Running a multiple linear regression using Internet use as the dependent variable and the transactional and informational computed variables (along with the demographic variables), showed a moderate strength model ($r^2 = .387$, $n = 537$) along the lines of our hypothesized model. The variables that showed any level of significance included the Informational computed variable ($\beta = -.312$, $p = .000$, $R^2 = .387$), age ($\beta = -.247$, $p = .000$, $R^2 = .387$), education ($\beta = -.202$, $p = .000$, $R^2 = .387$), and income ($\beta = -.118$, $p = .003$, $R^2 = .387$). The other variables (trust in different levels of government, digital government activities, and improvement of communication with different levels of government because of the Internet) produced statistically insignificant or weak results.

g. Weaknesses of the study

While developing a community-level measure for social trust/political cynicism gave the study the ability to measure responses about digital government from survey respondents, it also took away the random sample nature of the original study and the results now lack generalizability. The convenience sample was used so that we might be able to measure on a different level of social capital than had been done before.

Since the measure was based on survey research conducted in major media market areas, it reflects the opinions of individuals in those areas. The area code-zip code transition also lowers the precision that the national survey might have.

In addition, since the Stowell surveys were done in major media market areas, the area codes that were chosen were the best estimate of the geographical regions that encompass the major media market area and are not as precise as I would like. On the positive side, the comparison with the Putnam scale of community-level social capital and its high rate of correlation would indicate that the Stowell data did provide an reasonably accurate measure of community-level social capital for the areas represented. Yet even with this high level of association, a difficulty in using the major media market area is that the entire region is given one score. While this helps greatly to distinguish between two major media market areas, it does little to explain the

variations in social capital of people within those areas. Put another way, the social trust variables capture between-major media market area variation, not within-major media market area variation..

Another area of concern is that the Pew survey, while randomly sampled, leaves out the opinion of non-Internet users in some questions, thus tilting the responses towards Internet users.

CHAPTER FIVE

DISCUSSION

Robert Putnam showed that when higher education was controlled for, there is little difference in the area of civic engagement between Internet users and non-Internet users. Using an earlier incarnation of the Pew Internet and American Life data, Tolbert and Mossberger (2006) were able to find a small correlation between visiting a local government website and individual-level trust in local government.

Using Robert Putnam's theory of social capital as a take-off point, the primary purpose of this study was to determine if--as Putnam observed with another technology, television, where social capital was lowered by its introduction--community-level social capital is being weakened by the introduction and implementation of digital government. Stated succinctly-- this doctoral dissertation investigated the effects of participating in digital government activities on levels of satisfaction with digital government, and the effects of participation in different types of digital government activities on community-level social capital.

This study combined the ability of *The Pew Internet and American Life eGovernment Survey of June 2003* to provide insight into the opinions and perceptions of those using digital government services and those not doing so, along with the ability of *Stowell*

Datasets of Washington State University to provide an impressive measure of community-level social capital. While the many multiple linear regressions run for this study showed little predictive effect of digital government use on citizen satisfaction with government services and governmental institutions and community-level social capital, other findings evolved that contribute to the body of knowledge in the arena of digital government.

In the Introduction, this study proposed one primary research question and four associative questions. The primary question asked was the following--since social capital was lowered by the introduction of television, is social capital being lowered by the introduction and implementation of digital government?

The associative questions asked were these: (a) are we able to accurately produce a measure of community-level social capital to use in this dissertation; (b) is digital government playing a negative role in interactions with government; (c) are all digital government activities having the same effect, or is there a different effect for different activities; and, (d) what are the important differences in the digital government services of today and the more traditional services (and associated satisfaction) found in the classic *Bureaucratic Encounters* study?

a. Are we able to accurately produce a convincing measure of community-level social capital to use in this dissertation?

The *Stowell Datasets of Washington State University* were gifted to the University by one of the foremost market research firms in the Pacific Northwest, Leigh Stowell and Company, Inc. Using the combined resources of Washington State University's Division of Governmental Studies and Services and the Digital Archive Division of the Washington State University Libraries, the datasets were reformatted into SPSS datasets and made available for use by social science researchers through the Washington State University Digital Archives. More recently these datasets have been hosted on the Institute for Quantitative Social Science at Harvard University (*ISQ Dataverse Network Website*), which is part of the NSF-funded **Dataverse Network Project** being carried out by Professor Gary King.

The Stowell datasets consist of surveys conducted for major television network affiliates of CBS, NBC and ABC, in addition to major newspapers located in the targeted regions. The survey data were collected under the supervision of experienced project managers within the Leigh Stowell and Company organization. Interviewers were trained and monitored, and quality control was exercised during the telephone interactions with participants. Participants were selected by random digit dialing

technology. The survey questions themselves addressed a wide array of topics of use to these media outlets. In addition, they also contain multi-item scales for social trust, self-esteem and political liberalism derived from factor analysis and cluster analysis (Moon et al., 2000).

Five statements answered on a five-point Likert scale comprise the measure that this dissertation uses to determine the aggregate level of social trust and political cynicism shown on a community level. The first three items relate to elements of social trust – trust in ability to provide for basic needs, trust in people to be open in communication and trust in being treated fairly over one’s life course. The last two items relate to political cynicism with respect to resignation to the economics of war and acceptance of the existence of the undue influence of wealth over political officials.

Those survey statements read as follows: (1) my family income is high enough to satisfy nearly all of our important desires; (2) the best way to handle people is to tell them what they want to hear; (3) generally, I feel life has not been fair to me; (4) human nature, being what it is, there must always be war and conflict; and (5) most public officials today are only interested in people with money. This study developed an aggregate social trust/political cynicism score for each Stowell Major Media Market Area using a formula successfully applied by social science researchers using the

Stowell Datasets in previous published studies.

Taking the scores derived from recoded variables gives us a scale with high social trust/low political cynicism being at one end and low social trust/high political cynicism being at the other end. When a correlation matrix is created for these five items, the resulting set of variables show overall statistically significant coherence. With the exception of PSYHIGHENO against PSYHUMANWAR (-.033**), a positive correlation is shown among all the variables, though at a low magnitude. The low positive Pearson's r scores have particular meaning since the n used in this analysis is so large ($n=122,599$). After the recoding and psychometric analysis is performed, each Stowell Major Media Market Area is given a score based on the answers from these five variables. By adding each variable's mean and dividing by five, the resulting grand mean value is our community-level Trust/Cynicism measure.

In *Social Capital: Measurement and Consequences*, Putnam uses a thirteen-dimension measure to assess each state's level of social capital. He uses several trust-based attitudes and behavior-based factors such as serving on committees, club meetings attended, presidential election turnout, the number of public meetings attended, and so on to produce a global measure of social capital for each state. Using a factor analysis, Putnam combined all thirteen items into one global measure of

social capital, and developed a map to which he assigned the title 'Social Capital in the American States'. While Putnam's state-level index for social capital isn't as geographically area-focused as the *Stowell Datasets of Washington State University* major media market areas, his map does provide us with an interesting picture of where Stowell dataset jurisdictions fall on a statewide level.

The Social Trust measure contained in the *Stowell Datasets of Washington State University* and Putnam's statewide measures demonstrate a high degree of agreement. Another interesting aspect with this comparison is that there are no VERY LOWs above the mean and there are no VERY HIGHs below the mean in the distribution of Stowell Major Media Markets within the Trust/Cynicism continuum.

To examine this premise of agreement between the two variables, we can also take the general categories of the Putnam Social Capital State Scores and give them a numerical ranking which gives us the opportunity to analyze the correlation between the two scores. The categorization to scale coding is: Very High=7; High-Very High = 6; Moderate-High = 5; Moderate = 4; Moderate-Low= 3; Low-Very Low= 2; Very Low = 1.

When the correlation between the two variables, Trust/Cynicism Score and Putnam's Social Capital Score is examined, the relationship appears to be both statistically significant ($r^2=.711$, $p>.01$) and very strong.

While the differences between the two measures of community-level social capital include regional differences (statewide-measure versus more localized), the correlation between the two is so strong that the probability of our Trust/Cynicism scale measuring community-level social capital as Putnam has conceptualized it is quite high.

It would appear that we were able to create a rather successful measure of community-level social capital to use in our statistical analysis of the effects of digital government on social capital formation.

b. Is digital government playing a negative role in interactions with government?

In the bi-variate analysis, trust in Local government had a rather consistent statistically significant but weak positive correlation with how well the Internet has improved communication across all levels of government. The Internet improving communication with Local government also has a positive correlation with trust in State and Local government.

As in earlier analysis and within the literature review, education plays an important role in whether individuals perceive the Internet as improving communication within differing levels of government. Age was seen as a negative correlation when determining whether the Internet has improved communication with

Local government. Engagement in different types of digital government activities all showed a statistically significant positive correlation with whether citizens believe that the Internet has improved communication across the different levels of government.

According to the most recent data available, level of formal education and Internet access still have a strong connection that continues. Those who are better educated are much more likely to have Internet access than those with little or no education. Using data from both the Pew Internet and American Life Project and FEDSTATS, a measure was developed that clearly shows the downward slope of those with Internet access in groupings of those with higher education to those with less. The most noteworthy decrease goes from high school graduates to those with less than a high school education.

The patterns found dealing with age are troubling. In almost every comparison of means across generations, age was seen as a hindrance to both the use of and satisfaction with digital government.

It is clear that the elderly are not able to derive the benefits of digital government to the same extent that younger people are able to do so.

Within the linear regressions, several variables showed some power when using the question if communication with Local government has improved with the

introduction of the Internet. Once gain age ($\beta=-.122$, $p=.011$, $R^2=.035$) showed a negative correlation, where education ($\beta=.052$, $p=.365$, $R^2=.035$); income ($\beta=.112$, $p=.047$, $R^2=.035$), and African-American ethnic heritage ($\beta=.138$, $p=.013$, $R^2=.035$) all showed statistically significant findings within the framework of the model. Age continues to show negative correlations in both the preference for transactional and informational digital government activities within at least one model that was moderate in strength. In the same model, education and income are seen as positive indicators, supporting the findings presented in the bi-variate analysis.

In the literature review, the uni-variate analysis, the bi-variate analysis and even the multiple linear regressions, age is seen as a negative indicator in the use of and satisfaction with digital government resources, where education and income (to varying degrees) are seen as positive indicators.

The more people use digital government in different ways, the more they appear to see digital government as improving their communication with different levels of government. Within the bi-variate analysis, differing types of digital government activities all showed a statistically significant positive correlation with whether they believe that the Internet has improved communication across the different levels of government.

c. Are all digital government activities equal or is there a different effect for different activities?

In both the bi-variate and multiple-linear regressions, all digital government activities are not created equal. From researching government documents and statistics online to getting advice from governmental agencies online about health concerns, the strength of association varies and when those activities are grouped into transactional and informational activities, some of the strongest models that this dissertation produced resulted. While the statistical evidence would not support that the type of activity has the ability to cause change in community-level social capital, the evidence was somewhat compelling when examining variables such as Internet use, age scale, education scale and income scale. Using Informational digital government activities only produced a modestly strong model which showed that participation in Informational digital government activities caused a slight negative effect as age increased and a slight positive effect for both education and income when other variables are controlled for in the analysis.

d. What are the important differences in the digital government services of today and the more traditional services (and associated satisfaction) found in Bureaucratic Encounters?

In the bi-variate analysis, our Trust/Cynicism score showed few statistically significant correlations. African-Americans showed a slight, but statistically significant negative correlation ($r^2=-.146$, $p=.000$) in relation to the community level trust/cynicism score developed. Political independents showed a very slight, statistically significant positive correlation ($r^2=.084$, $p=.027$) in relation to the community-level trust/cynicism score. In the linear regression, the only negative correlation was found in whether individuals thought that the Internet improved Local Government communications. The correlation was so low ($-.107$), on the cusp of the margin of error, along with a very small n (358) that was surveyed for that particular question.

Overall, it would appear that a preference for digital government, different types of digital government usage and in most instances, whether one believes the Internet is improving communication with different levels of government has no negative effect on community-level social capital. The many linear regressions ran simply do not show that taking these activities/perceptions/levels of satisfaction can be accurately used to predict levels of community-level social capital.

What does this mean to digital government? Since digital government resources are rarely implemented as stand-alone measures, they appear to be doing little harm and satisfaction would appear to be positively correlated with its usage on a bi-variate basis. Katz, et al showed a positive effect of age in the arena of interactions with governmental agencies. While this study differs with that work, it would appear in the digital government arena, age is a negative indicator of both usage and in some instances, satisfaction.

The trends found in this dissertation dealing with age are troubling.

In almost every comparison of means, age was seen as a hindrance to both the use of and satisfaction with digital government. The findings in *Bureaucratic Encounters* showed age as the “most powerful determinant of satisfaction”, with a high correlation existing between age and satisfaction with in-person governmental services (Katz and University of Michigan. Survey Research Center., 1975). This would appear to be the case when the venue is changed to digital government encounters, but not in the positive direction as found in *Bureaucratic Encounters*.

Older respondents in the *Bureaucratic Encounters* example were seen as being significantly more satisfied with the experience than younger respondents. In the realm of digital government, satisfaction amongst older respondents is significantly lower

than that of younger respondents. The evidence would serve as an opportunity for further research. Current research is divided as to what the cause of senior citizen avoidance of digital government is. Is it a natural effect of aging or is it a society that fails to provide useful interfaces and an 'ease of use' criteria, as argued by researcher Jakob Nielsen? And while organizations such as the AARP do provide computer literacy training programs to seniors, the effect of these programs on the most recent data would appear at first glance to be negligible. More research within the area of aging and levels of satisfaction with digital government needs to be conducted to promote our understanding of this effect.

Until further research is conducted, it is safe to posit that services directed towards seniors (e.g., Social Security, Medicare) need to be dichotomous with both in-person, traditional services and user-friendly (e.g., Nielsen recommended usability factors) digital government services so that a growing part of the population isn't disenfranchised in the quest for greater efficiency and cost reduction.

e. Social capital was lowered by the introduction of television, according to Putnam. Is community-level social capital being lowered by the introduction and implementation of digital government

The primary research question asks: is community-level social capital being lowered by the introduction and implementation of digital government.

The use of digital government could arguably be seen as a supplement of the existing government services already being provided. No positive nor negative predictive effect was found when examining the use and satisfaction with digital government on community-level social capital. Could this suggest that digital government has a moderating effect that runs with the wave generated by more traditional government service provision? A further avenue of research could be to more closely compare the two different types of governmental service, in-person and digital, within the context of community-level social capital and examine further the relationship between the two forms of governmental service. Yet, within the construct of this study, there is no convincing statistical evidence that community-level social capital is being lowered by the use of digital government nor with its satisfaction with digital government. Stated generally, it isn't helping to raise levels of community-level social capital--but it also isn't hurting it within the construct of this dissertation.

Looking at future issues in digital government, when Internet use is segmented into two categories--information seeking and service transaction--the vast majority of governmental website users are engaged in *seeking information*. Nearly two out of three (62%) Internet users are actively seeking out information on public policy issues, and about a third use governmental websites to contact government officials. One possible

cause for the uneven use of governmental websites for information seeking purposes instead of transactional uses is the fact that digital government is seriously lagging behind eCommerce by a considerable extent.

The comparison of means showed a similar effect with informational activities outpacing transactional activities. Whether this is an effect of trust (e.g., whether the Internet is a safe place to do business) or the lack of opportunities for transactional encounters at the time of the *Pew Internet and American Life eGovernment Survey of June 2003* is unknown, but the effect follows what is seen in prior survey research.

To review, the aim of the research was to make use of the social capital construct as a theoretical framework in the investigation of satisfaction among users of digital government.

The findings of this study, when looking at a comparison of means, show that while digital government is doing little to damage community-level social capital (unlike other technological advances, such as television, according to Putnam), person-to-person contact might be more valuable to those less inclined to use the technology (e.g., younger versus older users) and it could also be argued that to those who do use the technology, a reliance on person-to-person contact as a “fallback” is presumed.

What, if any, role does the social capital context play in this measure of

satisfaction with digital government? Is it perhaps the case that the value of human contact is so low in 'bureaucratic encounters' that the increased dependency on computer technology (e.g., digital government) and its presumed increased efficiency outweighs any benefit associated with citizen-bureaucrat real time interaction? Once again, the research found no confirmatory statistical evidence that increased use of digital government technologies leads to an increase (or decrease) of community-level social capital. Prior studies found a small effect in visiting governmental websites and an increase in trust in local government. That these studies were conducted in the dawning era of digital government would tend to bolster the argument that further and more current research is needed in this area.

In conclusion, the area of social capital and digital government provides a wealth of opportunity for further study. As the population grows in its sophistication and ability to use the technology efficiently, the effect of social capital (on both the community-level and individual-level) can provide many avenues to further our understanding of our changing technological world.

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PEW EGOVERNMENT SURVEY INSTRUMENT

The Pew Internet and American Life Project eGovernment Survey, June 2003

Final **REVISED** Questionnaire, 7/24/03

Princeton Survey Research Associates

N=2000+ adults 18 and older

Form A 50%, Form B 50%

Field Dates: 6/25/03 – 7/17/03

Job#: 23029

Hello, my name is _____ and I'm calling for Princeton Survey Research. We're conducting a survey to find out what Americans think about some important issues today, and we would like to include your household. May I please speak with the YOUNGEST MALE, age 18 or older, who is now at home? **(IF NO MALE, ASK:** May I please speak with the OLDEST FEMALE, age 18 or older, who is now at home?)

SEX RECORD RESPONDENT SEX

Male

Female

GOV1 Overall, are you satisfied or dissatisfied with the way things are going in this country today?

Satisfied

Dissatisfied

Don't know/Refused

GOV2 Do you approve or disapprove of the way George W. Bush is handling his job as president? **[IF DK ENTER AS DK. IF "DEPENDS" PROBE ONCE WITH: OVERALL do you approve or disapprove of the way George W. Bush is handling his job as president? [IF STILL DEPENDS**

ENTER AS DK]

- 1 Approve
- 2 Disapprove
- 9 Don't know/Refused

GOV3 I'd like your opinion of some organizations and institutions. First/Next... **(INSERT ITEM; ROTATE)**. Do you have a very favorable, mostly favorable, mostly UNfavorable or very UNfavorable opinion of **(INSERT ITEM)**?

- a. The federal government
- b. Your state government
- c. Your local government

- 1 Very favorable
- 2 Mostly favorable
- 3 Mostly UNfavorable
- 4 Very UNfavorable
- 9 Don't know/Refused

GOV4 How much of the time do you think you can trust the government in Washington to do what is right – just about always, most of the time, or only some of the time? (PRC '99 trend) **REMOVE THIS TREND NOTE FROM PROGRAMMED VERSION**

- 1 Just about always
- 2 Most of the time
- 3 Only some of the time
- 9 Don't know/Refused

GOV5 Now I'm going to read you a pair of statements. Please tell me whether the FIRST statement or the SECOND statement comes closer to your own views – even if neither is exactly right. **(READ AND ROTATE 1-2)**. **AFTER CHOICE IS MADE, PROBE:** Do you feel STRONGLY about that, or not? (PRC '99 trend) **REMOVE THIS TREND NOTE FROM PROGRAMMED VERSION**

GOV5 CATEGORIES:

- 1 Government is almost always wasteful and inefficient (OR)
- 2 Government often does a better job than people give it credit for
- 3 **(VOL)** Neither/Both
- 9 Don't know/Refused

GOV5.1 CATEGORIES:

- 1 Strongly
- 2 Not strongly
- 9 Don't know/Refused

GOV6 In the past year, have you contacted your local, state or federal government by... **(INSERT IN ORDER).**

- a. Calling a government office or agency on the phone
- b. Visiting a government office or agency in person
- c. Writing a letter to a government office or agency

- 1 Yes
- 2 No
- 9 Don't know/Refused

(READ) On another subject...

Q5 Do you use a computer at your workplace, at school, at home, or anywhere else on at least an occasional basis?

- 1 Yes
- 2 No
- 9 **(DO NOT READ)** Don't know/Refused

Q6 Do you ever go online to access the Internet or World Wide Web or to send and receive email?

- 1 Yes
- 2 No
- 9 **(DO NOT READ)** Don't know/Refused

ASK ALL INTERNET USERS (Q6=1); NON-USERS SKIP TO GOV10

Q7 Did you happen to go online or check your email YESTERDAY?

- 1 Yes, went online yesterday
- 2 No, did not go online yesterday
- 9 **(DO NOT READ)** Don't know/Refused

IF WENT ONLINE YESTERDAY (Q7=1), ASK:

Q8 When you went online yesterday, did you go online from HOME?

- 1 Yes, went online from home

- 2 No, did not
- 9 **(DO NOT READ)** Don't know/Refused

IF WENT ONLINE YESTERDAY (Q7=1), ASK:

Q9 Did you go online from WORK yesterday?

- 1 Yes, went online from work
- 2 No, did not
- 9 **(DO NOT READ)** Don't know/Refused

IF WENT ONLINE YESTERDAY (Q7=1), ASK:

Q10 Counting all of your online sessions, how much time did you spend online yesterday? **(DO NOT READ)**

- 1 Less than 15 minutes
- 2 15 minutes to less than a half hour
- 3 Half hour or more but less than 1 hour
- 4 About an hour
- 5 More than 1 hour but less than 2 hours
- 6 2 hours or more but less than 3 hours
- 7 3 hours or more but less than 4 hours
- 8 4 hours or more
- 9 **(DO NOT READ)** Don't Know/Refused

No Question 11

ASK ALL INTERNET USERS (Q6=1):

Q12 About how many years have you had access to the Internet?

_____ **RECORD NUMBER OF YEARS**

- 0 Under a year
- 99 **(DO NOT READ)** Don't know/Refused

IF ONLINE UNDER A YEAR (Q12=0) ASK:

Q12.1 About how many months is that?

_____ **RECORD NUMBER OF MONTHS**

- 99 **(DO NOT READ)** Don't know/Refused

ASK IF (Q7=2,9 OR Q8=2,9), DID NOT GO ONLINE FROM HOME YESTERDAY:

Q13 Do you ever go online from HOME?

- 1 Yes, go online from home
- 2 No, do not
- 9 **(DO NOT READ)** Don't know/Refused

ASK ALL WHO WENT ONLINE FROM HOME YESTERDAY OR IF YES IN PREVIOUS QUESTION (Q8=1 OR Q13=1):

Q14 In general, how often do you go online from HOME — several times a day, about once a day, 3-5 days a week, 1-2 days a week, once every few weeks, or less often?

- 1 Several times a day
- 2 About once a day
- 3 3-5 days a week
- 4 1-2 days a week
- 5 Every few weeks
- 6 Less often
- 9 **(DO NOT READ)** Don't know/Refused

ASK IF (Q7=2,9 OR Q9=2,9), DID NOT GO ONLINE FROM WORK YESTERDAY

Q15 Do you ever go online from WORK?

- 1 Yes, go online from work
- 2 No, do not
- 9 **(DO NOT READ)** Don't know/Refused

ASK ALL WHO WENT ONLINE FROM WORK YESTERDAY OR IF YES IN PREVIOUS QUESTION (Q9=1 OR Q15=1):

Q16 In general, how often do you go online from WORK — several times a day, about once a day, 3-5 days a week, 1-2 days a week, once every few weeks, or less often?

- 1 Several times a day
- 2 About once a day
- 3 3-5 days a week
- 4 1-2 days a week
- 5 Every few weeks
- 6 Less often
- 9 **(DO NOT READ)** Don't know/Refused

ASK ALL INTERNET USERS (Q6=1):

WEB-G. Next, please tell me if you ever do any of the following when you go online. When you go

online, do you ever... **(ASK ACT01-ACT61 FIRST, IN ORDER; ROTATE ITEMS GA-GD)**

[IF YES, FOLLOW-UP WITH:] Have you done this in the past year, or not?

ACT01 Send or read email

ACT27 Look for information from a local, state, or federal government web site

ASK ACT61 IF ACT01=1,2:

ACT61 Send email to your local, state or federal government

GA Apply for government services or benefits

Get advice or information from a government agency about on a health or safety issue

GB Get recreational or tourist information from a government agency

GC Research official government documents or statistics

GD Get information about or apply for government benefits

Yes, have done this in the past year

Yes, have done this but not in the past year

No, have never done this

Don't know/Refused

IF USE INTERNET TO CONTACT THE GOVT (WebG/ACT27=1,2 or ACT61=1,2 or ANY ITEM GA-GD=1,2):

GOV7 How often do you use the Internet to contact the government – every day, several times a week, several times a month, every few months, or less often than that?

1 Every day

2 Several times a week

3 Several times a month

4 Every few months

5 Less often

9 Don't know/Refused

ASK IF LOOKED FOR INFO ON GOVT WEB SITES (WebG/ACT27=1,2):

GOV8 Have you ever used the Internet or email to try to change a government policy or affect a politician's vote on a law?

1 Yes

2 No

9 Don't know/Refused

IF GOV8=1:

GOV9 What kind of issue was that? **(PRECODED OPEN-END; RECORD UP TO TWO RESPONSES)**

- 1 Environment
- 2 Education
- 3 Health Care
- 4 Civil Rights/Social Justice
- 5 Iraq War
- 6 War on Terrorism
- 7 Government Benefits (Social Security, Veterans benefits)
- 8 Abortion
- 9 Crime
- 10 Traffic/Sprawl/Development/Zoning
- 11 Govt Budget/Taxes/Finance issues
- 12 Internet
- 13 Some other issue **(SPECIFY)**
- 99 Don't know/Refused

IF NO CONTACT W/GOVT PAST YEAR (ALL ITEMS GOV6a-c=2,9 AND (Q6=2,9 OR (QWebG/ACT27=2-9 AND (WebG/ACT01=3,9) or WebG/ACT61=2-9) AND ALL ITEMS WebG/GA-GD=2-9)):

GOV10 Are you aware that the government has set up 800 numbers and web sites to provide assistance to the general public?

- 1 Yes
- 2 No
- 9 Don't know/Refused

ASK ALL WHO CONTACTED THE GOVT IN THE PAST YEAR (GOV6a=1 or GOV6b=1 or GOV6c=1 OR WEB-G/ACT27=1 OR ACT61=1 OR ANY ITEM GA-GD=1). ALL OTHERS GO TO GOV42:

GOV11 For my next series of questions I'd like you to think about the LAST time you made contact with the government in the past year, for any reason. It could have been over the phone, online, in person, or by mail.

What was the purpose of that contact? Was it... **(READ 1-5/ROTATE 1-4)**

- 1 To get information or an answer to a specific question, (OR)
- 2 To express your opinion, (OR)
- 3 To get help solving a problem, (OR)
- 4 To carry out a transaction, such as filing taxes or registering your car, (OR)
- 5 Was it for some other purpose I haven't mentioned? **(SPECIFY)**

- 6 (VOL) Combination of above
- 7 (VOL) Didn't make contact with government in past year (SKIP TO GOV42)
- 9 (DO NOT READ) Don't know/Refused

(ASK GOV12 FORWARD IF GOV11 DOESN'T EQUAL 7)

GOV12 Is the government the FIRST place you went for this purpose, or did you go someplace else first?

- 1 Government first (INT NOTE: includes "government is the only place to go for this purpose")
- 2 Someplace else first
- 9 Don't know/Refused

GOV13 At the time you contacted the government, how complicated did you think your question, transaction, or problem was? Did you think it was... (READ 1-3)

- 1 VERY COMPLICATED, meaning it would require substantial effort and a lot of help from government sources
- 2 SOMEWHAT COMPLICATED, requiring moderate effort and only some help from government sources, OR
- 3 NOT REALLY COMPLICATED AT ALL, requiring minimal effort and little help from government sources?
- 9 (DO NOT READ) Don't know/Refused

GOV14 How URGENT was your last contact with the government? Was it... (READ 1-3)

- 1 VERY urgent, meaning you needed a response within 24 hours,
- 2 Somewhat urgent, but not requiring an immediate response, OR
- 3 Not really urgent at all?
- 9 (DO NOT READ) Don't know/Refused

GOV15 Were you contacting the government for PERSONAL reasons or for BUSINESS reasons?

- Personal
- Business
- (VOL) Both
- (VOL) Neither/Something else (SPECIFY)
- 9 Don't know/Refused

GOV16 Do you happen to recall what LEVEL of government—local, state, or federal—you were trying to reach?

- 1 Local
- 2 State
- 3 Federal
- 4 (VOL) Combination of above**
- 5 (VOL) Don't remember**
- 9 Don't know/Refused

GOV17 Was your last contact with the government related to filing taxes, or not?

- 1 Yes
- 2 No
- 9 Don't know/Refused

IF CONTACT RELATED TO TAXES (GOV17=1):

GOV18 Are you referring to actually MAILING IN YOUR TAX RETURN, or was it something else related to taxes, such as downloading tax forms, filing taxes online or by phone, or getting answers to your tax questions?

- 1 Mailing in return – **SKIP TO GOV39**
- 2 Something else related to taxes
- 9 Don't know/Refused

ASK ALL WHO CONTACTED THE GOVT IN THE PAST YEAR (GOV6a=1 or GOV6b=1 or GOV6c=1 OR WEB-G/ACT27=1 OR ACT61=1 OR ANY ITEM GA-GD=1):

GOV19 Still thinking about the LAST time you contacted the government this past year, what method of contact did you use? Did you... **(READ 1-6)**

- 1 Call on the phone,
- 2 Visit an office or agency in person,
- 3 Visit a government web site,
- 4 Send email,
- 5 Write a letter, OR
- 6 Do a combination of the above?
- 7 (VOL) Something else (SPECIFY)**
- 8 (VOL) Can't remember**
- 9 (DO NOT READ) Don't know/Refused**

IF DID A COMBINATION (GOV19=6):

GOV20 Which of these did you do? **(REREAD CHOICES; RECORD MULTIPLE RESPONSES)**

- 1 Call on the phone,
- 2 Visit in person,
- 3 Visit a government web site,
- 4 Send email,
- 5 Write a letter, OR
- 6 Something else **(SPECIFY)**
- 7 **(VOL)** Can't remember
- 9 **(DO NOT READ)** Don't know/Refused

IF RECALL AT LEAST TWO RESPONSES 1-6 IN GOV20:

GOV21 Which of these did you do FIRST? **(REREAD YES RESPONSES FROM GOV20)**

- 1 Call on the phone,
- 2 Visit in person,
- 3 Visit a government web site,
- 4 Send email,
- 5 Write a letter, OR
- 6 Something else **(SPECIFY)**
- 9 **(DO NOT READ)** Don't know/Refused

ASK ALL WHO CONTACTED THE GOVT IN THE PAST YEAR (GOV6a=1 or GOV6b=1 or GOV6c=1 OR WEB-G/ACT27=1 OR ACT61=1 OR ANY ITEM GA-GD=1):

GOV22 We'd like to know if at any point during your last contact with the government you switched from one method of contact to another – for instance, you may have started at a website but then felt you needed to call someone on the phone. Did this happen to you during your last contact with the government?

- 1 Yes
- 2 No
- 9 Don't know/Refused

IF SWITCHED CONTACT METHOD (GOV22=1):

GOV23 What caused you to switch? Did you switch... **(READ 1-3; ROTATE 1-2)?**

- 1 Because you weren't getting the response you needed, (OR)
- 2 Because someone instructed you to, or referred you to a different source (OR)
- 3 Because of some other reason I haven't mentioned? **(SPECIFY)**
- 4 **(VOL)** Both/All of the above

9 Don't know/Refused

ASK ALL WHO CONTACTED THE GOVT IN THE PAST YEAR (GOV6a=1 or GOV6b=1 or GOV6c=1 OR WEB-G/ACT27=1 OR ACT61=1 OR ANY ITEM GA-GD=1):

GOV24 In general, how satisfied were you with your LAST experience contacting the government? Were you...**(READ 1-4)**

- 1 Very satisfied,
- 2 Somewhat satisfied,
- 3 Somewhat DISsatisfied, OR
- 4 Very DISsatisfied?
- 9 **(DO NOT READ)** Don't know/Refused

GOV25 Which of the following statements best describes the outcome of your last contact with the government... **(READ 1-3)**

- 1 I was successful and accomplished what I wanted to
- 2 I have not yet been successful but I'm still working on it
- 3 I was unsuccessful and have stopped trying
- 4 **(VOL)** None of these
- 9 **(DO NOT READ)** Don't know/Refused

GOV26 Altogether, did your last contact with the government take about the amount of time you expected, more time than you expected, or less time than you expected?

- 1 About the time I expected
- 2 More time than I expected
- 3 Less time than I expected
- 9 Don't know/Refused

ASK GOV27-30 IF LAST CONTACT INVOLVED WEB VISIT (GOV19=3 or ANY RESPONSE GOV20=3)/OTHERS GO TO GOV31:

GOV27 You said that you visited a government website the last time you contacted the government. Did you do that from home or from work?

- Home
- Work
- 9 Don't know/Refused

GOV28 How did you know what government web site to go to? Did you... **(READ 1-5) (ALLOW UP TO THREE RESPONSES)**

- Use a search engine such as Google or Yahoo,
- Use a more general government information site like FirstGov or AOL's government guide,
- Go to a site listed in a government publication or notice,
- Go to a site you heard about from another source, like a friend, family member, or advertisement, OR
- Go to a site you've used before?
- (VOL)** Some other way **(SPECIFY)**
- (VOL)** Never figured out what site to go to
- 9 **(DO NOT READ)** Don't know/Refused

GOV29 Still thinking about the LAST time you contacted the government, did you experience any of the following problems? **(READ; ROTATE) (IF NECESSARY:)** Did you experience this problem, or not?

- a. A web site that was difficult to figure out or navigate
- Difficulty downloading forms or instructions
- Difficulty figuring out which website to go to
- Bad or outdated links
- A website that didn't have all the information you needed

- Yes
- No
- (VOL)** Don't know what that is
- 9 Don't know/Refused

GOV30 And during your last contact with the government, did you... **(INSERT FIRST ITEM; ROTATE).** **IF YES:** Was this very helpful, somewhat helpful or not helpful at all? Did you... **(INSERT NEXT ITEM)?**

- a. Use a search engine WITHIN a government web site?
- b. Use the FAQ, or Frequently Asked Questions, section of a government web site?

- Yes, very helpful
- Yes, somewhat helpful
- Yes, not helpful at all
- No
- (VOL)** Don't know what this is
- 9 Don't know/Refused

ASK GOV31-GOV34 IF LAST CONTACT WAS BY PHONE (GOV19=1 OR ANY RESPONSE GOV20=1)/ OTHERS GO TO GOV35:

GOV31 You said you called a government office or agency on the phone the LAST time you contacted the government. Did you make just one phone call or did you make more than one?

- Made one call
- Made more than one call
- 9 Don't know/Refused

GOV32 How did you know where to call? Did you...**(READ 1-6) (ALLOW UP TO THREE RESPONSES)**

- Call the operator or look it up in a phone book,
- Call a government information number such as 1-800-FED-INFO,
- Ask a friend or family member,
- Look it up on the Internet,
- Get the number from a government publication or notice, OR
- Did you already have the number because you've called it before?
- (VOL) Something else (SPECIFY)**
- (VOL) Never figured out where to call**
- 9 Don't know/Refused

GOV33 Which of the following things happened when you called? Did you... **(INSERT ITEMS IN ORDER)? IF YES, FOLLOW UP:** Was this very helpful, somewhat helpful, or not helpful at all?

- a. Reach an automated system that provided menus or directories
 - b. Get someone's voicemail where you could leave a message
 - c. Speak to a live person
-
- 1 Yes, very helpful
 - 2 Yes, somewhat helpful
 - 3 Yes, not helpful at all
 - 4 No
 - 9 Don't know/Refused

GOV34 Please tell me if you experienced any of the following problems when you contacted the government by phone. **(READ ITEMS; ROTATE) (IF NECESSARY:)** Was this a problem for you, or not?

- a. Not being able to figure out where to call
- b. Being put on hold for long periods of time
- c. Not having the time to stay on the phone or make repeated phone calls
- d. Not being able to get through to the right person
- e. No one returning your call
- f. Getting transferred around to many different people
- g. Not being able to call during business hours

- 1 Yes
- 2 No
- 9 Don't know/Refused

ASK GOV35-GOV38 IF LAST CONTACT INVOLVED EMAIL (GOV19=4 or ANY RESPONSE GOV20=4)/ OTHERS GO TO GOV39:

GOV35 You said you sent email the last time you contacted the government. Did you send just one email message or did you send more than one?

- Sent one email
- Sent more than one
- 9 Don't know/Refused

GOV36 How did you know where to send your email? Did you... **(READ 1-4) (ACCEPT UP TO THREE RESPONSES)**

- 1 Ask a friend or family member,
- 2 Look it up on the Internet,
- 3 Get the email address from a government publication or notice, OR
- 4 Did you already have the address because you've sent email there before?
- 5 **(VOL)** Something else **(SPECIFY)**
- 6 **(VOL)** Never figured out where to email
- 9 **(DO NOT READ)** Don't know/Refused

GOV37 When you contacted the government by email, did you want or expect a response? **IF YES:** Did you get a response, or not?

- 1 Yes, and got response
- 2 Yes, but didn't get response

- 3 No, didn't want/expect response
- 9 Don't know/Refused

GOV38 Are you confident your email reached the appropriate person or office, or are you not confident about that?

- 1 Yes, confident
- 2 No, not confident
- 9 Don't know/Refused

ASK ALL WHO CONTACTED THE GOVT IN THE PAST YEAR (GOV6a=1 or GOV6b=1 or GOV6c=1 OR WEB-G/ACT27=1 OR ACT61=1 OR ANY ITEM GA-GD=1):

GOV39 For my next few questions, I'd like you to think about ALL of the times you contacted the government in the past year, not just the last time. About what percentage of your contact with the government in the past year was related to filing taxes? **(DO NOT READ)**

- 1 0 percent (None)
- 2 Less than 10 percent
- 3 10-25 percent (about a quarter)
- 4 26-39 percent (about a third)
- 5 40-59 percent (about half)
- 6 60-79 percent (about two-thirds)
- 7 80-99 percent
- 8 100 percent (all)
- 9 Don't know/Refused

GOV40 Overall, was your contact with the government this past year MOSTLY for personal reasons or MOSTLY for business reasons?

- Mostly personal
- Mostly business
- (VOL)** Both equally
- 9 Don't know/Refused

GOV41 What LEVEL of government would you say you contacted MOST OFTEN this past year – local, state, or federal?

- 1 Local
- 2 State
- 3 Federal

- 4 (VOL) All three equally
- 9 Don't know/Refused

ASK ALL:

GOV42 OVERALL, when you have a question, problem, or task that requires contact with the government, what is the method you prefer MOST? **(READ 1-5)**

- 1 Calling on the phone,
- 2 Visiting in person
- 3 Visiting a web site,
- 4 Sending email, OR
- 5 Writing a letter?
- 6 (VOL) Some other way **(SPECIFY)**
- 7 (VOL) Never contact government – **GO TO INSTRUCTIONS BEFORE "PAR"**
- 9 **(DO NOT READ)** Don't know/Refused – **GO TO GOV44**

IF GOV42=1-6, ASK:

GOV43 Why do you prefer that method? **(PRECODED OPEN-END; RECORD UP TO TWO RESPONSES)**

- 1 It's the most convenient
- 2 It takes less time/It's the fastest
- 3 It's the easiest/Just easier to do things this way
- 4 It's the only way to get a response
- 5 Don't have access to the other methods
- 6 It's the only way to ensure privacy
- 7 Can do this anytime/doesn't have to be during regular business hours
- 8 I prefer dealing with a live person
- 9 I don't want to have to talk to anyone (use the Internet, for example)
- 10 I like to have things in writing
- 11 Just the way I've always done it/Habit
- 12 Some other reason **(SPECIFY)**
- 99 Don't know/Refused

ASK ALL/FORM A ONLY (EXCEPT GOV42(7)):

GOV44 If you ever needed to contact the government about... **(INSERT ITEM)**, would you prefer to do it over the phone, on the Internet, or some other way? How about... **(INSERT NEXT ITEM; ROTATE)** – would you prefer to do this over the phone, on the Internet, or some other way?

(NOTE: IF R SAYS "I don't use the internet/Don't have Internet access," ASK: Would you prefer to do this over the phone or some other way?)

ALWAYS ASK a FIRST:

- a. A personal tax issue
 - b. Getting a license or permit for your car
 - c. Getting a license or permit for a personal project like home remodeling
 - d. Expressing your opinion about an issue like taxes or schools
 - e. Exploring government benefits for yourself or someone else
-
- 1 Over the phone
 - 2 On the Internet
 - 3 Some other way
 - 9 Don't know/Refused

ASK ALL/FORM B ONLY (EXCEPT GOV42(7)):

GOV45 If you ever needed to contact the government about... **(INSERT ITEM)**, would you prefer to do it over the phone, on the Internet, or some other way? How about... **(INSERT NEXT ITEM; ROTATE)** – would you prefer to do this over the phone, on the Internet, or some other way?

(NOTE: IF R SAYS "I don't use the internet/Don't have Internet access," ASK: Would you prefer to do this over the phone or some other way?)

- a. Doing research for school or work
 - b. What programs different government agencies offer
 - c. Getting a recreational license like fishing or hunting
 - d. Getting a professional license like real estate
 - e. Recreational or tourism activities in your region
-
- 1 Over the phone
 - 2 On the Internet
 - 3 Some other way
 - 9 Don't know/Refused

ASK ALL (EXCEPT GOV42(7)):

GOV46 Has there ever been a time you've contacted the government and found you had contacted...(INSERT IN ORDER)? **IF YES, ASK:** Has that happened OFTEN, or not very often?

The wrong LEVEL of government, meaning local, state or federal
The wrong government OFFICE or AGENCY

Yes, often

Yes, not very often

No

(VOL) Never contact the government

Don't know/Refused

**ASK ALL INTERNET USERS (Q6=1) (EXCEPT GOV42(7)):
OTHERS GO TO INSTRUCTIONS BEFORE "PAR":**

GOV47 How much, if at all, has the Internet improved the way you interact with... **(INSERT; ROTATE)** – a lot, some, only a little, or not at all?

a. the federal government

b. your state government

your local government

1 A lot

2 Some

3 Only a little

4 Not at all

5 (VOL) Don't use Internet to contact government

9 Don't know/Refused

DEMOS: (ASK ALL)

(READ) Now, I'd like to ask you a few last questions for statistical purposes only...

PAR Are you the parent or guardian of any children under age 18 now living in your household?

1 Yes

2 No

9 **(DO NOT READ)** Don't know/Refused

[NO D2a]

IF PAR=1, ASK:

D2b Do you have any children who are age 11 or younger?

- 1 Yes
- 2 No
- 9 **(DO NOT READ)** Don't know/Refused

IF PAR=1, ASK:

D2c Do you have any children who are between ages 12 and 17?

- 1 Yes
- 2 No
- 9 **(DO NOT READ)** Don't know/Refused

AGE What is your age?

- _____ years (97=97 or older)
- 98 Don't know
 - 99 Refused

EDUC What is the last grade or class you completed in school? **(DO NOT READ, BUT CAN PROBE FOR CLARITY IF NEEDED).**

- 1 None, or grades 1-8
- 2 High school incomplete (grades 9-11)
- 3 High school graduate (grade 12 or GED certificate)
- 4 Business, Technical, or vocational school AFTER high school
- 5 Some college, no 4-year degree
- 6 College graduate (B.S., B.A., or other 4-year degree)
- 7 Post-graduate training/professional school after college (Master's degree/Ph.D., Law or Medical school)
- 9 **(DO NOT READ)** Don't know/Refused

MAR Are you married, living as married, divorced, separated, widowed, or have you never been married?

- 1 Married
- 2 Living as married
- 3 Divorced
- 4 Separated
- 5 Widowed

- 6 Never been married
- 8 **(DO NOT READ)** Don't know
- 9 **(DO NOT READ)** Refused

EMPL Are you now employed full-time, part-time, retired, or are you not employed for pay?

- 1 Employed full-time
- 2 Employed part-time
- 3 Retired
- 4 Not employed for pay
- 5 **(VOL)** Disabled
- 6 **(VOL)** Student
- 7 **(VOL)** Other
- 9 Don't know/Refused

ASK IF EMPL DOES NOT EQUAL 6:

STUD Are you also a full- or part-time student?

- Yes, full-time
- Yes, part-time
- No
- 9 Don't know/Refused

IF EMPL=1,2:

GEM Do YOU work for federal, state or local government – for example, as a public school teacher, police officer, firefighter, or other government job?

- Yes
- No
- 9 Don't know/Refused

ASK GEM2 IF NOT A GOVERNMENT EMPLOYEE (GEM=2,9):

GEM2 Does anyone else in your household work for federal, state or local government?

- Yes
- No
- 9 Don't know/Refused

ASK IF NOT EMPLOYED (EMPL=3-9):

GEM3 Does anyone in your household work for federal, state or local government?

- 1 Yes
- 2 No
- 9 Don't know/Refused

ASK ALL:

POLAF In politics TODAY, do you consider yourself a Republican, Democrat, or Independent?

- 1 Republican
- 2 Democrat
- 3 Independent
- 4 No party/Not interested in politics **(VOL.)**
- 5 Other party **(VOL.)**
- 9 **(DO NOT READ)** Don't know/Refused

ASK IF GO ONLINE AT HOME (Q8=1 OR Q13=1):

MODEM Does the modem you use at home connect through a standard telephone line, or do you also have some other type of connection?

(IF ANSWERS "SOME OTHER", ASK: Do you connect through a modem over a DSL-enabled phone line; a cable TV modem; a wireless connection; or a T-1 or fiber optic connection?)

- 1 Standard telephone line
- 2 DSL-enabled phone line
- 3 Cable modem
- 4 Wireless connection (either "land-based" or "satellite")
- 5 T-1 or fiber optic connection
- 6 Other **(MAKE SURE NOT ONE OF ABOVE)**
- 9 **(DO NOT READ)** Don't know/Refused

ASK ALL:

HISP Are you, yourself, of Hispanic or Latino origin or descent, such as Mexican, Puerto Rican, Cuban, or some other Latin American background?

- 1 Yes
- 2 No
- 9 **(DO NOT READ)** Don't know/Refused

RACE What is your race? Are you white, black, Asian, or some other race?

IF R SAYS HISPANIC OR LATINO, PROBE: Do you consider yourself a WHITE (Hispanic/Latino) or a BLACK (Hispanic/Latino)? **IF R DOES NOT SAY WHITE, BLACK OR ONE OF THE RACE CATEGORIES LISTED, RECORD AS "OTHER" (CODE 6)**

- 1 White
- 2 Black or African-American
- 3 Asian or Pacific Islander
- 4 Mixed race
- 5 Native American/American Indian
- 6 Other (**SPECIFY**)
- 9 (**DO NOT READ**) Don't know/Refused

LANG Is any language other than English spoken in your household?

- 1 Yes (**SPECIFY**)
- 2 No
- 9 Don't Know/Refused

DIS Does any disability, handicap, or chronic disease keep you from participating fully in work, school, housework, or other activities, or not?

- 1 Yes
- 2 No
- 9 (**DO NOT READ**) Don't know/Refused

IF DISABLED AND INTERNET USER (DIS=1 AND Q6=1)

DIS2 Does your disability or illness make it harder for you to use the Internet or doesn't it make any difference?

- 1 Yes, makes it harder
- 2 No, doesn't make a difference
- 9 (**DO NOT READ**) Don't know/Refused

ASK IF DISABLED AND NON-INTERNET USER (DIS=1 AND Q6=2,9)

DIS3 Would your disability or illness make it hard or impossible for you to use the Internet?

- 1 Yes
- 2 No

9 **(DO NOT READ)** Don't know/Refused

ASK ALL:

INC Last year, that is in 2002, what was your total family income from all sources, before taxes. Just stop me when I get to the right category. **(READ)**

- 1 Less than \$10,000
- 2 \$10,000 to under \$20,000
- 3 \$20,000 to under \$30,000
- 4 \$30,000 to under \$40,000
- 5 \$40,000 to under \$50,000
- 6 \$50,000 to under \$75,000
- 7 \$75,000 to under \$100,000
- 8 \$100,000 or more
- 9 **(DO NOT READ)** Don't know/Refused

ASK ALL INTERNET USERS (Q6=1)/NON-USERS THANK AND END INTERVIEW:

D12 Finally, would you be interested in participating in another public opinion survey, not by telephone but online and at your convenience?

- 1 Yes
- 2 No
- 9 **(DO NOT READ)** Don't know/Refused

IF D12=1, ASK:

D12a So we can contact you online at a later date, could you give me your email address? Your email address will NOT be given, sold or otherwise made available to anyone else, or used for any reason except to contact you for a public opinion survey.

RECORD EMAIL ADDRESS

NOTE THAT WHEN RESPONDENT SAYS "AT", TYPE: @

D12b Just to check, let me read that back to you. **(READ EACH CHARACTER IN EMAIL ADDRESS.)** Is that correct?

- 1 Yes
- 2 No

IF (2) NO, MAKE CORRECTIONS AND RE-READ EACH CHARACTER IN EMAIL ADDRESS.

THANK RESPONDENT: Thank you very much for your time. The results of this survey are going to be used by a non-profit research organization called the Pew Internet & American Life Project, which is looking at the impact of the Internet on people's lives. A report on this survey will be issued by the project in a few months and you can find the results at its web site, which is www.pewinternet.org [w-w-w dot pew internet dot org]. Thanks again for your time. Have a nice day/evening.

---end---