

The Impact of the Internet on Civic and Political Participation in Local Governance

- A Multilevel Model for Bridging Individual and Group Levels of Analysis -

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(Abstract)

Politically interested individual citizens often use information and communication technology (ICT) to facilitate and augment their civic and political participation. At the local level, ICT plays an important role for communication and information sharing in order for local groups to create awareness and draw citizens into public deliberation about local issues and concerns. This research examines the interplay of individual and local group level factors in order to better understand the relationship between civic engagement and ICT, especially the internet, by using household survey data from the town of Blacksburg, Virginia and environs in 2005 and 2006. It seeks to reconcile those different levels of analysis relating to the use and impact of the internet on civic engagement in local governance.

This study identifies the distinctive influences at both the individual citizen level and the group level by applying a multilevel statistical model (the Hierarchical Linear Model). First, this study found the effects of internal and external political efficacy and community collective efficacy as significant individual level influences on internet use for civic and political purposes. Second, group internet use—which includes new internet technologies—and group political discussion were revealed as key influences on citizens' perspectives on the helpfulness of the internet for civic and political purposes at the group level of analysis. Finally, in multilevel analysis, those recognized group level variables (group internet use and group political discussion and interests) led to positive agreement with the following statements: 1) the internet has helped me feel more connected with people like myself in the local area; 2) the internet has helped me feel more connected with a diversity of people in the local area; and 3) the internet has helped me become more involved in local issues that interest me when taking individual level variables into account.

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Chapter 1 Introduction

The distributed intelligence of the Global Information Infrastructure [Internet] will spread participatory democracy

-- U.S. Vice President Al Gore (1993)

The evolution of the internet significantly increases civic and political participation channels (Davis, 1999; Galston, 2004; Shah, Cho, Everland, and Kwak, 2005). According to Castells (1996), the internet's integration of audio, video, print and other media into a single system promises to establish new forms of social organization such as the web-based community. The internet supports human communication unconstrained by distance in time and space (Sproull, Dutton, and Kiesler, 2007). In contrast to conventional media, emerging internet technologies such as wikis, blogs, and e-forums provide new opportunities for public deliberation, political expression, and civic engagement (Shah et al., 2005).

New internet technologies increase deliberative and participatory means of democratic access and broaden the opportunity for civic and political participation. These emerging technologies and new social software such as Facebook, MySpace, and YouTube give ordinary citizens a greater voice in public issues (Lukensmeyer and Torres, 2006), and provide new opportunities for civic and political participation and public discussion due to dynamic, two-way, interactive features, which allow for commenting, tagging and collaborative editing functions. According to the Pew Internet Project report (2005), five million people post or share some kind of material on the web through their own blogs, and there are 1.6 million such postings per day in the United States (Nielsen/NetRatings, 2006). The internet reached more than half of the U.S. adult population and three-quarters of all children aged 12-17 in a period of less than a decade (Lee, 2006). Shared physical space may no longer be an essential part of community formation as we see in the development of web-based communities, especially among young adults (Gallant, Boone, and Heap, 2007).

In addition, the internet may be a meaningful medium for supporting a strong civil society and building social capital because of its relational social network features.¹ Walzer suggests that civil society is “the space of uncoerced human association and also a set of relational networks-formed for the sake of family, faith, interest and ideology-that fill this space” (in Barber, 1998, p. 4). Elshtain describes civil society as a sphere of our communal life in which we answer together the most important questions: what is our purpose, what is the right way to act, and what is the common good? In short, “it is the sphere of society that is concerned with moral formation and with ends, not simply administration or the maximizing of means” (1999, p. 21).

In addition, civic and political participation is essential to the notion of “governance” at the local level. In order to understand the relationship between civic and political participation and local governance, the reader may already have grasped that it is through good governance that local governments and societies can foster development. Good governance – of which the main elements are participation, transparency and accountability – can provide more productive investment, spur economic growth, and alleviate poverty. Efforts to realize good governance at the local level require partnership between government and civic society and depend on acquiring not only economic efficiency but also democratic legitimacy.

Civic and political participation may be regarded as the processes by which citizens’ concerns, needs, values, expectations, and problems are taken into account in the governmental decision-making process. The overall goal of better decisions that are supported by the public is based on two-way communication between the government and citizens (Gonzalez de Asis and Acuña-Alfaro, 2002). Thus, the impact of the internet on civic and political participation is an important issue for understanding overall governance at the local level.

¹ Social network is an important notion with trust and norms of mutuality in understanding social capital. Putnam treated social network features as a factor to help citizens participated more in local communities and work together (Kavanaugh, 2002).

Furthermore, the internet provides a platform for long-standing associations among large groups of people who share common interests, and also for loose coalitions and organizational groups that can organize and disband with minimal cost (Sproull et al., 2007). At the individual citizen level, advancement in internet technologies such as those mentioned above contribute to changing perspectives on the impact of the internet on civic engagement to more optimistic views. At the same time, recent studies show that local community groups play important roles in terms of internet and web-based practices for civic and political participation.

In this study, the impact of the internet on civic and political participation is examined considering both individual factors, especially political efficacy, and the role of local community groups. Recent studies show that the expansion of content and the interactive function of internet technologies such as real-time chats can be effective ways to increase both the internal and external political efficacy of the general public (Lee, 2006). Studies also show that local community groups as arenas for civic engagement and political expression acquire and share information through their uses of the internet (Kim, Kavanaugh, and Hult, 2007; Kavanaugh, Zin, Rosson, Carroll, Schmitz, and Kim, 2007).²

1.1 Purpose of the Study

Putnam (2000) describes the steady decline of group membership as one of the main reasons for diminishing civic engagement and reduced social capital. There is little research examining the relationship between group membership and the role of the internet, that is, on the impact of the internet on civic engagement at the group level. Indeed, prior studies have focused more on the individual level, with studies about the impact of internet use on political participation and civic engagement. They found that politically interested citizens use the internet to facilitate and even augment their political and civic engagement (Kim, et al., 2007; Chadwick, 2006; Shane, 2006; Kavanaugh, Zin,

² A number of recent studies have provided evidence that has suggested that the internet has begun to function as a communication network for grassroots, nonprofit, third sector organizations and political and civic activist networks (Vanfossen, 2006).

Carroll, Schmitz, Perez-Quinones, and Isenhour, 2006; Kavanaugh, Carroll, Rosson, and Zin, 2005; Uslaner, 2004; OECD, 2003; Norris, 2001).

However, social science data are typically multilevel. The nesting of observations within groups is fundamental to multilevel modeling. Despite the nearly universal presence of multilevel data, data analysis methods have historically focused on a single level, usually that of the individual (Bickel, 2007). Without considering group factors, there is a likelihood of missing the impact of such factors and obtaining misleading results. Thus, in this dissertation, I intend to focus on the application of multilevel models for bridging the individual and group levels of analysis in examining the impact of the internet on civic and political participation in local governance.

In previous endeavors exploring the use of the internet and its impact on civic and political participation, the focal levels of analysis were often at the individual level and the group level, respectively, and the group level of analysis was underdeveloped. Thus, the practical purpose of this study is to explore the level of individuals' political efficacy³ as well as local groups' influence on online and offline political and civic interests and activities and, finally, on attitudes about the helpfulness of the internet.⁴

1.1.1 Primary Research Questions

A number of previous scholarly studies have found that politically interested citizens use the internet to facilitate and even augment their political and civic participation. Although many works have described the importance of group membership for civic and

³ For instance, online/offline civic and political participation will occur when positive self-efficacy—i.e., internal political efficacy—meets positive judgment about the environment—i.e., external political efficacy (Lee, 2006).

⁴ The study examines, for example, group influence on the likelihood of individuals' reporting that the internet is helpful for becoming more involved in local issues in community and connected with diverse and similar people, taking into account individuals' civic and political activities and demographic characteristics.

political participation and social capital (Kim et al., 2007; Chadwick, 2006; Shane, 2006; Kavanaugh et al., 2005; Kavanaugh et al., 2006; Uslaner, 2004; OECD, 2003; Norris, 2001), little research has examined the relationship between the role of the internet in local groups and its effect on group members' civic and political participation. In this context, the research team on digital government at Virginia Polytechnic Institute and State University (Virginia Tech) has undertaken a variety of research initiatives to explore the impact of the internet and the local group effects on civic and political participation (Kavanaugh et al., 2006; Kim et al., 2007). In particular, this study focuses on the role of internal and external political efficacy on online/offline civic and political participation and, at the group level, emphasizes local group effects in terms of group internet use and political deliberation. This study examines the following two main questions. The first question is broader and more overarching than the second:

1. What is the impact of internet use on civic and political participation in local governance?⁵
2. Does internet use by members of local groups affect the individual members' civic and political participation? If so, how?⁶

In particular, even when scholars identify a detailed array of voluntary local groups, they fail to account for the "voluntary" attribute. Members from the same group are more likely to have similar attitudes or traits and shared experience or knowledge. Thus local community groups may act more as "sorting venues" than organization fields where civic and political learning takes place (McFarland & Thomas, 2006).

To answer these wide ranging primary research questions, the following secondary sub-

⁵ This question is examined to develop the baseline logic of a "civic effects" model, which showed that local citizens became more involved in local issues once individuals got on the internet (Kavanaugh et al., 2005).

⁶ This question is related to multilevel analyses. While prior work identifies a group effect (membership), we know little about the internal dynamics of these local voluntary associations. So as to tap the mechanism, this study uses the Hierarchical Linear Modeling (HLM) approach.

research questions are considered in this study.

1.1.2 Secondary Research Questions

Several sub-questions are asked in order to better understand the primary questions:

1. In order to understand the relationship between individual citizens and their use of the internet for civic and political reasons, the following questions were examined. At the individual level, these questions often were explored in prior studies:

- Who uses the internet for civic and political reasons, and how and why do they do so at the local governance level?
- To what extent is use of the internet related to civic and political participation?
- Do psychological factors, especially internal and external political efficacy and collective efficacy, have an effect on the use of the internet for civic and political participation?
- Do individual level factors such as measures of efficacy, trust, extroversion, income, education, gender and age have an effect on online civic and political interests and activities, and if they do, how?

2. At the group level, the role of local groups was examined in terms of groups mediating between individual citizens and their internet use for civic and political purposes:

- Did internet use by local groups change over time (between 2005 and 2006), and what is the impact of internet use on civic and political participation within different types of groups?
- Did the mode of communication (tradition mode (e.g., face-to-face) vs. electronic mode (e.g., internet online discussion)) for group

communication and formal and informal political discussion within the local groups change and if so, how and for whom?

3. The effort to build a bridge model (HLM) between the individual and group levels of analysis in exploring the impact of the internet on civic engagement and political participation:
 - What are the effects of *local group level factors* (such as group internet use and group political interest) on individual citizens' perceptions of the helpfulness of internet use for civic engagement and political participation, taking into account *individual level factors*?

1.2 Significance of the Study: Expected Contributions

1.2.1 Theoretical Contribution

The primary field to which this dissertation will contribute is e-governance, also known as digital government or e-government. Its findings help expand our understanding of the impact of internet use on civic engagement and political participation. According to Stephen Coleman (2003), the dilemma of early thinking about e-governance was that most internet enthusiasts did not understand or care very much about political democracy, and most politicians and government officials considered the internet as a one-way conveyor belt to send rather than to exchange information. There was no way of thinking about interactive two-way communication between citizens and government officials, between representatives and the represented. Now, there is a compelling case for the development of synergy between the digital world and democracy. The potential of new digital technologies such as Web 2.0 to facilitate public policy deliberation and two-way governance is important. Democracy is constrained by barriers of time and distance. These barriers can be transcended by information and communication technologies (Coleman, 2003).

Some studies have found widespread diffusion of various information and communication technology (ICT) innovations in the public sector, through which government overcomes the barriers of time and distance in providing public services (Gore, 1993; Moon, 2002) as well as broadens civic and political participation. According to one definition of e-democracy, “the concept of e-democracy is associated with efforts to broaden political participation by enabling citizens to connect with one another and with their representatives via new ICT.” This study may be beneficial in enhancing understanding and helping to build sound civil society with ICT in general and e-democratic public administration (e.g. stage five of e-government⁷) in particular.

If one defines “governance as the action of government plus its interaction with its nongovernmental partners in the process of governing—in their collective relationship with the economy and public policy” (Boyer, 1990, p. 51), a number of public administration and policy scholars argue that modern liberal democracies are shifting away from bureaucratic forms of *government* and towards networked approaches to *governance* in order to meet and manage increasingly complex societal needs (Considine, 2001).

One of the key implications of the shift towards governance is an increasing role for non-government actors such as nonprofit organizations including local community groups and individual citizens in the design and delivery of public policies. Although much research still focuses primarily on government, which organizes the nation-state and is the most powerful and coercive institution in society, we need to shift more attention from government to governance (Boyer, 1990). In terms of e-governance, Manuel Castells (2001) has declared the network to be the principal organizing framework of the information age. In so doing, he suggests that the internet is the technological basis for the organizational form of the information age (Castells, 2001).

⁷ Moon (2002) modified the stage-growth model of e-government by adding a political participation stage (stage five). It involves the promotion of Web-based political participation. While the previous four stages (simple information dissemination, request and response, service and financial transaction, and integration) are related to Web-based public services in the administrative arena, the fifth stage highlights Web-based political activities by citizens.

In addition, this research explores the effects of local community groups on individual engagement and adds to previous work on e-democracy as well as e-governance. The significant elements in the definition of e-democracy are civic and political participation and ICT. My dissertation research examines the relationship among those key terms. Thus, this research will contribute to expanding our understanding of civic and political participation in the fields of e-democracy and e-governance.

1.2.2 Practical Contribution

This study may provide practical knowledge for current and future public administrators/policy makers about participatory decisions, helping them to better understand the growing importance of civic engagement and political participation via ICT. Without broad citizen involvement, policy decisions in e-governance may replicate the limited interests of individuals or groups and ignore the views of those not participating. Having an improved comprehension of the dynamics and drivers of different mechanisms of internet use and its impact on civic and political participation may help enhance practices for e-governance programs and policies.

According to Galston (2007), recent studies of civic and political behavior show that “if we want to revitalize and sustain democratic citizenship, working to raise levels of civic [and political] knowledge and information would be one effective strategy, and a sensible place to begin” (p. 624). Local groups are key arenas for civic knowledge and information sharing. A critical role of public administrators as social designers⁸ is encouraging the growth of citizens through civic engagement and participatory decision making.

⁸ According to Jun (2007, p.76), “a contemporary public administrator may be viewed as a flexible, innovative social designer who critically participates in policy development with other [citizens] while examining and adapting patterns of organizational life to make the process of conflict resolution and problem solving more effective.”

Internet technology will likely redefine the relationship between citizens and government as closer than ever before. Also, the internet helps foster more engaged citizens (Caldow, 2004), and local community groups can use the internet to foster public involvement (Scott, 2006). Thus, this study has even broader implications for the field of public administration through exploring e-governance in terms of the influence of internet technology use and the role of non-governmental partners. Furthermore, the study contributes methodologically by applying multilevel analysis (here, the Hierarchical Linear Model—HLM).

1.3 Overview of Dissertation

Prior studies show that cost reductions for obtaining and sharing political information coupled with more easily accessible information stem from the internet and foster greater political participation among politically active citizens (Dutton 1999; Johnson & Kaye 1998; Kavanaugh & Patterson 2001; Norris 2000; Putnam 2000; Verba, Nie, Brady, 1995). Putnam (2000) also emphasized the importance of social gatherings (formal and informal such as bowling leagues and car pools) where casual conversation and political talk raise awareness and may spur collective action. These mundane gatherings have the potential to foster political and civic participation.

Moreover, while activists and some group leaders use blogs and wikis to express opinions, share information, and raise awareness about political issues, most people who write, read, and comment about blogs are not politically active (Coleman 2005; Drezner & Farrell 2004; Gruhl, D., Guha, R., Liben-Nowell, D., & Tomkins, A., 2004; Herring, S.C., Scheidt, L. A., Bonus, S., & Wright, E., 2004; Johnson & Kaye 2004; Kavanaugh *et al.* 2006; Lenhart & Fox 2006; Nardi, Schiano, Gumbrecht, & Swartz, 2004; Rainie 2005). As I mentioned previously, this study examines how the internet may be used to spur political discussion and participation among otherwise politically passive citizens. I examine offline and online local political participation in the context of the Blacksburg Electronic Village (BEV). I present findings from a set of household surveys (2005 and

2006), focus group interviews, and other data from residents of the town of Blacksburg and the surrounding Montgomery County, Virginia.

To discuss these questions in greater detail, this study is divided into four chapters. In Chapter 2, I examine a series of previous studies about the relationship between the internet and political participation and civic engagement and I discuss their findings by levels of analysis. The third chapter provides an overview of the research design and methodology. Then, in chapter four, I present the findings of the study. I discuss the potential of multilevel analysis for exploring citizen use of the internet for political and civic engagement. Finally, chapter five discusses the implications, new challenges and opportunities this study presents.

Chapter 2 Literature Review and Conceptual Framework

Citizen participation is at the heart of democracy -- Sidney Verba, Kay Schlozman, and Henry Brady (1995)

This chapter begins by reviewing the definitions of civic and political participation and how these concepts have been measured. The first part lays out definitions and measures of key concepts--civic engagement, civic participation, political engagement and political participation—that have often been used interchangeably in previous studies.

The second part of the chapter examines variables that many scholars have explored in order to understand the influences on offline/online civic and political interests and activities and attitudes toward the internet. It reviews these studies based on the level of analysis—the individual level (demographic and psychological factors) and the group level (mode of communication and political deliberation within local community groups).

The third section looks at broader research on the impact of the internet on civic and political participation in civil society. In this part, I emphasize that the local group is a crucial factor in understanding the impact of the internet on civic and political participation. Throughout the ongoing debate about the impact of the internet, this study seeks a balanced approach, and supports a skeptical but hopeful view⁹ regarding the enhancement of democratic local governance online.

Finally, this chapter introduces the conceptual framework for the study. It shows how those measures of both individual and group level factors are connected to citizens' attitudes toward the internet and it helps to elucidate the impact of the internet on civic engagement in politics. A previous Civic Effects Model (CEM) found indirect influence of local community groups on civic and political participation at the local level

⁹ Scholars who are more skeptical about the effect of internet use on civic and political participation look at politics in cyberspace as similar to offline politics. The recent interactive and social technologies such as Web 2.0 technologies have given more positive evidence to those who have skeptical views (Kim et al., 2007; Kavanaugh et al., 2006; Browning, 2002; Rheingold, 1993).

(Kavanaugh et al., 2006). In the framework of this study, the direct influences of group level factors are analyzed through the Hierarchical Linear Model (HLM) approach.

The conclusion of this review is that no single explanation, definition or measure fully captures the impact of the internet on civic and political participation but that the combination of distinctive factors at the individual and group levels of analysis can enhance understanding of the impact of internet use on civic and political participation in local governance.¹⁰

2.1 Defining Civic and Political Participation

Involving citizens in local governance has long been accepted as a means to improve democracy -- Richard Box (2005)

The current literature contains numerous definitions of the term *civic and political participation*. Participating in politics and civic life encompasses several different meanings. Several terms—participation, engagement, and involvement—often are used interchangeably but sometimes they are used distinctly. In the *American Heritage Dictionary*, these three words have similar meanings. Yet engagement and participation are distinguished from each other in a series of scholarly research efforts. Furthermore, the combination of “civic” with “political” causes more confusion in defining civic and political participation. In the next section, I review the definitions associated with civic and political participation.

2.1.1 Participation in Politics: Political Participation/Engagement

Political Participation: In recent studies of mass politics, *political participation* is surely one of the central concepts. Basically, through political participation, people can voice

¹⁰ One of this study’s important contributions is its substantive examination of the impact of local groups on the use of the internet for civic and political purposes.

their needs, concerns, and problems to their governments (Brady, 1999). What are the determinants of political participation? A voluminous literature offers a wide range of definitions and measures of political participation (e.g., Olson, 1965; Verba and Nie, 1972; Miller et al., 1980; Dahl, 1989; Verba, Schlozman, and Brady, 1995).

Among the many definitions, Verba and Nie's (1972) is more frequently accepted and regarded as the classic definition. They state that "political participation refers to those *activities* by private citizens that are more or less directly aimed at *influencing* the selection of governmental personnel and/or the *action* they take" (p.2). As Verba and Nie define it, political participation requires action (activities) by ordinary citizens directed toward influencing some political outcome such as setting, deciding, implementing, and changing public policies. Similarly, Brady (1999) argues that almost all definitions of political participation include four basic concepts: activities or actions,¹¹ ordinary citizens, politics, and influence.

Verba, Schlozman, and Brady's definition of political participation, which comes from their resource model of political participation (the so called "civic voluntarism" model), also emphasizes the action element and that political participation is a function of individual resources (1995). For example, citizens are more likely to participate if they have more resources, including skills, knowledge, time and money or if they are more psychologically engaged. Thus, in this study, the Verba, Schlozman and Brady emphasis on political activity is accepted as the key component of the definition of political participation.

Political Engagement: Nie, Junn, and Stehlik-Barry (1996) suggest that political engagement comes close to the notion of autonomy, understood as the authorship of one's life in the social context, with a bundling of identity and *interest*, where people are capable of choosing their own actions. Political engagement is like autonomy in the sense that autonomy implies the ability to be self-governing. This suggests that each

¹¹ The first element, action, makes a clear distinction between political participation and engagement. Brady (1995) argues that political engagement is related to thoughts or tendencies and is not the same as activities or actions. Thus, according to him, political participation is not just thoughts or tendencies.

citizen is the best judge of his or her own *interest*, understood as whatever desires a citizen expresses in the political process in which claims are made; or if s/he is not engaged in such processes, whatever desires s/he would be likely to express were s/he so engaged.¹² Verba et al. (1995) also define political engagement as “activity that has the *intent* of influencing government action—either *directly* by affecting the making or implementation of public policy or *indirectly* by influencing the selection of people who make those policies” (p. 38).

While Verba and his colleagues distinguish between engagement and participation, they do not fully distinguish between political action and its “supporting” factors. Beaumont (2004) points out that political engagement is better understood as incorporating the full spectrum of constitutive elements *supporting* democratic citizenship. Measures of political engagement, such as political interest, political efficacy, political information, strength of partisanship, and intense concern about a political issue, only gauge the motivations or dispositions inclining people to become involved in politics; they do not tell us whether someone undertakes political activity. Similarly, approving of a political activity or being willing to do so is not the same as actually doing it.

Political engagement and willingness to engage in an activity may be highly correlated with political activity, but they are not measures of political activity (Brady, 1999, p.737). An example may help demonstrate the difference between political participation and political engagement. Verba, Burns, and Schlozman (1997) insist that political participation is the consequence of political engagement.¹³ They claim that women in the United States are less politically interested, informed, and efficacious than men and that this gender gap in political engagement has consequences for political participation (p. 1051).

¹² In this sense, understanding of the political engagement dimension of democratic citizenship is broader than the “engagement” discussed in Verba, Schlozman, and Brady (1995), and somewhat narrower than the “civic engagement” described in Putnam (1995).

¹³ In their study, the measures of political engagement include political information, political interest, political discussion, sensitivity to political cues, media usage, and efficacy.

In conclusion, there are no clear distinctions between political participation and engagement because they are closely related each other. However, participation has emphasized the dimension of “activity,” and engagement has highlighted the component of “interest.” Thus, instead of distinguishing participation from engagement or activity from interest, this study makes a distinction between online and offline political participation and between “political” and “civic” participation.

2.1.2 Participation in Civil Society: Civic Participation/Engagement

Civic Participation: Political participation/engagement cannot always be sharply distinguished from other forms of civic participation/engagement. In the conventional view, political participation does not include direct service volunteer work or other endeavors not connected to a concern about the causes of social or policy problems and that are not undertaken with the conscious intention of provoking broader social or institutional change. In contrast to political participation, civic participation is defined as organized voluntary activity focused on problem solving and helping others. It includes a wide range of work undertaken alone or in concert with others to effect change. Zukin and colleagues discuss the relationship between political participation and civic participation:

We acknowledge the necessity and value of diverse participation, while remaining cognizant that civic engagement [participation] cannot substitute for political engagement [participation] or vice versa. The “gold standard” for a democratic polity would be equitable and substantial participation in both the civic and political spheres, and the “gold standard” for a democratic citizen would be someone who is facile in both types of engagement (Zukin, Keeter, Andolina, Jenkins, and Delli Carpini, 2006, pp. 9-10).

Recent research suggests the need to more carefully differentiate between political participation/engagement and the broader umbrella of civic engagement. Political participation/engagement can be understood as a specific subset of civic engagement focused on “a narrower sphere involving formal and informal processes and institutions

involving political concerns—political issues, public opinion, public policies and decision-making and governmental institutions” (Beaumont, 2004, p.13). Thus, this study distinguishes civic participation from political participation.

Civic Engagement: Norris (2001) states that “civic engagement” can be understood to include three distinct dimensions: political knowledge (what people learn about public affairs), political trust (the public’s orientation of support for the political system and its actors), and political participation (conventional and conventional activities designed to influence government and the decision-making process) (Norris, 2005; Norris, Curtice, Sander, Scammell, & Semetko, 1999). In the three components of Norris’s definition, “civic” elements are not revealed. In many cases, the term civic engagement is used as a synonym for political participation. Furthermore, the term is a mixture of “civic” and “political” activities. Paek, Yoon, and Shah (2005) state that civic engagement is conceptualized as membership in voluntary associations (e.g., PTA, labor unions, church clubs, political participation groups) and current civic activities (e.g., voting, donating money to political candidates, contacting elected officials).¹⁴ Similarly, civic participation is defined as volunteer activities, club attendance, and community project work. These concepts emphasize participation in collective activities revolving around the construction and sustenance of the broader community.

In Skocpol and Fiorina’s (1999) edited book, *Civic Engagement in American Democracy*, when the meaning of the term “civic engagement” is discussed, it is possible to think of Tocqueville as having been interested in two types of civic engagement: one based on the participation of individual citizens in the associations of civil and political society, and the other based on normative orientations sustained, above all, by institutions. In Skocpol and Fiorina’s definition of civic engagement, the terms “civic” and “engagement” have primary and secondary meanings. The primary usage of the term “civic” has to do with the activities of citizens, particularly with their rights and duties in relation to this legal status. Civic activity requires no absence of partisanship or self-interest, and indeed

¹⁴ Although they include “civic” activities in their definition of “civic engagement,” they are close to “political activities” and similar to Verba and his colleagues’ definition of “political participation.”

nearly all proponents of civic life applaud the meaning of partisanship and self-interest as a reflection of the healthy contention necessary to democratic government. A secondary, but also frequent meaning of the term “civic” emphasizes a normative position, a broad (rather than narrow) and objective (rather than self-interested) orientation to the needs of the civilized political community. It has connotations of a broad, nonpartisan perspective when, for example, someone is referred to as having a “civic spirit.” In its primary meaning, the term “engagement” suggests active participation—in this case, active participation in civic life. A secondary, but still frequent meaning of term “engagement” emphasizes depth of involvement. In this sense, the opposite of engagement is a superficial or reflex reaction. Thus, someone engaged with a public issue gives it deep and careful consideration, while someone less engaged reacts more reflexively (Skocpol and Fiorina, 1999, p. 164).

Furthermore, Quan-Haase and Wellman state that civic engagement is the degree to which people become involved in their community, both actively and passively, including such political and organizational activities as political rallies and book and sports clubs. Robert Putnam uses a variety of survey data as evidence of declining civic engagement (2000; see also Norris, 2001). He argues that intertwined with this declining civic involvement is a decline in collective social activities, from family dinners to club participation. The substantial literature on e-democracy and e-government commonly insists that the internet can provide a distinctive structure of opportunities that has the potential to revive civic participation/engagement, especially for many peripheral groups currently marginalized from mainstream politics.

2.1.3 Summary of the Definition of Civic and Political Participation for this Study

A number of challenges emerge in defining and measuring civic and political participation (Park & Perry, 2007; Weissberg 2005; Robbin, Courtright, and Davis, 2004). Measures of political participation consist of political activities including not just votes but also work in electoral campaigns, contributions to campaigns and causes, direct

contact and communication with public officials, membership and affiliation in political organizations, attendance at demonstrations or protests, and service on local governing bodies. Measures are different but these can be categorized under “political” components but not “civic” components. Even though Verba, Burns and Schlozman treat political engagement and political participation differently, they distinguished political engagement from political participation in terms of how each is measured. The measures of political engagement are political information, political interest, political discussion, sensitivity to political cues, media usage, and efficacy (Verba, Burns, & Schlozman, 1997).

However, as noted earlier, for Norris (2001) civic engagement consists of three distinctive dimensions: political knowledge (what people learn about public affairs), political trust (the public’s orientation of support for the political systems and its actors), and political participation (conventional activities designed to influence government and the decision making process). Her definition is not much different from Verba and his colleagues’ measures of political engagement and participation. Even though she intends to define “civic” engagement, the components of civic engagement are “political.” Her definition is closest to political participation/engagement.

Wilkins (2000) points out that civic participation is a significant positive predictor of political participation. He argues that the two types of participation are related in some ways. Even as Putnam (1995) argues that the two are different concepts, he included political activities in his examples of civic engagement, as Norris (2000) did. If one shifts the focus from examining ways of participating to make democracy work versus the importance of working together outside of government to examining ways citizens can make their community, state, or country better places to live, then both forms of participation, civic and political, become equally important (Verba and Nie, 1972).

Furthermore, Weissberg (2005) states that conventional inquiries into political participation are conceptually vague and thus often fail to capture its variety in the real world. He points out that “controlling what is included or excluded in defining political

participation is not theoretically justified, although it is often done for the sake of technical or computational convenience” (2004, p. 22).

Despite critiques of practical problems and conceptual ambiguity, researchers should continue studying to overcome these barriers given data constraints (Park & Perry, 2007). Both civic participation and political participation play an important role in building a community.

In this study, instead of the distinction between engagement and participation, I focus on the difference between political activities/interests and civic activities/interests as a definition of political and civic participation. For example, Zukin and his colleagues (Zukin, Keeter, Andolina, Jenkins, & Delli Carpini, 2006) use the terms, “participation” and “engagement” interchangeably but they note the distinction between civic and political participation when they define the terms (Zukin et al., 2006).¹⁵

Thus, political activities and interest in this study refer to the activities and interests that aim at directly or indirectly influencing the selection of elected or non-elected officials and/or the development and implementation of public policy (Verba and Nie, 1972). And civic activities and interests refer to activities that address community concerns through nongovernmental or non-electoral means, such as volunteering for building a homeless shelter, that aim at directly or working on a community project (Zhang and Chia, 2006).

¹⁵ Regarding political participation, they follow Verba, Schlozman, and Brady’s definition: political engagement as activity that has the intent of influencing government action—either directly by affecting the making or implementation of public policy or indirectly by influencing the selection of people who make those policies (Verba et al., 1995). In contrast to political engagement, civic engagement is “defined as organized voluntary activity focused on problem solving and helping others” (Zukin et al., 2006).

2.2 Perspectives on Internet Use and Civil Society

There are three general perspectives of the relationship between internet use and civil society including civic and political participation: two polarized (optimistic and pessimistic) views and a more skeptical standpoint (Park & Perry, 2007; Bimber, 2003; Katz and Rice, 2002; DiMaggio, Hargittai, Neuman, and Robinson, 2001; Norris, 2001). Past studies either investigated this relationship at the individual level, or, if they considered the group level, treated both at the same level of analysis. The latter potentially led to significant underestimation of the variability across levels.¹⁶

First, optimists such as Morris (1999), Grossman (1995) and Rheingold (1993) insist that interactive information and communication technologies improve connections between citizens and public bureaucrats in policy making processes and foster trust in, transparency of and accountability for government. Many politicians and researchers believe that citizen participation will be enhanced by the expansion of the marketplace of ideas through the internet, and they suggest that this will bring a return to Jacksonian-style democracy. For example, Starobin (1996) proclaims that the internet has the potential power to allow citizens to participate directly in political activity; Browning (2002) predicts that the internet will remedy declining voter turnout by making it possible to vote via computer. The sum of individual opinion will be easily collected by electronic polling and electronic voting, making direct democracy a feasible possibility for the future. Furthermore, universal access to information might offer alternative channels for lobbying and campaigning (Lee, 2006, p. 415). With the development of interactive internet technologies, internet optimists argue that these emerging technologies will enable public deliberation and participatory democracy (Browning, 2002; Rheingold, 1993). This perspective views the internet as a medium for the invigoration of democracy.

¹⁶ For detailed discussion of the advantages of multilevel analysis (HLM), see Raudenbush and Bryk (2002), *Hierarchical Linear Models: Application and Data Analysis Methods*.

Meanwhile, pessimists contend that the internet is less likely to mobilize citizens and more likely to reinforce their power status (Davis, 2005; Norris, 2001). For example, Davis (2005) maintains that the internet tends to be dominated by those who are well-educated, young, wealthy, and powerful. Thus, pessimists insist that there is no evidence that increasing the channels of access to political information will motivate individuals to use that information to participate in political activities. Furthermore, information overload has been argued to be one of the main causes of political alienation during the 20th century. Third, psychological studies have suggested that some online users are becoming addicted to the internet in much the same way as others are addicted to drugs, alcohol, or gambling. Often, heavy internet users spend less time with family and friends (Davis, 2005).

Finally, more skeptical scholars argue that the internet neither improves nor reduces civic engagement (e.g., Uslaner, 2004; Bimber, 2003; Putman, 2000; Margolis and Resnick, 2000). Margolis and Resnick suggest that the internet is taking on the features of everyday life (2000). Putnam (2000) insists that the internet is likely to displace personal engagement and thus may fail to generate social capital. Furthermore, there is little evidence to support a significant relationship between the evolution of internet use and increased levels of civic engagement (Bimber, 2003; Delli Carpini and Keeter, 2003).

As these disagreements suggest, the nature and extent of the impact of the internet on civic and political participation are not yet well understood. Each point of view has shortcomings. Nevertheless, the use of the internet serves as a supplement to civic and political participation. Wellman, Haase, Witte, and Hampton (2001) observed that the internet does not radically shape social trends but can help one to understand the contemporary context of a person's overall civic and political life. Whether citizens are using Facebook, MySpace, iPods, instant messaging, or text messaging, they, in particular those in the current younger generation (16 to 27 years old), are "plugged in" (*Chronicle of Higher Education*, January 5, 2007).

To examine the relationships between the use of the internet and civic and political participation, Norris (2001) proposes a multi-level framework that she calls the internet

engagement model (IEM) to conceptualize “digital politics,” the political use of the internet. At the national level, the level of socioeconomic development, technological diffusion, and democratization influence the diffusion of the internet within a country. The virtual political system at the institutional level is the place where political parties, interest groups, and new media mediate between citizens and the state in the digital world. Finally, individuals’ resources (e.g., income, time, and skills) and motivation (e.g., interest and efficacy) shape who participates in the virtual political system. The national context influences the development of the virtual political system that provides the systemic context in which individual citizens participate in politics online.

Wellman and his colleagues (2001) have contributed another component to the analysis of social capital and civic involvement. Social capital consists of two components: social relations (social networking) and features of social relations (Coleman, 1990). The former refers to the association that links individuals in a society such as networks; the latter describes the nature of the association, for example, norms and trust. Both components facilitate coordination for mutual benefit (mutual reciprocity) among individuals in a society (Zhang and Chia, 2006). In this sense, Wellman and his colleagues (2001) also point out that social capital consists of more than active social networking, trust and mutual reciprocity. In addition, their research demonstrates that communities are no longer limited to neighborhoods. Wellman et al. studied the ways in which people use their social ties to access resources, and the implications of these networks for large-scale social organization. His current research in this area focuses on multilevel analyses of support and reciprocity in personal community networks in an era of networked individualism (2001).

In addition, there are a number of studies from the political communication perspective on the relationship between internet used and civic and political participation. Shah and Scheufele (2006) examined opinion leaders and their civic participation. Opinion leaders or leadership are largely examined through nonpolitical dispositions such as self-assuredness, innovativeness and sophistication. Those opinion leaders spurred by an interest in politics tend to seek informational content both offline and online. Shah, Cho,

Everland, and Kwak (2005) examined internet effects on civic participation. Information media use, whether traditional news sources or online public affairs contents, is expected to foster interpersonal political discussion and online civic messaging, contributing to increased civic participation. These studies show the positive relationship between individuals' internet use and civic and political participation. In the next section, I discuss more details about individual level analyses in prior studies in order to build a research model for this study.

2.3 Individual Citizen Internet Use for Civic and Political Participation

Various independent variables have been used to help explain variation in civic and political participation. They will be divided into clusters—demographic, psychological and contextual (group) influences. People choose to participate in politics for many different reasons (Putnam, 2000; Verba and Nie, 1972; Almond and Verba, 1963). Those with higher education and income more often own property and may feel they have more at stake during political decision-making. They typically have a greater sense of civic duty—an obligation to contribute to the common good. Increased political participation by socioeconomic elites also has been associated with greater political participation by parents. Such individuals may have learned to care about community, in addition to their own well-being. Higher socioeconomic status may foster greater generosity toward those who are less fortunate. Politically less active citizens more typically become involved, especially at local levels, when issues directly affect them or their immediate neighborhoods (e.g., land development, proposed zoning changes, or local schools).

2.3.1 Individual Characteristics (Exogenous)

Individual characteristics have a significant impact on one's propensity to engage in civic and political participation. For example, Rosenstone and Hansen (1993) suggest that as individual resources (e.g., income and education) increase, an individual's likelihood of

political activity (e.g., voting) increases. The literature identifies numerous demographic characteristics that impact civic and political participation both online and offline, including age, education, employment status, marital status and income (Crotty, 1991; Alvarez and Hall 2004). Age, education, and household income are consistently identified as significant predictors of political participation, especially voter turnout (Verba and Nie, 1972; Dennis, 1991; Verba et al., 1995). Verba and his colleagues (1995) have tried to explain why citizens do not take part in politics in terms of a resource constraint point of view. Political participation requires resources such as time, money and civic skills that are needed to take part. Family income is more important than other resource factors in their model (Verba et al., 1995). In addition, Burns and her colleagues have examined the impact of gender on civic engagement (2001). The levels of trust and extroversion also have been identified as significant attributes (Kavanaugh et al., 2005). These eight characteristics (four demographic variables: age, gender, education, and household income and two psychological traits: trust, extroversion, internal/external political efficacy, and community collective efficacy) are examined in this study as individual exogenous characteristics that may affect offline/online civic and political participation.

Demographics

2.3.1.1 Age

The literature consistently reveals that older citizens are more likely to vote than younger ones (Dennis, 1991; Verba et al., 1995; Lyons and Alexander, 2000; Gimpel et al., 2004). Gimpel and Schuknecht (2003) found that precincts with higher proportions of young citizens exhibited lower turnout. Dennis (1991) attributes this phenomenon to geographical mobility. Young adults (16 to 27 years old) usually have smaller stakes in their communities since they are frequently in transitional roles (Dennis, 1991; Gimpel et al., 2004). But this may change with growing accessibility of the internet. According to John Tedesco's study, young adults, those younger than 27 years of age, in particular

increasingly use the internet for political information and as a channel of engagement (Tedesco, 2006). For example, “Rock the Vote”—a nonpartisan political organization for young people—used Facebook as a means of online voter registration for the 2006 election. Young adults could encourage each other to fill out a voter registration form through the Rock the Vote page on Facebook. Certainly, these new web-technologies increase possible access through e-government and broaden the opportunity for online political and civic engagement.

There is evidence that young adults in the United States are the least involved and least politically active segment of the population (Kaid et al., 2007). However, many young adults argue that such characterizations are wrong:

[Young adults] insist that today’s youth are engaged in civic life and point to increased rates of volunteerism among their age group as an example of this activism. Their patterns for action, they contend, do not fit stereotypical political behavior—they are focused on *local* projects instead of national causes; their activity is more *informal*; their means of acquiring information are more *web-based* (Andolina et al., 2002, p. 189)¹⁷.

Young adults are becoming more technologically aware and use the internet as a source for learning and social connections, thereby adding another dimension to the quantity and the quality of social engagement. In addition, according to the results of a Pew Research survey, 18 to 29 year olds are most likely to use the internet for political purposes: 24% of the young adults surveyed indicated that they have used the internet for at least one campaign activity such as obtaining candidate issue information, sending or receiving campaign e-mails, getting information on local activities, visiting websites of political groups, visiting candidate websites, and engaging in online chats, discussions, or blogs (Williams and Tedesco, 2006). Bennett et al. (2005) found the young adults’ engagement in the web cyber-sphere was not only larger, but also much richer in terms of political

¹⁷ In addition, participation in the 2008 presidential nominating contests suggests a major increase in the participation of the 30 and under age group (A report of CIRCLE: Center for Information & Research on Civic Learning & Engagement http://www.civicyouth.org/?page_id=194).

issues discussion and sophisticated use of the more dynamic and interactive dimensions of web communication.

During the 2004 presidential election, these innovations represented significant change in terms of combining the features and functionality common to sites more frequently visited by younger citizens with political information and avenues to participation (Bennett et al., 2005). Pasek et al. (2006) found that civic activity is positively associated with political awareness, and news media have a potent effect on the political awareness of young adults.

In the 2008 presidential election, the internet is to its potential as a major source for political information about the presidential campaign. According to the Pew Research Center for the People & the Press (Pew) survey report (2008), nearly a quarter of Americans (24 percent) said they regularly learned something about the 2008 election from the internet. It is almost double the percentage from a comparable point in the 2004 election (13 percent). Moreover, young people's leading source of campaign information is now the internet. The role of social networking sites is a notable part of the story (Pew, 2008).

2.3.1.2 Gender

Some argue that men tend to be more active in politics than women. According to Verba and his colleagues (1997), in comparison with men, women are disadvantaged when it comes to the (economic) resources that facilitate political activity. When these resources deficits are viewed in the context of the paths to participation taken by men and women, it turns out that if women were as well endowed with resources as men, their overall levels of political activity would be closer to men's, and their financial contributions would be considerably closer to men's.

Most previous studies underestimated women's political involvement because they ignored alternative modes of participation—for example, organizational, protest, and

grassroots community activity—in which women have always taken part. Were the understanding of political participation to encompass modes of involvement that are less formal, less conventional, and less nationally centered, the findings would differ. Women may be less politically active, because they are disadvantaged with respect to the resources that facilitate political activity, for example, because many have lower levels of education, earn less money, or have less free time, not because of a lack of interest in politics (Verba, Burns, & Schlozman, 1997). However, in terms of voting, women's turnout typically is higher than men's turnout. According to the 2006 U.S. Census, women were more likely to vote than men (49 percent compared with 47 percent).¹⁸

Scholars have argued that the processes of politicization might be different for men and women. Gender differences in the patterns of individuals' lives might mean not only varieties in the amounts of resources accumulated by women and men but also differences in the utility of particular resources for political activity. For example, the traditional routes to elected office for men, through careers in fields like law and business, are less typical for women, who often aspire to public office after experience in voluntary organizations (Verba et al., 1997). In this study, the gender variable is included and examined.

2.3.1.3 Education

Among the variables that predict civic and political participation, education plays a major role. It is generally accepted as a strong and positive predictor of civic and political participation. For instance, Lyons and Alexander (2000) found that education beyond high-school increases the likelihood of voting by almost 15 percent. Alvarez and Hall (2004) found that individuals who have attended college are approximately twice as likely to vote as individuals without a high school education. Models of the association between education and civic and political participation contend that participation requires

¹⁸ Details are available at <http://www.census.gov/Press-Release/www/releases/archives/voting/012234.html>

information, which is difficult to obtain, and that those with more education are more likely to have the information necessary to take political action (Bimber, 2001; Verba et al., 1995). More educated individuals are also more likely to express confidence in their lives; for example, they are more likely to believe that other people are trustworthy and helpful. Putnam (1995) identified education as having a strong relationship with his measure of civic engagement, noting that education is an extremely powerful predictor of civic engagement. Norman Nie, Jane Junn and Kenneth Stehlik-Barry (1996), however, argue that more education does not mean always more civic and political participation, but it does produce a more tolerant and informed citizenry. Based on these findings, an education variable is included in this study.

2.3.1.4 Household Income

Like education, income is one of the resource characteristics of individuals to be considered as a relevant measure to explain civic and political participation. Lyons and Alexander (2000) found that income had a significant impact on the probability of voting. Those with higher incomes are more likely to vote. Frey (1971) argues the jobs of high-income voters award them with better information, which in turn motivates higher participation. In addition, those who have more income are more likely to go online for news (Scheufele & Nisbet, 2002).

Most studies show that income with education--socioeconomic status (SES) -- correlates with the belief that the community can work together to solve problems (i.e. collective efficacy); in other words, higher SES people have higher collective efficacy. However, a number of scholars point out problems with SES explanations of civic and political participation (Verba, Schlozman, & Brady, 1995; Eldersveld and Ahmed, 1978; Huntington and Nelson, 1976). Such accounts fail to specify the mechanisms that link individual attributes to civic and political participation. Verba, Schlozman and Brady write:

The SES model is weak in its theoretical underpinnings. It fails to provide a coherent rationale for the connection between the explanatory socioeconomic variable and participation. Numerous intervening variables are invoked—resources, norms, stake in the outcome, psychological involvement in politics, greater opportunities, favorable legal status, and so forth but there is no clearly specified mechanism linking social status to activity (1995, pp. 280-281).

Despite the weakness, income is an important variable to help understand civic and political participation behavior in terms of the resource constraint approach (Verba et al., 1995).

Summary

Demographic variables have a significant impact on one's offline and on-line civic and political participation. The literature identifies numerous demographic characteristics that impact offline civic and political activities and interests, including age, education, gender and income (Verba et al., 1997; Verba et al., 1995; Verba and Nie, 1972). Age and education are consistently identified as the most significant demographic predictors of civic and political participation since going online (Kavanaugh et al., 2006; Kavanaugh et al., 2005). These two variables, along with gender and income, are examined in this study in order to determine the consistency or inconsistency with previous studies.

2.3.2 Psychological Factors

Philip Tetlock, a political psychologist, argues that all political actions can be reduced to psychological action (2005). According to the literature, individual psychological characteristics of such as trust, extroversion and collective efficacy impact offline and online civic and political participation (Lee, 2006; Kavanaugh et al., 2005; Carroll & Reese, 2003; Bandura, 2002; Bandura, 2001; Putnam, 2000). Previous research consistently finds trust, extroversion and collective efficacy to be important predictors of

civic and political participation since going online (Kavanaugh et al., 2007; Kavanaugh et al., 2005; Uslander, 2004; Carroll and Reese, 2003).

In this study, I try to highlight the influence of political efficacy on the use of the internet for civic and political reasons. Some studies have examined the connection between political deliberation and political efficacy (Morrell, 2005), but they have not explored the connection after citizens started going online. Political efficacy is defined as the belief that one can produce effects through political action, and it can be divided into two subcategories, internal and external. Internal efficacy refers to beliefs about one's own ability to influence political discussion and outcomes. Second, external efficacy taps a person's belief about government responsiveness (Bandura, 1997; 2001). These notions have been treated as important factors in political participation, but seldom considered in studies on the impact of internet use on civic and political participation. Thus, I include in this study these four psychological factors—trust, extroversion, internal/external political efficacy, and collective efficacy.¹⁹

2.3.2.1 Trust

Traditionally, scholars have conceptualized trust as a product of citizen's preference regarding outcomes (either policy or electoral). But preferences and outcomes explain only one part of satisfaction and dissatisfaction with government: Surveys show that only about 37 percent of Americans with low trust in government say that policies do not reflect their beliefs and values (Nye, 1997). Recent research provides evidence that citizens base their evaluations on process considerations as well—how fair, open, and responsive they perceive political and governmental processes are (Tolbert and Mossberger, 2006, p.356). Trust is simply one factor that is measured to understand citizen confidence in government.

¹⁹ In this study, collective efficacy is the belief that the community can work together to solve problems and overcome difficulties (Bandura, 2000; 2001; Carroll and Reese, 2003).

Shah, Kwak, and Holbert (2001) argue that people who use the internet for information (primarily exchanging e-mails) are significantly more like to trust other people who use the internet for other reasons. According to Eric Uslaner (2004), just as trust makes people more willing to take risks offline, trusters are more willing to take risks online (such as entering their credit card numbers or replying to emails from strangers). Mistrusters worry about their privacy being threatened by both businesses and people who might learn about them online. They are more likely to use fake names and phony e-mail addresses, and they worry about the quality of information they find online (Uslaner, 2004, p. 239-240).

Declining trust in government has been linked by some of the leading scholars in the field to declining political participation (Craig, 1996; Hetherington, 1998, Norris et al., 1999), and many consider it no accident that the dramatic decline in turnout rates in America from the 1960s through the 1990s mirrors the decline in political trust (Putnam, 2000). But there are a number of explorations of potentially positive utilization of the internet in enhancing and restoring public trust and confidence in governments (Moon, 2003).²⁰ Trust variables, both trust in people and trust in government, are included in this study.

2.3.2.2 Extroversion

Extroversion is usually considered to be one of a number of pro-social dispositions fostering behavior in a spontaneous manner (Penner and Finkelstein, 1998; Bekkers, 2005). It is one of the psychological factors used here to help explain the impact of internet use on civic and political participation. According to Bekkers (2005), participation in voluntary associations is a satisfying activity for persons with higher levels of extroversion. Hamburger and Ben-Artzi (2000) examined personality theory in relation to internet use and found the two to be related. They analyzed levels of extroversion and found different patterns for men and women in their interaction using

²⁰ There are several examples such as the OPEN system in Seoul, eVA in Virginia, eFiling with the IRS, and online policy forums of the positive contribution of information technologies in restoring public trust (Moon, 2003).

measures of three types of internet use, social (e.g., chat, discussion groups, people-address seeking); information (e.g., work, or studies-related information seeking); and leisure (e.g., sex web site and random surfing). The main result was that for women, extroversion was negatively related to the use of social activities; for men, there was no statistically significant relationship. They found that scores on extroversion were positively correlated with use of leisure services for men, and negatively correlated for women. These result shows that extroversion is a highly relevant factor in influencing behavior on internet use and participation. An extroversion variable is tested in this study.

2.3.2.3 Internal and External Political Efficacy

Political efficacy is defined as the belief “that individual political action does have, or can have, an impact upon the political process, i.e., that it is worthwhile to perform one’s civic duties” (Campbell et al., 1954, p. 187). Subsequent scholars have distinguished between internal and external political efficacy (Bandura, 1997, 2001). The first belief, internal efficacy, is about one’s own ability to influence political discussions and outcomes; the second belief, external political efficacy, about government responsiveness. This distinction attempts to highlight the difference between self-evaluations and evaluations of one’s position within a perceived political and social structure.

Here are some examples of measures of political efficacy. Michelson (2000) poses the following questions for measuring political efficacy: Do you think that your [local elected officials] pay enough attention to the needs of your community? Do you think that government pays enough attention to the needs of your community? Miller and his colleagues (1980) use the following question for measuring both internal and external political efficacy. To measure internal political efficacy, they ask the degree of agreement with each of three statements: 1) People like me don’t have any say about what the government does. 2) Voting is the only way that people like me can have any say about how the government runs things. 3) Sometimes politics and government seem so complicated that a person like me can’t really understand what’s going on.

To measure external political efficacy, they examine levels of agreement with three statements: 1) I don't think officials care much what people like me think. 2) Generally speaking those we elect to local government lose touch with the people pretty quickly. 3) Political parties are only interested in people's votes but not in their opinions.

These indicators of internal and external political efficacy are powerful predictors for understanding motivations for civic and political participation. For example, Lester Milbrath argued that efficacious individuals are more likely to be involved in political activity than are non-efficacious individuals (Milbrath, 1965). Most commentators have found that political participation and political efficacy are related to the same demographic characteristics. Those with higher levels of political efficacy are most common among members of the educated upper class, and men are more likely to possess such feelings than women²¹ (Almond and Verba, 1989; Baker, 1973; Almond and Verba, 1963). Based on these findings, political efficacy variables are included in this study.

2.3.2.4 Community Collective Efficacy

People do not live lives of individual autonomy. Indeed, many of the outcomes they seek are achievable only through interdependent effort. Hence, they have to work together to secure what they cannot accomplish on their own. Collective efficacy is based on these collaborative efforts. Perceived collective efficacy fosters civic and political participation, resilience to adversity and performance accomplishment. Carroll and Reese (2003) developed a measure they call "community collective efficacy (CCE)," which measures a person's belief that the local community, as a whole, can work together to solve problems despite such obstacles as delays, shortage of resources, or other setbacks at the local community level. Carroll and his colleagues (2005) found that greater CCE is associated with increases in both social and civic use of the internet. It may be that feelings of collective efficacy encourage people to do things in the

²¹ A recent study shows that there is still a gender gap in political efficacy; yet it has attracted surprisingly little scholarly attention in recent years (Marshall, Thomas & Gidengil, 2007).

community and that the internet provides one channel or medium for this. Based on these findings, a [community] collective efficacy variable is included in this study.

Summary

Bimber (2001) argued that, demographically, individual citizens who use the internet for political purposes differ from the rest of the population and the biggest demographic deviations from the population at large are in education and income. Also, age and gender impact citizens' likelihood of using the internet for civic and political purposes and the perception of the helpfulness of the internet in their lives. At the same time, psychological factors may be important characteristics in explaining the impact of the internet on both offline and online civic and political participation. Thus, trust, extroversion, political efficacy and collective efficacy are examined in this study.

2.4 The Role of Local Community Groups in Internet Use for Civic and Political Participation

The "weak" ties across different groups are crucial in helping communities mobilize quickly and organize for common goals easily

-- Granovetter (1973)

What is the role of local groups in both offline/online civic and political participation? What do we know about such groups and how they may relate to my research questions? In previous offline civic and political participation studies, participation in local groups is essential to a political culture of democracy and to the basic social structures and processes that sustain it (Almond and Verba, 1963). According to Verba and Nie (1972), volunteer associations (e.g., church, boy and girl scouts, parent teacher associations, and recreational sport clubs) remain an important potential source for reducing the participation gap between the socially advantaged and disadvantaged. Local clubs and other voluntary associations mediate between individuals and the broader society by raising awareness of larger social issues, aggregating interests, and cultivating civic

competence. The types of individual objectives participants pursue in groups may be expressive or instrumental. Individuals often join both types of groups (Parsons, 1954; Edwards and Booth, 1973), and the same group may have a mix of both types of objectives. Expressive activity goals typically are met within a group: for example, getting together to play cards or team sports. In contrast, instrumental activity goals typically are directed outside the group—perhaps influencing public policy through advocacy (Kavanaugh et al., 2007).

In recent studies regarding online civic and political participation, community groups have played important roles in web-based practices for community involvement (Kavanaugh, Zin, Rosson, Carroll, Schmitz, and Kim, 2007). Local groups are arenas for civic engagement and political expression, and they acquire and share information through their use of the internet (Kavanaugh et al., 2006). The role of local groups has been enhanced with the development of new internet technologies that increase deliberative and participatory tools for civic and political participation. Indeed, prior studies have found that politically interested citizens, most of whom are opinion leaders,²² use the internet to help inform, involve, and increase their civic and political awareness and participation (Kim et al., 2007; Chadwick, 2006; Shane, 2006; Kavanaugh et al., 2006; Kavanaugh et al., 2005; Uslaner, 2004; Keller and Berry, 2003; OECD, 2003; Norris, 2001). Although there is a steady decline in group membership, one of the main reasons for diminishing civic engagement and social capital (Putnam, (2000), new internet technologies increase public deliberation within local groups and broaden the opportunities for civic and political participation (e.g., an online public forum such as E-democracy.org/Minnesota E-Democracy).

Typically, citizens find it difficult to engage individually and directly in national (or even local) debates, although highly motivated individuals sometimes do. More often, citizens participate in political processes through local group including local chapters of national groups. The importance of local groups to civil society and democratic participation has

²² According to Roper's extensive longitudinal research from the 1970s, opinion leaders (or "influentials" as they are also called) have consistently been politically aware and socially active citizens.

been firmly established. Local groups and voluntary associations provide common ways for individuals to learn about and participate in civic and political life (Norris, 2000; Putnam, 2000; Verba and Nie, 1972). Civic and political activity is thereby embedded in both political and non-political groups/institutions (Verba et al., 1995). Churches have taken stands on political issues such as abortion and war. Recreational groups also engage in politics when they campaign for resources, such as bike trails, soccer fields, or land preservation.

In these ways, groups can collectively influence political outcomes. These often mundane face-to-face interactions can be supplemented, reinforced and extended by the additional online sharing of ideas and information (Kavanaugh and Schmitz, 2004; Kavanaugh et al., 2006; Wellman et al., 2001). Writing well before the internet, Mancur Olson (1965) stressed that new technology revolutionizes the ways in which groups work just as it enhances the potential to work in groups. Noveck (2005) agreed, claiming that internet-based technologies in particular could give rise to collective institutions that engage more people in new forms of participation. Household surveys in the town of Blacksburg and in Montgomery County found that the use of computer mediated communication by local groups (religious, social, professional, and civic) had increased over time, especially among instrumental (goal-oriented) groups, such as civic and political organizations (Kavanaugh et al., 2006).

2.4.1 Internet Use and Local Community Groups

In previous studies, there are a number of arguments about the importance of the role of local groups such as volunteer civic, church, charitable, recreational, and professional groups on the dynamics of internet research on civic engagement and political participation. Although Verba, Schlozman, and Brady's resource constraint model is more concerned with offline civic and political participation and is not specifically concerned with online civic and political participation, its definition and measures of political participation provide a useful framework through which to explore the impact of

the internet on civic and political participation. It also can be used to examine the role of local groups in the relationship between internet use and civic and political participation in local governance.

In one of the earliest national studies of local community groups and ICT use, Katz and Aspden (1997) found that long time internet users (three or more years) reported belonging to the greatest number of community organizations – 27 percent to one organization and another 22 percent to two or more.²³ Local community groups may depend on the medium's ability to generate "social capital" – which Putnam identifies as the "features of social organization such as norms and social trust that facilitate coordination and cooperation for mutual benefit" among citizens (Carothers and Barndt, 2000, p. 22).

Noveck "posits an alternative: a model of consociational democracy premised on the collective action of small groups working on a scale enabled by technology" (2005, Conclusion section, para. 4). Noveck's model of consociational democracy is based on the understanding that visual and social interactive technologies make it possible for people to see the local community groups to which they belong and participate in them more effectively by sharing tasks over a computer network such as the internet and to make decisions and solve complex problems collectively. As a result, the internet becomes not only a civic place where people associate with others who have similar interests but also a place where social capital is generated by rapidly changing information technologies.

It is not enough, however, to understand the crucial role of the internet when one looks only at the possible impact of the internet on civil society, citizen participation, and social capital. It also is important to examine how groups use the internet, looking at questions such as what types of internet technologies have been utilized for group communication. In previous studies of the relationship between internet use and the health of civil society

²³ They found that internet users were more likely to be affiliated with leisure organizations than were non-users.

and civic engagement, the main argument has focused on the individual-level production of social capital (Shan, Kwak, & Holbert, 2001). In a study of the relationship between internet use and the health of civil society and civic and political participation at the local community group level, Kavanaugh et al. (2006) argue that:

The use of new tools for web-based collaboration by internet non-experts, such as a simple and user-friendly collaborative web-based tool--the blog, should make it easier and faster for motivated community members to produce online content and, more importantly, to collaborate with other members on work that needs to be done between face-to-face meeting of their organizations.

The design of more participatory tools and methods such as online publications, event calendars, databases, audio and video clips (podcasting), blogs, and e-forums can help local community groups to discover and apply internet technologies to help achieve their immediate goals. This also initiates a sustainable process of long term informal learning and technology use to encourage citizens to stay informed and aware of local or national issues. This process can form a virtuous circle (Norris, 2001) in which participation fuels and reinforces further participation.

Earlier studies show that community group communication via the internet (such as email/listservs) can help increase participation in group activities, involvement in issues of interest and the importance of group membership as a form of civic participation (Kavanaugh et al., 2005). A number of recent studies also show that the internet has begun to function as a communication network for grassroots organizations and activist networks (Kavanaugh et al., 2006; Vanfossen, 2006; Kim et al., 2007). Based on these findings, measures related to “group internet use: mode of communication” are examined in this study.

2.4.2 Political Discussion in Local Community Groups

In deliberative democracy (Guttman and Thompson 1996; Coleman and Gotze, 2003)—sometimes referred to as strong democracy (Barber, 1984) or discursive democracy

(Dryzek, 1990), public discussion and deliberation in voluntary associations are intended to help citizens increase their awareness, information and knowledge about civic issues and shared problems—to foster solutions that benefit a wider range of stakeholders. Currently, the internet makes information and knowledge more accessible to a much broader population; it offers greater opportunities for public deliberation and political discourse through online bulletin boards, forums, and web logs (blogs).

In Kavanaugh and her colleagues' study (2006), survey respondents were divided into four groups based on the quartile scores of their political activity. The most politically active group was called the "active" group, the next was called "passive-active," the third tier was called "passive," and the least active group was called "[politically] apathetic." Passive-active citizens are unlike active citizens when measured by both offline political and civic activity and online politics. However, passive-active citizens are similar to active citizens when measured by online civic activity, political discussion in local groups, and the effect of the internet on increasing involvement in local issues interest and improving interaction with citizens and local government. Politically passive citizens, like active citizens, are using the internet to support and extend their civic interactions and activities online. In this study, the political discussion in local groups is an important factor to understand the overall impact of internet use on civic and political participation.

Thus, informed activists with multiple group memberships become more involved in local issues once going online, whereas informed non-activists become less involved once online (Kavanaugh et al., 2004). Based on these findings, measures related to "political discussion and interests in local groups" are examined in this study.

2.4.3 New Internet Technologies and Political Discussion in Local Groups

Numerous emerging tools such as Wikis, blogs, e-forums and other social software (e.g., Facebook and MySpace) are making it easier for people to express what they think about policies and government services (Perlman, 2006). In addition, at the local group level,

there is the growing evidence that new internet technologies increase communication and interaction among members of local groups (Kavanaugh et al., 2007).

Wikis are collaborative content created document management systems, accessible through web browsers where “groups of people with no pre-existing ties to one another can build and manage high-quality and valued content online” (Lukensmeyer and Torres, 2006, p. 33). Typically, wikis allow visitors to add, remove, and edit content, with or without user registration. The process of creating shared edited documents is a form of discourse, and the finished, or continually evolving, products are themselves contributions to larger discourses (Froomkin, 2003). Some researchers have suggested that wikis may be the best avenue for getting information to the public (Wagner, Cheung, and Ip, 2006). In addition to the conventional web pages of government agencies, a second interactive layer could be added to allow outside parties to provide contextual information and pull together disparate strands of data. Wagner et al. (2006) contend that the creation of a semantic web infrastructure that would meaningfully organize e-government resources is highly desirable. Some argue that challenges for the feasibility of semantic web creation, such as the complexity of existing e-government implementation and the matter of reliability of contents in the discussion layer by citizens, can be met by government (Wagner et al., 2006). Specifically, Wagner and his colleagues maintain that government agencies can provide corrected versions of wikis, and check and verify all elements of an overlay structure and information contained in content pages.

Blogs, one of the latest examples of the internet’s democratization of publishing, are user-generated web logs using a journal style, and displayed in reverse chronological order. They look like personal journals. Blogs also illustrate the ease of publishing to stimulate debate. Bloggers read and react to each other’s work, creating a new commons for public debate, (highly energetic and enthusiastic, if not necessarily always deeply deliberated). Blogs attract many diverse voices and a broader political spectrum of participants from the politically active to politically apathetic and everything in between (Kavanaugh et al., 2008). From a usability point of view, the strength of blogs is their

easy set-up, informal nature, conversational tone, and the user control (rather than manager control) over writing, commenting on, or reading content. These features, however, are also some of the weaknesses of blogs from a user point of view. The vast number of blogs and their lack of centralized organization make it very difficult for an interested user to find a particular blog or a particular topic of discussion that s/he is interested in following or joining. In order to help users easily discover topics of conversation among a selection of blogs (such as those on a blog aggregator site), Tauro and colleagues (2008) have developed a visualization tool that displays blogs in clusters based on similarity of content (topic) and/or shared links. This work contributes to the set of tools already developed (e.g., Technorati, trackback) to help interested citizens identify and participate in discussions with a wide and diverse set of users. Ideally, government information would be linked to other sites for citizen-to-citizen discussion that comprises both centralized (e-forum) and decentralized formats (blog visualization) in order to support and foster increased participation by a broad and diverse citizenry.

E-forums are structured web-based discussions with user-generated content typically following a set of rules imposed by e-forum managers (e.g., limitations to the number of posts per day, censorship of inappropriate language or off-topic comments). Participants can start new discussion threads or reply to existing threads. E-forums are commonly hosted by high-traffic internet websites. Participants go through a minimal registration process to post comments in forums. Each message entry in E-forums is typically organized in a threaded structure to allow for replies to be easily tracked (Torrey, Burke, Lee, Dey, Fussell, and Kiesler, 2007). Participants of E-forum must go to a specific website for the online forum, create an account and learn the rules of the program in order to participate. Most people are not willing to go through these hurdles in order to express their opinions or engage in discussion online. Thus, a centralized forum tends to attract activists rather than widening the discussion to more of the general population and increasing the total number of participants in public deliberation.

New technologies such as wikis, blogs and E-forums shape their capacity to support and foster citizen interaction, information production, information consumption, and content

manipulation (Dearden and Walker, 2003). While many persons use e-mail, listserv and websites to disseminate political information (through not only plain text type information but also multimedia formats such as video and audio), these technologies are optimally designed for one-to-many communication. Important differences between listservs and new types of technology shape each technology's capacity to enhance citizen participation and political communication.

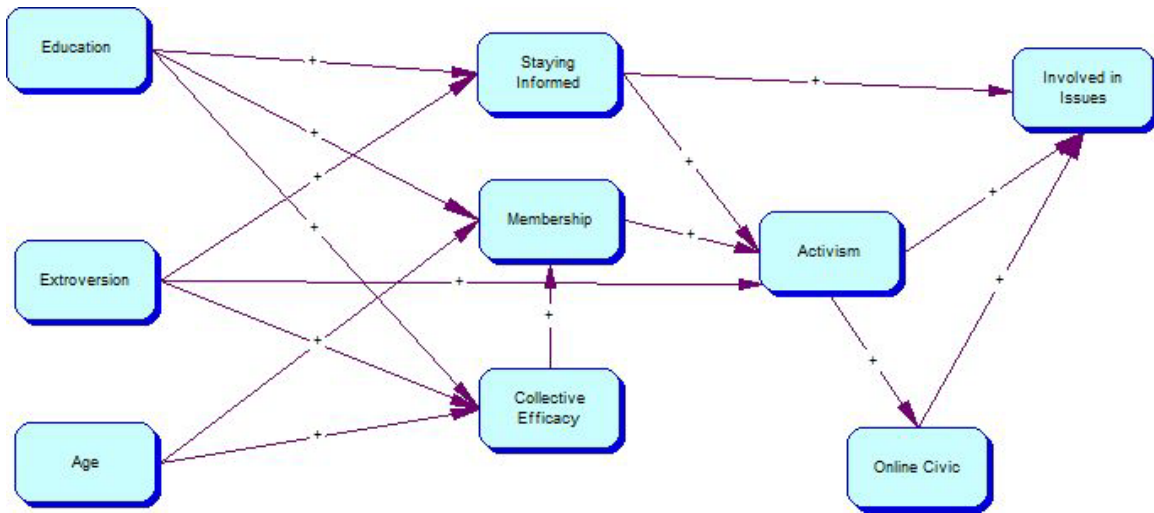
2.5 Conceptual Framework: Bridging Individual and Group Levels

2.5.1 Civic Effects Model (CEM)

As note earlier, a Civic Effects Model (CEM) is an integrated effort to broaden and synthesize understanding of the relationships between internet use and civic and political participation (Kavanaugh et al., 2005). The CEM is the starting point of this study. It is an integration and modeling of internet use and group membership for analysis of civic participation and changes in civic involvement since going online. Before going further, the summary of empirical findings in CEM first is briefly examined to help to understand the conceptual model of this study. Figure 2.1 shows a simplified version of the CEM, focused on showing the relationships between predictors.

Overall, the CEM finds that internet use does lead to increased participation in local issues and points to the importance of local group membership. In particular, the CEM suggests that people with higher levels of education and extroversion are more informed and have a strong belief that the community can work together to solve problems. In addition, extroversion, staying informed, and having membership in local groups are significant in predicting (community) activism. Then, activism and online civic activities predict involvement in issues.

FIGURE 2-1 CIVIC EFFECTS MODEL



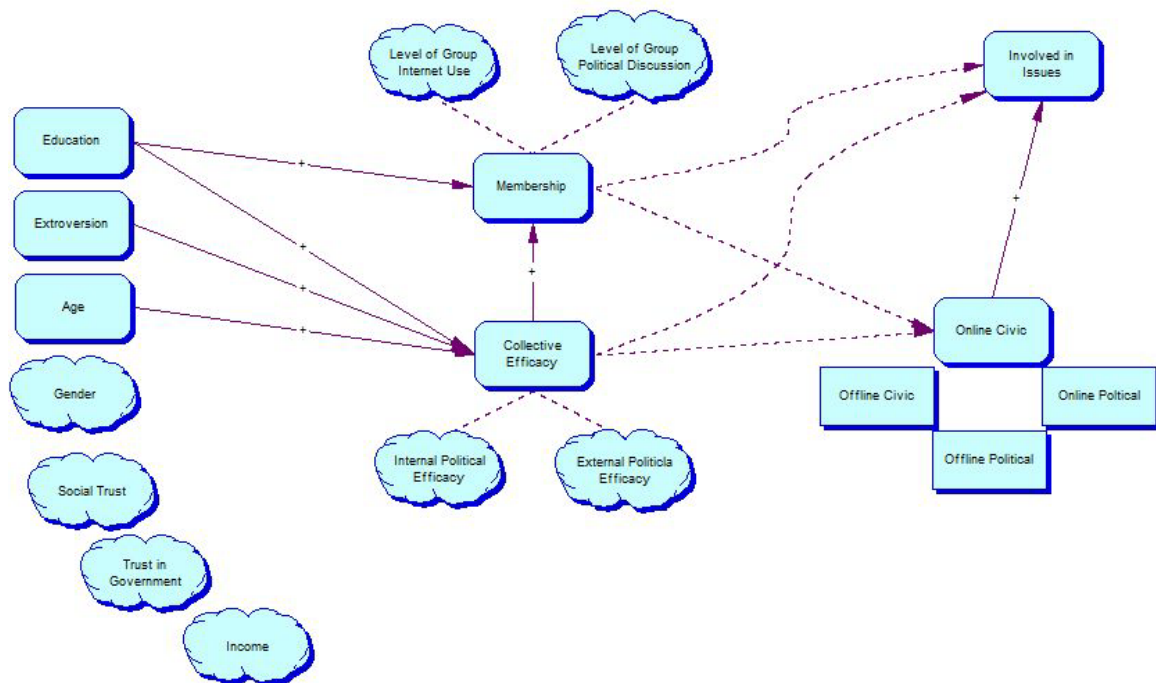
As the figure indicates, membership does not directly influence online civic activities or being involved in local issues. Collective efficacy also has an indirect impact on a dependent variable, activism through the membership factor. Empirical application of the CEM has found that the influences of individuals' group membership and collective efficacy on online civic and political participation successfully were detected and explained. Nevertheless, they were not fully examined. According to the literature on civic and political participation, also important are measures of efficacy (external political efficacy and collective efficacy) and more detailed measures of group membership such as whether groups provide opportunities for discussion in civic and political issues and whether they use internet as a group communication tool. Thus, the two primary components—*political efficacy* and *group political discussion and internet use*—emerged from the scholarly literature and were included in the initial model for this study (see Figure 2.2).

Figure 2.2 summarizes the initial research idea, based particularly on the CEM, which is employed in the conceptual framework of this study. Basically, it includes more

exogenous variables than the CEM such as gender and income. In addition, as psychological variables, this study includes trust in people and government. Also, the figure shows what measures are included and “direct” influences of both group membership factor and measures of efficacy.

2.5. 2 Conceptual Framework: Hierarchical Linear Model (HLM)

FIGURE 2-2 INITIAL MODEL FOR CONCEPTUAL FRAMEWORK

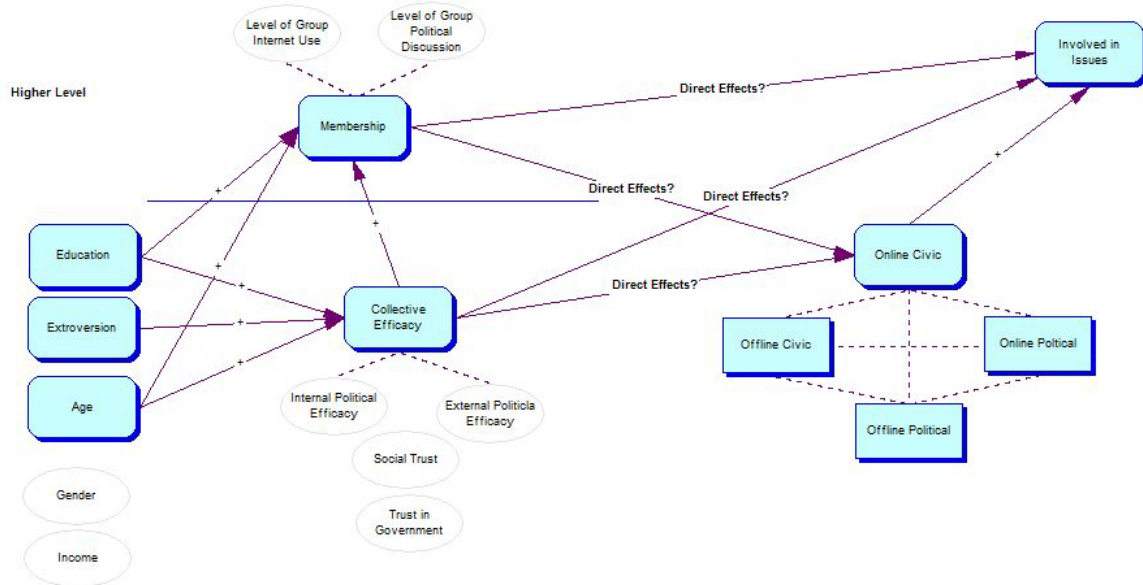


In the original CEM model, the community involvement variables (staying informed and community activism) were emphasized. Meanwhile, the direct influences of individual efficacy measures and membership were less emphasized. In Figure 2.2, the initial research model expanded the number of individual level characteristics and examined two components—measures of efficacy and of local group membership – in greater detail.

Then, after expanding the CEM through adding more measures, I stressed the different levels of analysis of the variables. In particular, group variables should be considered at a different level in order to increase the accuracy of estimates of influence and to search

for possible “direct” influence of group level variables and efficacy variables (see Figure 2.3).

FIGURE 2-3 HIERARCHICAL STRUCTURE OF CONCEPTUAL FRAMEWORK



The next chapter turns to how this framework was used to examine the influences on individuals’ perceptions about internet helpfulness and online/offline civic and political participation.

Chapter 3 Research Methodology

This study seeks to explore the effects²⁴ of local community groups and of individual citizens' levels of efficacy (community collective, internal, and external efficacy) on use of the internet for civic and political participation, using data from surveys and in-depth focus group interviews in a longitudinal case study. As part of a larger research project (National Science Foundation IIS-0429274), the survey questions cover the use of the internet among local citizens, especially for citizen-to-citizen deliberation and governmental integration of civic deliberation and political discussion within local community groups leading to decision-making (Kavanaugh et al., 2008). In this study, the focus is on the similarities and differences among people affiliated with local groups and their use of the internet for civic and political participation. As chapter one discussed, the following research questions were examined in this study:

RQ1: To what extent is use of the internet related to civic and political participation?

In addition to the general description of citizens' internet use activities, this study examines a possible causal relationship between citizens' perception on the helpfulness of internet on civic and political participation and psychological factors, especially measures of efficacy among local citizens.

RQ2 (Individual Level Question): Do psychological factors, especially internal and external political efficacy and community collective efficacy, have an effect on the use of internet for civic and political participation?

To answer this second research question, I examined whether internet use by local groups changed over time (here, between 2005 and 2006), and explored the impact of internet

²⁴ These effects consist of two sub themes; 1) political discussion which can be the base of deliberative democracy throughout the open public discussion and consideration of political ideas and problems with a view to collective opinion formation, decision-making and response within local groups and 2) mode of communication which show how much local group use internet for communication among members.

use on civic and political participation within different types of groups. More specifically:

RQ3 (Group Level Question): Did the mode of communication, in other words, the level of group internet use, (traditional mode (e.g., face-to-face) vs. electronic mode (e.g., internet online discussion) for group communication, the level of involvement and formal and informal political discussion within the local groups change, and if so, how and for whom?

Then, there were questions related to multilevel models. The first following question is the major HLM questions and the second one is related to a suggestion beyond the multilevel models.

RQ5 (Multilevel Question): What are the effects of local group level factors (such as group internet use²⁵ and group political interest²⁶) on individual citizens' perceptions of the helpfulness of internet use for civic and political participation, taking into account individual level factors?²⁷

RQ5-1 (Beyond the Multilevel Question): To what extent does the level of political activities influence the bridge model (HLM)? Are only active citizens influenced by local group level factors or also other passive-active, passive-apatetic, and apathetic individuals? And to what extent does the level of involvement such as the level of opinion leadership influence the bridge model (HLM)?

²⁵ This includes email, listserv, online discussion and websites use.

²⁶ Group political interest is tapped by formal political discussion, informal political chatting, and group positions on issues.

²⁷ In other words, if an individual is a member of a local group that has a high level of internet use and a high frequency of formal and informal political discussion and taking political stances on issues, his or her level of agreement is tapped by "1) the internet has helped me feel more connected with people like me in the local area, 2) the internet has helped me feel more connected with a diversity of people in the local area and 3) the internet has helped me more be involved in local issues that interest me and" will be greater than others when individual characteristics are controlled.

Then, finally, to strengthen the answers of quantitative research findings, the following research question was asked.

RQ6 (Focus Group Interview): Who uses the internet for civic and political reasons, and how and why do they do so at the local governance level?

3.1 Data

This study is based on data from household telephone surveys of citizens living in the towns of Blacksburg and Christiansburg, and the surrounding Montgomery County, Virginia, and from focus group interviews with selected survey respondents. The town of Blacksburg is home to Virginia Polytechnic Institute and State University (a.k.a. Virginia Tech), whose faculty, staff and students made up almost 85% of the town population of 43,202 in 2005. It is also home to a stable, mature and well established web-based community network known as the Blacksburg Electronic Village (BEV; <http://www.bev.net>) in operation since 1993. By 2006, 85.2% of Blacksburg residents and 75.9% of Montgomery County including Christiansburg residents reported having internet access. Blacksburg is no longer ahead of other communities in the use of the internet. According to the 2006 Pew Internet & American Life project report, a majority of Americans (over 70%) reported using the internet (Horrigan & Raine, 2006), and most cities and towns have a variety of locally oriented content websites for community organizations, government, and neighborhood (Hampton, 2003; 2007). In Blacksburg, Christiansburg and Montgomery County, 155 local community groups and more than 450 local businesses (over 75%) maintain their own websites (Kavanaugh et al., 2005).

The two waves of surveys of a random sample of households (in spring 2005 and spring 2006) were conducted by the Virginia Tech Center for Survey Research. The larger research team purchased the sample from Survey sample, Incorporated, which generated the random sample from listed and unlisted telephone numbers available to Montgomery County, Virginia residents, including the towns of Blacksburg and Christiansburg that lie within the County limits. During the first round of telephone interviews in 2005, the number of eligible residents in the sample was 1,795 after the elimination of all ineligible

records (e.g., disconnected numbers, hearing disabilities, outside County). A total 717 of telephone interviews were completed, producing a response rate of 40% during the first round.

In spring 2006, the second round of surveys was conducted using the same instrument and the same respondents. Of the 717 first wave respondents, 430 completed the second wave (response rate: 76%).²⁸ This second survey provides information on changes over time in civic and political life, internet use, and local groups and presents confirmatory analyses of the first wave results. This study reports findings from both the first and second waves of data.

This study uses both quantitative and qualitative methods. In addition to the surveys, several focus groups were conducted. Homogeneous focus groups were conducted of 1) internet users who are politically (conventional and unconventional) activists, 2) internet non-users who have high political participation characteristics, and 3) (political and personal) bloggers. The interviews were designed to elaborate on findings from the survey data about different levels of political activity and internet use (Morgan, 1998), and they provided rich insights into how internet technologies are used²⁹ for civic and political participation at the local level.

²⁸ The following table provides an overview of the final call dispositions for all sample members. Total initial sample was 717. Total ineligible sample was 147 (Residence outside Montgomery County (3), Non-working telephone number (fax tones, out of service/disconnected numbers, automated disconnected/refusal services (89), Non-residential telephone number (4), Former respondent no longer in household (49), and Hearing/language barrier (2)). And the eligible sample was 570 (Total number of completed Interview (430) and Final disposition of no answer, busy, answering machine or callback after a least seven attempts (140))

²⁹ In this study, internet use was measured by a “yes” or “no” response to the following question: “Do you use the internet from any location?” Then, respondents were asked where they used the internet: home, work, school, and other. Questions determined how often respondents used the internet for political and civic purposes. In addition, the use of blogs was examined with three frequency-level questions about blog reading, commenting, and writing (0=never, 1=less than monthly, 2=more than monthly).

3.2 Defining Variables

3.2.1 Dependent Variables

I define my dependent variables as 1) “Helpfulness of the Internet,” the extent to which a citizen agrees the internet is helpful for becoming more involved in local issues of interest, connecting with a diversity of people or with people like him/her in the local area and 2) the extent to which a citizen reports s/he uses the internet for civic and political purposes (online civic/political interests and activities) and the extent to which a citizen reports their (offline) civic/political activities and interests. The dependent variables of major interest, the reported helpfulness of the internet and online and offline civic/political interests and activities, were calculated based on reliability analysis results. The survey questions were selected so that the underlying constructs were as similar as possible to those in the Civic Effects Model, which was the starting point of this study. The dependent variables included the following:

Helpfulness of the internet

This measure tapped a respondent’s levels of agreement with the following statements: 1) the internet has helped me feel more connected with people like myself in the local area; 2) the internet has helped me feel more connected with a diversity of people in the local area; and 3) the internet has helped me become more involved in local issues that interest me. These three measures were combined into an additive construct.³⁰ (Scale: 1=strongly disagree, 2=somewhat disagree, 3= somewhat agree, 4=strongly agree.)

Offline/Online Civic and Political Participation

Offline Civic and Political Interests/Activities: Other questions asked about the extent of respondents’ civic and political interests and activities: 1) How frequently in the last six months has the respondent read local, national and global news in the paper; attended a local public or political talk or meeting; wrote or called a local government official;

³⁰ This is a complex one variable formed from a number of elements—survey questions.

attended religious services; did volunteer work; and 2) Has the respondent in the last two years attended a neighborhood meeting; written a letter or email to a local area newspaper editor/a local radio station; circulated or signed a petition for a local candidate or issue; watched a town council or supervisors meeting on cable TV; worked locally for a political campaign; contacted a local public school official about an issue of concern; protested about local issues. These questions were combined into an additive construct. (Scale for Offline Civic: 1= never, 2=less than once a month, 3=about once a month, 4=about once a week, 5=several times a week, 6=about once a day. /Scale for Offline Political: 1= never, 2=less than once a month, 3=about once a month, 4=about once a week, 5=several times a week, 6=about once a day.)

Online Civic and Political Interests/Activities: How frequently in the last six months has the respondent used the internet for the following: 1) to work online for a political party or candidate, to try to influence a government policy or affect a politician's point of view; to send email to a local government official; and 2) to get local, national or global news; to read, comment on or write a blog; to post factual information for citizens; to express opinions in online forums or group discussions. These questions were combined into an additive construct. (Scale: 1=never, 2=about once a month or less, 3=about once a week, 4=a few times a week, 5=about once a day, 6= several times a day.)

Table 3.1 contains further details about the measures. All measures of dependent variables were represented by variables that were subjected to reliability analysis. The survey questions were selected so that the constructs were as similar as possible to those in the prior study of the Civic Effects Model about community computing in Blacksburg, Christiansburg, and Montgomery County: Experiences of People, Internet and Community (EPIC) reported elsewhere (Carroll et al., 2005; Kavanaugh et al., 2005; Kavanaugh et al., 2003; Carroll and Reese, 2003).

TABLE 3-1 MEASURES OF DEPENDENT VARIABLES

Composite Name Mean (2005/2006)	Alpha Values ^a (N)		Survey Questions
	2005	2006	
Helpfulness of Internet 2.34/2.46	0.85 (528)	0.87 (321)	Level of agreement with: 1. The internet has helped me feel more connected with people like myself in the local area. 2. The Internet has helped me feel more connected with a diversity of people in the local area. 3. The Internet has helped me become more involved in local issues that interest me.
Off line civic Interests/Activities 3.18/3.22	0.58 (713)	0.57 (429)	In the last six months (how frequently): 1. Read local news in the paper 2. Read national or global news in the newspaper. 3. Attended a religious service. 4. Attended a public meeting. 5. Did volunteer work.
Off line political Interests 1.35/1.39	0.51 (716)	0.53 (430)	In the last six months (how frequently): 1. Attended a local political talk or meeting. 2. Wrote or called a local government official.
Offline Political Activities 1.37/1.38	0.61 (696)	0.53 (421)	In the last two year (have you): 1. Attended a neighborhood meeting. 2. Written a letter or email to a local area newspaper editor. 3. Called in or emailed a local radio station. 4. Circulated or signed a petition for a local candidate or issue. 5. Watched a town council or board of supervisors meeting on cable television. 6. Worked locally for a political campaign. 7. Contacted a local public school official about an issue of concern to you. 8. Protested about a local issue.
Online Civic Interests/Activities 1.84/1.85	^b 0.69 (234)	0.68 (336)	How frequently do you use the internet use to: 1. Get national or global news. 2. Get local news. 3. Look for information on BEV website. 4. Look for information on the Montgomery website. 5. Look for information on the Town of Blacksburg website. 6. Communicate with other residents about local concerns or issues 7. <i>Read a blog.</i> 8. <i>Post a comment on a blog.</i> 9. <i>Write in your own blog.</i> 10. Post factual information for other citizens. 11. Express your opinion in online forums or group discussions.
Online Political Interests/Activities 1.19/1.20	0.64 (556)	0.53 (336)	How frequently do you use the internet to: 1. Work online for a political party or candidate. 2. Try to influence a government policy or affect a politician's view. 3. How often in the past six months did you send email to a local government official?

Notes:

^aThe lowest internal consistency reliability index (α) is 0.51 and highest is 0.87 for the indicators.

^b Civic online interests/activities are calculated from different scales for those who reportedly heard about web logs and those who did not. The scale for former group has 11 items and the latter has 8 items excluding three questions regarding web logs that are presented in italic in Table 3.1.

3.2.2 Independent Variables

The independent variables included composite variables and non-composite variables. In particular, this study emphasizes the psychological and local group level factors in this study for bridging the individual and group levels of analysis.

Demographics

Survey respondents were asked for several items of demographic information: their age, gender, education, and household income. The detailed questions are shown in Table 3.2.

Psychological Factors

Psychological factors such as trust, extroversion, and measures of efficacy were measured. As chapter two detailed, the study looked at three dimensions of measures of efficacy: a respondent's internal and external political efficacy, and his or her collective efficacy. I measured internal political efficacy using level of agreement with the statement, "Sometimes local politics and government seem so complicated that persons like me can't truly understand what's going on." External political efficacy was measured as the level of agreement with two statements: 1) "I don't think local public officials care much what people like me think," and 2) "There are plenty of ways for people like me to have a say in what our local government does." Collective efficacy was tapped by the level of agreement with the statement: "I am convinced that we can improve the quality of life in the local community, even when resources are limited." Extroversion was measured by the level of agreement with statements: 1) "Generally, speaking I am outgoing and social," and 2) "I am talkative." Trust in people was measured by: 1) "To what extent do you think most people in the local area can be trusted?" and 2) "To what extent do you think most people in the local area are inclined

to help others?” Finally, trust in government was measured using level of agreement with the statement: “In general, do you trust you local government in handling local problems a great deal, a good deal, a fair amount, not very much, or not at all?”

Local Group Membership factors

The surveys also obtained the number of formal local groups that each respondent belonged to and asked detailed questions about each of the groups. Respondents reported the different modes of communication (offline and online) that each group used to communicate and three questions were asked about political discussion in the group: 1) Are political topics discussed formally? 2) do group members chat informally about politics? and 3) does the group take a stand on local or national issues? These questions were combined into an additive index.

All indicators of the independent variables in the study were subjected to reliability analysis like dependent variables. As seen in Table 3.2, the lowest internal consistency reliability index (α) is 0.52 and the highest is 0.78.

TABLE 3-2 MEASURES OF INDEPENDENT VARIABLES

Composite Name (Range) Mean (2005/2006)		Alpha Values^b and (N)^a (2005/2006)	Survey Questions
Demographic factors	Age	N/A	In what year were you born?
	Gender	N/A	Are you male or female?
	Education	N/A	What is the highest level of formal education you have completed?
	Household Income	N/A	Was your estimated total household income before taxes last year less than \$50,000 or was it \$50,000 or more?
Psychological factors	Extroversion ^c (1-4) 3.24/3.14	0.76 (713)/ 0.78 (430)	Level of agreement with 1. Generally speaking I am outgoing & sociable. 2. I am talkative.

Composite Name (Range) Mean (2005/2006)	Alpha Values ^b and (N) ^a (2005/2006)	Survey Questions
Trust ^d in People (1-4) 3.50/3.54	0.64 (688)/ 0.71 (419)	1. To what extent do you think most people in the local area can be trusted? 2. To what extent do you think most people in the local area are inclined to help others?
Trust in Government (1-5) 3.17/3.13	N/A	In general, do you trust your local government in handling local problems a great deal, a good deal, a fair amount, not very much, or not at all?
Collective Efficacy ^c (1-4) 3.27/3.2	N/A	Level of agreement with 1. I am convinced that we can improve the quality of life in the local community, even when resources are limited.
Measures of efficacy	Internal Political Efficacy ^c (1-4) 2.86/2.85	Level of agreement with 1. Sometimes local politics and government seem so complicated that persons like me can't truly understand what's going on.
	External Political Efficacy (1-4) 2.69/2.50	0.52 (679)/ 0.55 (417) 1. I don't think local public officials care much what people like me think. 2. There are plenty of ways for people like me to have a say in what our local government does.
Group level factors	Level of Political Discussion within Local Groups (0-9) 1.27/1.37	Additive construct Yes/No answer to 1. Does this group ever have meetings at which political topics are on the agenda or discussed formally? 2. Do the people at the meetings of this group ever chat informally about politics or government? 3. Does this organization ever take a stand on any local or national issue?
	Level of Communication within Local Groups (0-9) 1.18/1.50	Additive construct Please tell me how the people in this group communicate with each other. Do they communicate using (Yes/No answer to) 1. Face to face communication 2. Telephone? 3. Postal mail? 4. Email or listserv? 5. Online discussion? 6. Does this group have a web site?

^a Valid number of cases for the composite.

^b The lowest internal consistency reliability index (α) is 0.52 and highest is 0.78 for constructs.

^c Items response- 1=strongly disagree, 2=somewhat disagree, 3= somewhat agree, 4=strongly agree.

^d Items response – 1=not at all, 2=not very much, 3=somewhat, 4=very much.

3.3 Research Model Development

On the basis of the assumption that individuals are influenced by various factors in their social surroundings, Matthew Burbank (1995) defines contextual effects as the systemic

variation in the behavior of individuals associated with variations across different settings such as different organizations. Formal analysis of contextual effects requires attention not only to the extent to which individuals are influenced by their surroundings, but also to whether individual factors interact with contextual features to generate effects. Various linear models have been proposed for such hierarchical data analysis, allowing insights about direct and conditional effects across levels.

As mentioned in chapter two, Katz and Rice's (2002) panel studies of national survey data in the United States (1995, 1996, 1997, and 2000) have reported that regular internet users were significantly more likely to belong to at least one local group than non-internet users. At the same time, at the individual level, the internet has provided a platform for a significant number of additional forms of political activity (Katz and Rice, 2002). This study focuses on detecting the group effects on individual citizens' level of online political and civic behavior. In other words, the study examines how local groups' levels of internet use and political group discussion and interests are related to individual perception of the helpfulness of the internet, controlling for individual level influences.

Determining this group effect requires developing a statistical model that addresses a hierarchically structured data problem. For instance, citizens in the same group tend to be similar to each other. Because of both selection processes (e.g., some groups attract individuals from similar socio-economic statuses or with similar personal interests) and common history, many citizens share the same affiliation. As a result, the average correlation between variables shared by individual members of the same group (the so-called *intraclass correlation*) will be higher than the average correlation between variables shared by individual members from different groups.

Standard statistical tests lean heavily on the assumption of independence of observations. If this assumption is violated (and in multilevel data this is almost always the case), the estimates of the standard errors of conventional statistical tests are much too small, resulting in many spuriously significant results. Hierarchical linear model (HLM) estimation accounts for non-independent observations at the group level (Raudenbush, Bryk, & Congon, 1998).

In this study, I use a two-level, random intercept model and then estimated the effects of group level characteristics on the individuals' extent of agreement that the internet is helpful, after controlling for other independent variables. Level two consists of local groups' variables and level one includes individual member variables. To obtain the information about formal local groups, I asked the same questions of group members three times, and then categorized four different types of groups: a) civic/political, b) religious/support/charitable, c) educational/professional, and d) social/recreational group. Level 1 consists of individual level variables including independent and control variables. Level 2, group level, includes local group factors.³¹

$$\text{Level}_1: \gamma_{ij} = \beta_{0j} + \beta_{1j}X_{ij1} + \dots + \beta_{kj}X_{ijk} + r_{ij} (\text{Individual_Level})$$

$$\text{Level}_2: \beta_{0j} = \gamma_{00} + \gamma_{01}W_{0j1} + \dots + \gamma_{0k}W_{0jk} + u_{0j} (\text{Local_Group_Level})$$

3.4 Methodological Challenge

Model building should begin with an examination of the data. Especially for developing hierarchical linear models (HLM), bivariate correlation analyses are used to examine collinearity among the explanatory variables at the higher group level (Level 2) as well as the relationships between the dependent variables and the explanatory variables. Hierarchical regression analyses are performed in order to examine the fixed effects and the degree of collinearity among predictor variables as well. Then, to examine normality, plots of standardized residuals against the normal scores are used, as well as Kolmogorov-Smirnov, skew, and kurtosis statistics (Chang, 2004). The plots for models in this study presented at Appendix C and those show that models satisfied the normality assumptions for developing HLM.

This study used Hox's (2002) strategy for model specification as a general guide. The strategy includes five steps. 1) analyze a model that has a random intercept at level 1. In

³¹ To understand types and classes of multilevel models, see Luke (2004), *Multilevel Modeling*.

this study this simple model is called a baseline model. This baseline model provides an estimation of the intraclass correlation and a baseline value for the deviance, 2) analyze a model that has all lower level coefficients fixed. The contribution of each independent variable at the lower level can be assessed, 3) add higher-level variables. This model shows whether each higher level variable contribute to the explained variation of the dependent variable, 4) assess whether any of slopes of any of the variables vary. After determining which slopes are significant, all the variables are included in the final model, 5) Add cross-level interactions between higher level variables and the lower level explanatory variables that showed significant effects. Step 4 and 5, especially, are used a model for “predicting” but this study is interested in “explaining” the relation among variables. Thus, this study applied first three steps for detecting group effects on civic and political participation.

3.5 Focus Group Interviews

The analysis also relies on information from focus groups. The digital government research team conducted six focus groups between September 27 and October 18, 2005. Professor Carol Bailey of the Virginia Tech Department of Sociology assisted group with the interview questions and protocol, and served as moderator for all six interviews. The Virginia Tech Center for Survey Research (CSR) assisted with telephone calls and invitations to survey respondents who had agreed to be contacted about the focus groups. The two main criteria for selection for this phase of the project were internet use and political participation. The six kinds of focus groups appear in Table 3.3.

TABLE 3-3 FOCUS GROUPS

1) Personal bloggers: People familiar with blogs; low political participation
2) Political bloggers: People familiar with blogs; high political participation
3) Cell phone users who do not use the internet and have lower socioeconomic status (here, the educational attainment of a high school diploma or less)
4) Internet users who are “unconventional” activists (e.g., attend meetings, protest, organize activities)
5) Internet users who are “conventional” activists (e.g., keep up with news, vote)
6) Internet non-users who have high political participation.

The team sought eight respondents for each group. To be on the safe side, the team enrolled 10 people who agreed to participate in order to make sure at least eight people actually came to each session. 508 respondents (70.9% of the whole sample) agreed to be contacted about participating in a focus group discussion. The team selected the respondents who met the criteria for each group from this subsample. The CSR suggested a success rate of 25%; that is, to have 10 respondents commit to an interview, it needed a master list of 40 candidates for each group. The research team further prioritized candidates based on higher scores on the selection criteria, including a mix of gender, age and location, whenever possible.

The team measured the two main criteria – political participation and internet use – in several ways. Political participation was tapped using a composite variable labeled TALKPOL which consists of four items: talking with family, friends and acquaintances about local, national, and global issues (see Table 3.4). The team tried another more diverse (11 item) construct, Political Discussion Network (PDN) variable (alpha values=0.74, N=337), but it narrowed the pool of respondents too much. TALKPOL correlated highly with this PDN construct (.893) and had high internal reliability (alpha=0.83), based on 708 respondents. The four answers were added to composite TALKPOL.

TABLE 3-4 CONSTRUCT OF TALKPOL

Composite Name & Label (range) Mean	Alpha Values and (N)	Survey Questions
TALKPOL Political talk with family & outside family ^b (1-6) 3.60	0.83 (708)	On average, please tell me how often in <u>the last six months</u> you did each of the activities I mention. 1. Talked to family members about local issues or concerns? 2. Talked to family members about national or global issues or problems? 3. Talked to people outside your family about local issues or problems? 4. Talked to people outside your family about national or global issues or problems?

Notes:

^a Item response - 1= never, 2=less than once a month, 3=about once a month, 4=about once a week, 5=several times a week, 6=about once a day.

The team measured internet use (use_Inet) according to responses to the question: Do you use the internet from any location? Bloggers were identified using responses to

questions on awareness and frequency of blogging (see Table 3.5). For the two groups with bloggers, we sought people with the most experience (read, post, write) with blogs and frequency of these blog activities. Whether the respondent was a personal blogger or a political blogger was determined by their scores on TALKPOL. 40.1% of all respondents reported they had never heard of blogs (giving a score of 0), and 31.5% of respondents reported very low amounts of blog activity (giving a score of 1). Therefore, a score of ≥ 2 was used as a cut off point for “bloggers” in Focus Group one. Since few politically active respondents were engaged in any blogging activity (reading, posting, and writing) with any frequency, a score of ≥ 1 was a cut point for Group two.

TABLE 3-5 BLOG: AMOUNT OF BLOG ACTIVITIES: HEARD, READ, POST, AND WRITE

Composite Name & Label (range) Mean	Composite & (N)^a	Variables (range)	Survey Questions
BLOG Amount of blog activities heard read post write (1-7) 1.15	Compu te BLOG = SUM(f our variabl es) (555)	heard_blog ^b (0-1), Type_blogread ^c (0-2), Type_blogpost ^d (0-2), Type_blogwrite ^e (0-2)	1. Have you ever heard of web logs or blog? How often in the past six months have you used the Internet for each of the purpose I mention? 2. Read a web log or blog, or an on-line journal? 3. Post a comment on a web log, blog, or online journal? 4. Write in your own web log, blog, or on-line journal?

Notes:

^a Valid number of cases for the composite.

^b Items response - 0= No, 1=Yes.

^c Items response - 0= Not Blog Readers, 2=Monthly Blog Reader, 3=Frequent Blog Reader.

^d Items response - 0= Not Blog Posters, 2=Monthly Blog Poster, 3=Frequent Blog Poster.

^e Items response - 0= Not Blog Writers, 2=Monthly Blog Writer, 3=Frequent Blog Writer.

The distinction between groups four and five is the degree of political participation measured by scores on TALKPOL. Unconventional political activists were politically more active than conventional political activists. Group six is a counterpart of groups four and five in terms of use of the internet. Members of group six are non-internet users and politically active (TALKPOL>3.5). The criterion variables, cutoff points, and sizes of each group are summarized in Table 3.6.

TABLE 3-6 FOCUS GROUP SELECTING CRITERIA

Focus Group	Group Title	Cutoff point	# of Selected Candidates (N)
1	Heavy Personal Bloggers	BLOG >2 (scale: 0-7) POLBLOG=0 (0=Personal Bloggers, 1=Political Bloggers)	41
2	Heavy Political Bloggers	BLOG >1 (scale: 0-7) POLBLOG=0 (0=Personal Bloggers, 1=Political Bloggers)	47
3	Cell Phone User with low SES & Non-Internet User	use_inet=0 (0=No, 1=Yes) cell_ed=0 (0=Household have cell phone & education level High School or less 1= Household have cell phone & education level some college or higher) TALKPOL <3.6* (scale: 1-6)	44 (35)**
4	Internet User & Unconventional Activist	use_inet=1 (0=No, 1=Yes) BLOG <2 (scale: 0-7) TALKPOL >5 (scale: 1-6)	46
5	Internet User & Conventional Activist	use_inet=1 (0=No, 1=Yes) BLOG <2 (scale: 0-7) TALKPOL >4.25 & <5.25 (scale: 1-6)	55
6	Non-Internet User & High Political Activist	use_inet=0 (0=No, 1=Yes) TALKPOL >3.5 (scale: 1-6)	40

Notes:

* TALKPOL <3.6 is the criterion for exclusion from group 6.

** The size of group 3 was reduced to 35 after being filtered with a mutual exclusive criterion (TALKPOL <3.6)

Focus Group Discussion Protocol

The three overarching focus group discussion topics were: 1) what information technology was being used, for what purposes, and how did its use differ among users? 2) how did information technology foster local political participation by different types of users? and 3) what internet capabilities would spur use of information technology for local political participation? During the focus groups, we probed participants' community interests and activities, their involvement with local community groups, and their online and offline interactions with government and other citizens. The research team asked how and why they used different communications media (newspapers, radio, TV, and the internet) for civic and political purposes. We also sought to understand different persons' motivations for local political participation (both offline and online), their sense of political and collective efficacy, and their levels of trust. The focus group protocol included probes adapted from questions developed for prior BEV research supported by the National Science Foundation, and by incorporating questions developed

by other researchers, such as Horrigan, J., Garrett, K., & Resnick, P. (2004); Putnam (2000); and Verba et al. (1995). Except for group three (only two participants showed up), the other focus groups succeeded in recruiting enough participants

Interview Data Analyses

I analyzed the focus group discussions using NVivo software. I coded focus group data (words, phrases) as closely as possible to match the comparable variables that I first used in the survey data. Coding categories included: 1) length and types of internet use for various purposes (email, Web, listservs), 2) political involvement offline and online, 3) communication with government, citizens and local groups, and 4) political or collective efficacy.

Although the great strength of focus groups lies in the richness of the information that participants provide, there are limits to the method's applications. For instance, focus groups can identify the types of needs for or impacts of internet use on civic and political participation and the associated reasons for these. But in the case of impacts, focus groups cannot tell one how many people were helped by internet use or the amount of impact because they do not yield inferential statistics as a survey using a random sample would. The goal of focus groups is not to generalize to a larger population but to provide valuable information that the insightful reader may transfer to other contexts (Lincoln & Guba, 1985). Thus, in this study, focus group interview data were used as an auxiliary to the quantitative analyses.

Chapter 4 Findings

This chapter discusses four components of findings. The first part covers the individual level of analysis, and the second section examines the group level of analysis. The third part is about bridging the two levels—individual and group levels through multilevel analysis (using the Hierarchical Linear Model). Finally, the fourth component covers the findings of focus group interviews. First, however, the data used in the study are described.

4.1 Describing the Data

As mentioned earlier, the survey questions covered current information and communication technologies, especially internet use and practices among local citizens, local community groups and government representatives. In particular, this study is interested in differences among individual citizens affiliated with local groups and their internet use for civic and political participation.

4.1.1 Dependent Variables

Two types of dependent variables are considered in this study (Table 4-7). The *Helpfulness of the Internet* includes responses to the following items: 1) the Internet has helped me become more involved in local issues that interest me; 2) the Internet has helped me feel more connected with a diversity of people in the local area; and 3) the Internet has helped me feel more connected with people like me in the local area. These measures show individual citizens' perspectives on the internet. In particular, the virtue of connectiveness is an important component of social capital (Putnam, 1995). The second and third items of *Helpfulness of the Internet* reflect that dimension.

The other dependent variables, Civic and Political Participation, were computed by examining four dimensions: 1) Offline Civic Interests & Activities; 2) Offline Political Interests & Activities; 3) Online Civic Interests & Activities; and 4) Online Political Interests & Activities. The dimensions were tapped by responses to several survey questions (see chapter 3 for details).

TABLE 4-7 INDEPENDENT VARIABLES: DESCRIPTIVE STATISTICS

		N (2005/2006)	Minimum (2005/2006)	Maximum (2005/2006)	Mean (2005/2006)	Std. Deviation (2005/2006)
Helpfulness of Internet^a	The Internet has helped me to get more involved in local issues of interest	546/327	1/1	4/4	2.75/3.00	1.003/.8860
	The Internet has helped me feel more connected with a diversity of people in the local area.	539/327	1/1	4/4	2.68/2.22	1.017/1.033
	The Internet has helped me feel more connected with people like me in the local area	540/327	1/1	4/4	2.52/2.41	.987/1.017
Civic and Political Participation	Offline Civic Interests and Activities ^b	717/430	1/1	5.6/5.4	3.18/3.22	.92404/.91075
	Offline Political Interests and Activities ^c	717/430	1/1	4.0/3.4	1.38/1.38	.43496/.36768
	Online Civic Interests and Activities ^d	557/339	1/1	4.1/3.9	1.76/1.85	.58591/.62560
	Online Political Interests and Activities ^d	557/339	1/1	4.0/3.3	1.19/1.20	.39834/.36768

^a Items response- 1=strongly disagree, 2=somewhat disagree, 3= somewhat agree, 4=strongly agree. / ^b Items response - 1= never, 2=less than once a month, 3=about once a month, 4=about once a week, 5=several times a week, 6=about once a day. / ^c Items response- 1=never, 2=about once a year, 3=several times a year, 4=about once a month, 5=about once a week. / ^d Item response- 1=never, 2=about once a month or less, 3=about once a week, 4=a few times a week, 5=about once a day, 6= several times a day.

On average, respondents reported their agreements on the helpfulness of internet are located between somewhat agree and somewhat disagree (means are between 2 and 3). Among three sub indicators of the helpfulness of the internet, helpfulness on involvement was higher than the other two—connected with a diversity of people or similar people in the local area. Meanwhile, civic interests and activities were higher than political

interests and activities both offline and online at the local community level. In addition, mean scores in 2006 are slightly higher than in 2005 for online civic and political interests and activities.

4.1.2 Independent Variables

Demographics (Exogenous)

In 2005, among the 717 respondents, 559 (78 %) reported they were internet users. Respondents' ages ranged from the early 20s to the 80s; 63 % were over the age of 40. 469 (65.4 %) respondents were female, 509 (71.5 %) had formal education beyond a high school diploma, and 331 (46.2%) reported household incomes of \$50,000 or more. In 2006, among the 430 respondents, 339 (78.8%) were internet users, 281 (65.3%) were female, 75.5% of respondents were over 40, and 242 (56.3%) had household incomes of \$50,000 or more. 310 (73%) of respondents had education beyond a high school level. (See Table 4-8.)

TABLE 4-8 DEMOGRAPHIC VARIABLES: DESCRIPTIVE STATISTICS

		Minimum (2005/2006)	Maximum (2005/2006)	Mean (2005/2006)	Std. Deviation (2005/2006)
Age		18/21	92/93	48.07/52.22	16.959/15.404
		Frequency (2005/2006)	Percent (2005/2006)	Valid Percent (2005/2006)	
Gender	Male	248/149	34.6/34.7	34.6/34.7	
	Female	469/281	65.4/65.3	65.4/65.3	
Education	Eighth grade or less	9/6	1.3/1.4	1.3/1.4	
	Some high school	38/22	5.3/5.1	5.3/5.1	
	High school grad [or GED]	156/88	21.8/20.5	21.9/20.5	
	Some college/certificate program	161/78	22.5/18.1	22.6/18.1	
	Graduated from college or certificate program	177/114	24.7/26.5	24.9/26.5	
	Some graduate level work	29/18	4.0/4.2	4.1/4.2	
	Completed graduate school/professional school	142/100	19.8/23.3	19.9/23.3	
	Household Income	Less than \$50,000	330/161	46.0/37.4	49.9/37.9
\$50,000 or more		331/242	46.2/56.3	50.1/56.3	

There is common belief that members of younger generations use the internet more than older people. Thus, respondents in different age cohorts can be examined before going further. The age distribution is shown in Table 4-9.

TABLE 4-9 AGE COHORTS AMONG SURVEY RESPONDENTS

Generation	N (%)	
	2005	2006
DotNets (16 ~ 27 years old)	100 (14.1%)	24 (5.6%)
GenXers (28 ~ 39 years old)	147 (20.7%)	87 (20.5%)
Boomers (40 ~ 58 years old)	264 (37.2%)	179 (42.1%)
Dutifuls (59 years old plus)	198 (27.9%)	135 (31.8%)
Total	709 (100%)	425 (100%)

This study used the definition of age distribution from Zukin et al. (2006), who classified four age cohorts for the year 2005. The first group is *Dutifuls* (59 years old and above), that is, those born before 1946. They comprise 52 million (16.7%) of the population. The second cluster is *Boomers* (40 to 58 years old), born between 1946 and 1964. Boomers constitute the largest age cohort – about 71 million (22.9%). The third cohort *GenXers* (28 to 39 years old), born between 1965 and 1976, is slightly smaller than the *Dutifuls*, about 40 million (12.9%). Finally, *DotNets* are the young adults, about 40 million (16.1%). They are between 16 years and 27 years of age, and were born after 1976.

TABLE 4-10 INTERNET USE: DIFFERENCES AMONG AGE COHORTS

Generation	For how many years have you been using the internet?	In a typical day, how many hours do you spend using the internet from any location?
	(2005/2006) (years)	(2005/2006) (hours)
DotNets (16 ~ 27 years old)	7.91/7.87	6.87/3.23
GenXers (28 ~ 39 years old)	7.97/8.58	5.92/2.73
Boomers (40 ~ 58 years old)	7.34/6.27	2.43/2.32
Dutifuls (59 years old plus)	4.52/6.38	2.79/1.40

Table 4-10 shows the survey data according to each generation’s average experience with the internet. Except for *Dutifuls*, the other three age groups have an average of over

seven years of experience using the internet. As expected, young adults report the highest average daily hours of internet use (6.87/3.23 hours a day).³²

TABLE 4-11 CORRELATES OF INTERNET USE³³

Variable Name	Valid N (2005/2006)	Spearman's ρ Correlations (2005/2006)
Age	552/425	-.393**/-.416**
^a Gender	717/430	-.031/-.066
^b Education	553/430	.467**/.382**
^c Income	518/430	.298**/.250**

** $p < .01$

Notes on Response Codes: ^a 1=male, 2=female. ^b 1=eighth grade or less, 2=some high school, 3=high school grad GED, 4=some college/ certificate program, 5=graduated from college or certificate program, 6=some graduate level work, 7=completed graduate school/ professional school. ^c 1=less than \$50,000, 2=\$50,000 or more.

Table 4-11 shows that among the survey respondents internet users were more likely to be younger, to have higher education and to be affluent. Gender was not correlated with internet use. These results are consistent with previous studies' findings.

Trust and Extroversion

In this study, trust and extroversion are defined as psychological predictors of civic and political participation. Table 4-12 shows the descriptive statistics for trust (both in local people and in government) and for extroversion. The average citizen trust in local people was optimistic, 3.4965/3.5596 (SD=.5647/.5046); trust in government also was somewhat

³² Due to the decrease in the number of survey respondents in 2006, the average daily hours of internet use was changed. However, the overall pattern—DotNets > GenXers > Boomers > Dutifuls—was the same.

³³ Of 717 (2005) respondents, 557 or 77.7% reported they used the Internet. Spearman's ρ correlations calculated between responses to the question "Do you use the Internet from any location" and selected demographic characteristics show that Internet use is correlated with age, estimated household income, education, marital status, living with children or not, extroversion, and the number of formal and informal group affiliations. Similar correlations were found for 2006.

positive, 3.2178/3.1777 (SD=.9145/.8622) and level of extroversion was 3.2399/3.1480 (SD=.7542/.7463). The level of trust in people, so called social trust, was higher than trust in government in both waves. Average scores of trust in people were close to the maximum—“very much trust,” which showed that there is a higher level of social trust, at least at the local level.

TABLE 4-12 TRUST AND EXTROVERSION: DESCRIPTIVE STATISTICS

	N (2005/2006)	Minimum (2005/2006)	Maximum (2005/2006)	Mean (2005/2006)	Std. Deviation (2005/2006)
^a Trust in People	709/428	1.00/1.00	4.00/4.00	3.4965/3.5596	.5647/.5046
^b Trust in Government	707/423	1.00/1.00	5.00/5.00	3.2178/3.1777	.9145/.8622
^c Extrovert	717/429	1.00/1.00	4.00/4.00	3.2399/3.1480	.7542/.7463

Notes on Response Codes: ^a 1=not at all, 2=not very much, 3=somewhat, 4=very much. ^b 1=not at all, 2=not very much, 3=fair amount, 4=good deal, 5=great deal. ^c 1=strongly disagree, 2=somewhat disagree, 3=somewhat agree, 4=strongly agree.

Political Efficacy and Community Collective Efficacy

Table 4-13 shows the descriptive statistics for political efficacy (both internal and external) and collective efficacy. The average of citizens’ internal political efficacy was 2.9511/2.9353 (SD=.9310/.9472), external political efficacy was 2.4902/2.6029 (SD=1.1163/.9235) and collective efficacy was 3.3400/3.3390 (SD=.7099/.7183). Reported levels of internal political efficacy were higher than external. Considerable public opinion research suggests that internal political efficacy has been stable and that external efficacy had been steadily declining (Abramson, 1983; Lee, 2006). In general, belief about residents’ collective capacities as a community, community collective efficacy, was higher than individual internal and external efficacy. This community collective efficacy is influenced particularly by individuals’ previous experience of human-computer interaction such as community computing (Carroll, Rosson, and Zhou, 2005). The survey respondents in Blacksburg had had the benefit of a community computing network—Blacksburg Electronic Village (BEV). This may account for the highest scores of community collective efficacy among three measures of efficacy.

TABLE 4-13 MEASURES OF EFFICACY: DESCRIPTIVE STATISTICS

	N (2005/2006)	Minimum (2005/2006)	Maximum (2005/2006)	Mean (2005/2006)	Std. Deviation (2005/2006)
^a Internal Political Efficacy	696/417	1.00/1.00	4.00/4.00	2.9511/2.9353	.9310/.9472
^a External Political Efficacy	712/413	1.00/1.00	4.00/4.00	2.4902/2.6029	1.1163/.9235
^a Community Collective Efficacy	703/413	1.00/1.00	4.00/4.00	3.3400/3.3390	.7099/.7183

Notes on Response Codes: ^a 1=strongly disagree, 2=somewhat disagree, 3=somewhat agree, 4=strongly agree.

Local Group Level Factors

Table 4-14 shows the descriptive statistics for local group membership factors. The mean level of group political discussion and interest was 1.2678/1.3744 (SD=1.7379/1.8778) and of local group internet use was 1.1757/1.5070 (SD=1.7019/1.8267). Even though this cannot be generalized, both measures increased. The rapid increase of social software, which provides easily built and managed group sites, could be one of reasons for the increase in group internet use.

TABLE 4-14 DESCRIPTIVE STATISTICS LOCAL GROUP MEMBERSHIP

	N (2005/2006)	Minimum (2005/2006)	Maximum (2005/2006)	Mean (2005/2006)	Std. Deviation (2005/2006)
^a Level of Group Political Deliberation and Interests	717/430	.00/.00	9.00/8.00	1.2678/1.3744	1.7379/1.8778
^b Level of Group Internet Use	717/430	.00/.00	9.00/7.00	1.1757/1.5070	1.7019/1.8267

Notes on Response Codes: ^a Sum (political talk formally/informally within groups and taking a stand on issues). ^b Sum (email/listserv, online discussion, website).

4.2 Individual Level of Analysis: Effects of Internet Use on Individuals' Civic and Political Participation

Introduction

At the individual level of analysis, analysis of survey data on the impact of the internet on civic and political participation proceeds in three steps. First, the descriptive statistics discussed in the previous section are used to examine the differences between internet users and non-internet users. Second, analysis of variance (ANOVA) tests were conducted to examine the effects on efficacy of demographics, internet use and other psychological factors (trust in people, trust in governments and extroversion). Third, partial correlation analyses and hierarchical regression analyses were conducted to answer two questions: 1) who uses the internet for civic and political reasons and to what extent is the use of the internet related to civic and political participation; 2) do individual factors such as collective efficacy, internal and external political efficacy, trust, extroversion, income, education, gender and age have an effect on online civic and political interests and activities? These questions are sub-questions of the primary research question. In addition, these analyses focus on the individual level portion of the conceptual framework, which examines internet effects on civic and political participation.

4.2.1 Internet Users vs. Non-Internet Users

Table 4.15 shows the descriptive differences between internet users and non-internet users. The mean ages of internet users (44.40/48.82 years old) are younger than non-internet users (60.94/65.06 years old). Averages of the three psychological factors—trust in people, in government and extroversion—were higher for internet users than for non-internet users. Except for community collective efficacy, internet users' average internal and external political efficacy were higher than non-internet users in those descriptive statistics. In the second wave, the political activities and interests were statistically

higher among internet users (Offline Political Activities and Interests: $F(1, 428) = 12.006$, $P < .001$).

TABLE 4-15 INTERNET USERS VS NON INTERNET USERS BY INDIVIDUAL CHARACTERISTICS

	Internet Users Mean (SD/N) (2005/2006)	Non-Internet Users Mean (SD/N) (2005/2006)
Age**	44.40 (15.370/N=552)/ 48.82 (14.074/N=336)	60.97 (15.995/N=160)/ 65.06 (13.692/N=89)
Trust in people*	3.528 (.525689/N=553)/ 3.5695 (.47681/N=338)	3.3814 (.67469/N=156)/ 3.5222 (.59921/N=90)
Trust in government*	3.2541 (.88670/N=551)/ 3.2042 (.83254/N=333)	3.0897 (.99917/N=156)/ 3.0778 (.96253/N=90)
Extrovert*	3.2522 (.76256/N=557)/ 3.141 (.7599/N=338)	3.1969 (.72489/N=160)/ 3.176 (.6967/N=91)
Internal Political Efficacy*	2.9982 (.89504/N=544)/ 2.9637 (.91381/N=328)	2.7829 (1.03526/N=152)/ 2.8256 (.106486/N=86)
External Political Efficacy**	2.6829 (1.09659/N=555)/ 2.7470 (.88997/N=328)	1.8089 (.89967/N=157)/ 2.0471 (.84029/N=85)
Community Collective Efficacy*	3.3382 (.71045/N=550)/ 3.3293 (.72427/N=331)	3.3464 (.71008/N=153)/ 3.3780 (.69638/N=82)
Offline Civic Activities and Interests**	3.2706 (.92400/N=557)/ 3.2484 (.91122/N=339)	2.8856 (.86234/N=160)/ 3.1242 (.90730/N=91)
Offline Political Activities and Interests**	1.4014 (.44446/N=557)/ 1.4009 (.39049/N=339)	1.2862 (.38829/N=160)/ 1.2938 (.40081/N=91)
Online Civic Activities and Interests	1.7578 (.58591/N=557)/ 1.8517 (.62560/N=339)	N/A
Online Political Activities and interests	1.1921 (.39834/N=557)/ 1.2006 (.36768/N=339)	N/A

** $p < .01$, * $p < .05$

4.2.2 Difference in Efficacy: Internet Users vs. Non-Internet Users

Next, several analyses of variance were performed examining the relationships between efficacy and internet use controlling for various demographic variables. In the first

analysis, both male and female internet users reported that they have greater external political efficacy than non internet users.

TABLE 4-16 DIFFERENCES IN EFFICACY BETWEEN INTERNET USERS AND NON-USERS BY GENDER

Variables	Male				Female				F	df	p
	Internet User		Non-Internet User		Internet User		Non-Internet User				
	M	SD	M	SD	M	SD	M	SD			
Internal Political Efficacy	2.9948	.88322	2.5625	1.0086	3.0000	.90267	2.8846	1.0363	.775	(1, 694)	.379
External Political Efficacy**	2.9337	1.0625	1.8039	.84899	2.5460	1.09211	1.8113	.92698	13.654	(1, 710)	.000
Collective Efficacy	3.3692	.70131	3.3469	.83044	3.3211	.71583	3.3462	.65016	.455	(1, 701)	.500

** $p < .01$: In 2006, there were no statistical significant results.

The second analysis resulted in all three measures of efficacy being statistically significant after controlling for education. Interestingly, regardless of level of education, non-internet users' collective efficacy was higher than internet users. (See table 4-17.) The effect of internet use is greater on political efficacy than on collective efficacy.

TABLE 4-17 DIFFERENCES IN EFFICACY BETWEEN INTERNET USERS AND NON-USERS BY EDUCATION

Variables	Lower than average Education				Higher than average Education				F	df	P
	Internet User		Non-Internet User		Internet User		Non-Internet User				
	M	SD	M	SD	M	SD	M	SD			
Internal Political Efficacy**	2.9000	.98342	2.7143	1.03405	3.0648	.82462	3.2632	.93346	12.322	(1, 694)	.000
External Political Efficacy**	2.3616	.12794	1.6739	.79380	2.9003	1.02056	2.7895	1.03166	103.19	(1, 710)	.000
Collective Efficacy**	3.2545	.79308	3.2910	.72366	3.3939	.64480	3.7368	.45241	7.322	(1, 701)	.007

** $p < .01$: In 2006, there were similar with 2005 results (p-values were .003, .000, .0069 respectively).

Table 4-18 shows the differences in efficacy between internet users and nonusers after controlling for household income. Internet users have more internal and external political efficacy regardless of their income level except for the case of non-internet users' internal political efficacy. Kenski and Stroud (2006) contends that the internet provides less

costly³⁴ was in which an individual can participate in politics with assuaging the fear of public embarrassment. Thus, the internet may increase internal and external efficacy by making people less embarrassed about their political competence through fast and cheap way, the internet.

TABLE 4-18 DIFFERENCES IN EFFICACY BETWEEN INTERNET USERS AND NON-USERS BY HOUSEHOLD INCOME

Variables	Less than \$50,000				\$50,000 or More				F	df	p
	Internet User		Non-Internet User		Internet User		Non-Internet User				
	M	SD	M	SD	M	SD	M	SD			
Internal Political Efficacy**	2.8679	.90889	2.509	1.06048	3.0878	.87472	3.1667	.94989	16.923	(1, 642)	.000
External Political Efficacy**	2.4977	1.07636	1.6486	.79371	2.7993	1.09905	2.3226	1.04521	41.415	(1, 656)	.000
Collective Efficacy	3.3380	.70983	3.2752	.70542	3.3367	.70789	3.5172	.73779	.415	(1, 649)	.500

** $p < .01$: In 2006, Internal political efficacy was significant (p-value: .006) but external political efficacy and collective efficacy were not significant.

The results in Table 4-19 indicate that internet users have higher levels of internal and external political efficacy than non-internet users after controlling for their level of trust in people. For collective efficacy, the 2006 result was statistically significant but the differences were quite small. In 2006, the differences were not statistically significant. Thus, this analysis showed that the internet users' internal and external political efficacies higher than non-internet users regardless their level of trust in people.

³⁴ In 1966, Gordon Moore, one of the founders of Intel Corp., predicted that every 18 months, the cost of computing would drop by 50 % as computer processing power doubled. Like Moore's Law, the cost of civic and political participation via the internet decreases. Thus the obstacle to access online due to the level of wealth would be getting smaller.

TABLE 4-19 DIFFERENCES IN EFFICACY BETWEEN INTERNET USERS AND NON-USERS BY TRUST IN PEOPLE

Variables	Lower than average Trust in people				Higher than average Trust in people				F	df	p
	Internet User		Non-Internet User		Internet User		Non-Internet User				
	M	SD	M	SD	M	SD	M	SD			
Internal Political Efficacy**	2.8026	.94231	2.6034	1.10723	3.0720	.86749	2.9000	.98357	14.601	(1, 687)	.000
External Political Efficacy*	2.5823	1.08384	1.7705	.95557	2.7176	1.09690	1.7935	.83255	4.233	(1, 702)	.040
Collective Efficacy*	3.2452	.75025	3.2881	.83151	3.3776	.69364	3.3889	.63058	4.416	(1, 694)	.036

** $p < .01$, * $p < .05$: In 2006, internal and political efficacy were significant (p-values, .003 and .031) high but collective efficacy were not significant for the internet users group.

Other results indicate that internet users have more internal political efficacy than non-internet users (see Table 4-20). The patterns were similar to those of trust in people. It may suggest that internal and external political efficacy have been influenced by the effects of internet use to a greater extent than non-internet users.

TABLE 4-20 DIFFERENCE IN EFFICACY BETWEEN INTERNET USERS AND NON-USERS BY TRUST IN GOVERNMENT

Variables	Lower than average Trust in government				Higher than average Trust in government				F	df	p
	Internet User		Non-Internet User		Internet User		Non-Internet User				
	M	SD	M	SD	M	SD	M	SD			
Internal Political Efficacy**	2.8408	.95779	2.6154	1.12610	3.2560	.71540	3.1304	.68666	38.715	(1, 688)	.000
External Political Efficacy	2.6519	1.1595	1.7196	.84445	2.7238	1.05354	2.0000	1.01058	3.423	(1, 702)	.065
Collective Efficacy**	3.2299	.77247	3.3333	.75532	3.5190	.53769	3.3696	.60951	18.795	(1, 694)	.000

** $p < .01$: In 2006, all three measures were significant (p-values, .000, .000, .010).

Finally, controlling for extroversion, internet users have more external political efficacy than do non-internet users.

TABLE 4-21 DIFFERENCE IN EFFICACY BETWEEN INTERNET USERS AND NON-USERS BY LEVELS OF EXTROVERSION

Variables	Lower than average Extrovert				Higher than average Extrovert				F	Df	p
	Internet User		Non-Internet User		Internet User		Non-Internet User				
	M	SD	M	SD	M	SD	M	SD			
Internal Political Efficacy	3.0000	.82946	2.7031	.97421	2.9966	.94904	2.8667	1.09462	.324	(1, 694)	.570
External Political Efficacy*	2.6332	1.07114	1.6375	.81511	2.7264	1.11816	1.9870	.95275	4.411	(1, 710)	.036
Collective Efficacy**	3.2667	.70952	3.2338	.72359	3.4000	.70663	3.4650	.68197	8.262	(1, 701)	.004

** $p < .01$, * $p < .05$: In 2006, there were no significant results.

4.2.3 Influences of Psychological Factors on Civic and Political Participation Controlling for Individual Demographic Variables

This study employed hierarchical multiple regression to test the relative influences of individual level factors (demographic variables and trust, extroversion, political and collective efficacy) on respondents' offline and online civic and political interests/activities. First, attention focuses on offline civic interest and activities. The set of demographic control variables (age, gender, education, and household income) were entered in the first block (Regression 1). Trust and extroversion were entered in the second block (Regression 2). Internal political efficacy, external political efficacy and collective efficacy were entered in the third block (Regression 3). The results are displayed for different values of the dependent variable in Tables 4-22 through 4-25.

TABLE 4 -22 HIERARCHICAL REGRESSION ANALYSIS OF PREDICTORS OF OFFLINE CIVIC INTERESTS/ACTIVITIES

Predictor variables	Regression 1 (2005/2006)	Regression 2 (2005/2006)	Regression 3 (2005/2006)
Age	0.014/0.174	0.046/0.147	0.017/0.109
Age ²	0.203/0.061	0.167/0.068	0.199/0.108
Gender	0.039/0.044	0.018/0.018	0.016/0.018
Education	0.216**/0.182**	0.213**/0.153**	0.2**/0.112*
Income	0.105**/0.128**	0.091*/0.108*	0.083*/0.112*
Trust in people		0.058/0.103*	0.048/0.104*
Trust in governments		0.018/0.102*	-0.011/0.069
Extroversion		0.186**/0.091*	0.183**/0.072
Internal Political Efficacy			0.034/-0.040
External Political Efficacy			0.044/0.099
Collective Efficacy			0.087*/0.098*
R ²	0.095/0.112	0.133/0.144	0.145/0.159
Adjusted R ²	0.088/0.102	0.123/0.128	0.131/0.137
R ² Change	0.095/0.112	0.038/0.032	0.012/0.015
Significance of change	0.000/0.000	0.000/0.001	0.022/0.060

*p<0.05 / **p<0.01

In the full regression, collective efficacy was statistically significant and positively related to offline civic interests and activities. The analysis also identifies four control variables—level of education, household income, trust in people, and extroversion—as statistically significant predictors of offline civic interests and activities. The coefficients showed positive relationships with the dependent variable, indicating that more educated, wealthier, extroverted individuals who trust others are more active and interested in offline civic activities.

TABLE 4-23 HIERARCHICAL REGRESSION ANALYSIS OF PREDICTORS OF OFFLINE POLITICAL INTERESTS/ACTIVITIES

Predictor variables	Regression 1 (2005/2006)	Regression 2 (2005/2006)	Regression 3 (2005/2006)
Age	0.159/0.284	0.187/0.311	0.173/0.268
Age ²	-0.093/-0.188	-0.123/-0.212	-0.109/-0.173
Gender	-0.007/0.009	-0/027/-0.023	-0.028/-0.026
Education	0.162**/0.265**	0.161**/0.264**	0.158**/0.189**
Income	0.07/0.016	0.061/0.012	0.059/0.016
Trust in people		0.029/-0.036	0.028/-0.050
Trust in governments		-0.001/0.021	-0.005/-0.055
Extroversion		0.183**/0.211**	0.180**/0.186**
Internal Political Efficacy			-0.012/0.096
External Political Efficacy			0.024/0.139**
Collective Efficacy			0.024/0.020
R ²	0.039/0.079	0.073/0.124	0.074/0.161
Adjusted R ²	0.033/0.068	0.063/0.107	0.074/0.139
R ² Change	0.039/0.079	0.034/0.045	0.001/0.037
Significance of change	0.000/0.000	0.000/0.000	0.842/0.000

*p<0.05 / **p<0.01

For offline political interests and activities, in the full regression equation external efficacy was statistically significant and had a positive influence on offline political interests and activities in 2006. Two control variables, education and extroversion, as also are statistically significant predictors of offline political interests and activities. Again, more educated and extroverted individuals reported being more interested and involved in offline political activities.

TABLE 4-24 HIERARCHICAL REGRESSION ANALYSIS OF PREDICTORS OF ONLINE CIVIC INTERESTS/ACTIVITIES

Predictor variables	Regression 1 (2005/2006)	Regression 2 (2005/2006)	Regression 3 (2005/2006)
Age	-0.039/0.460	-0.025/0.483*	-0.036/0.521*
Age²	-0.200/-0.633*	-0.212/-0.652**	-0.204/-0.709**
Gender	-0.103*/-0.119*	-0.122**/-0.134*	-0.124**/-0.134**
Education	0.129**/0.183**	0.134**/0.162**	0.122**/0.139*
Income	0.046/-0.142**	0.039/-0.145**	0.046/-0.142**
Trust in people		-0.035/-0.047	-0.045/-0.079
Trust in governments		0.060/0.174**	0.043/0.110
Extroversion		0.102*/0.032	0.100*/0.004
Internal Political Efficacy			-0.030/0.176**
External Political Efficacy			-0.006/-0.008
Collective Efficacy			0.115**/0.073
R ²	0.085/0.099	0.099/0.129	0.110/0.164
Adjusted R ²	0.770/0.086	0.086/0.108	0.092/0.136
R ² Change	0.085/0.099	0.014/0.029	0.011/0.036
Significance of change	0.000/	0.042/	0.078/

*p<0.05 / **p<0.01

Turning to responses about online interests and activities, in the full regression equation, internal political efficacy (in 2006) and collective efficacy (in 2005) have statistically significant, positive relationships with online civic interests and activities. Five control variables—age, gender, education, and income, and extroversion—also are statistically significant. The coefficients for age, gender and income are negatively and those for education positively related to the dependent variable, suggesting that more educated, younger, extroverted and male individuals report greater activity and interested in online civic activities. Usually, young adults have lower incomes so that the level of household income is negatively associated with online civic interests and activities.

TABLE 4-25 HIERARCHICAL REGRESSION ANALYSIS OF PREDICTORS OF ONLINE POLITICAL INTERESTS/ACTIVITIES

Predictor variables	Regression 1 (2005/2006)	Regression 2 (2005/2006)	Regression 3 (2005/2006)
Age	0.105/0.136	0.116/0.137	0.101/0.176
Age ²	-0.067/-0.090	-0.084/-0.090	-0.065/-0.146
Gender	-0.065/-0.119*	-0.078/-0.134	-0.075/-0.135*
Education	0.090*/0.181**	0.096*/0.186**	0.101*/0.162**
Income	0.093*/-0.035	0.086*/-0.041	0.083/-0.039
Trust in people		0.037/-0.035	0.041/-0.067
Trust in governments		0.016/0.018	0.028/-0.045
Extroversion		0.085*/0.092	0.079/6
Internal Political Efficacy			-0.030/0.176**
External Political Efficacy			0.041/-0.003
Collective Efficacy			-0.029/0.061
R ²	0.027/0.052	0.036/0.038	0.039/0.065
Adjusted R ²	0.018/0.038	0.022/0.039	0.020/0.065
R ² Change	0.027/0.052	0.009/0.009	0.003/0.034
Significance of change	0.010/0.003	0.174/0.344	0.597/0.008

*p<0.05 / **p<0.01

Internal political efficacy (in 2006) was statistically significant and positively related to online political interests and activities. The analysis also identified two control variables, gender and education, as predictors of online political interests and activities. Gender was negatively and education positively related to the dependent variable: better educated and male individuals report doing more and being more interested in online political activities. Again, household income is negatively associated with online civic interests and activities.

Summary

This analysis of individual level delineated the effects of the major demographic variables and psychological variables on offline and online civic and political participation. While the ultimate purpose and conceptual framework of this study

focuses on multilevel relationships, the individual level of analysis can be a baseline for linking with prior research results on the effects of the internet on civic and political participation. Similar to a number of prior research findings, the education variable was a statistically significant predictor for both online and offline civic and political participation. Interestingly, gender was a significant predictor for both online civic and political participation. In offline civic and political interests and activities, no gender differences emerged, but in cyberspace, men reported being more interested and involved in civic and political activities (but it cannot be generalized. In all cases, R^2 s are small). More extroverted citizens also were interested in offline and online civic and offline political activities. At the same time, those with higher levels of internal political efficacy reported more online civic and political interests and activities than others. In addition, community collective efficacy was a significant predictor of both online and offline civic interests and activities. It showed that the measure of community collective efficacy was more closely related to civic than to political participation.

4.3 Group Level of Analysis: Local Groups' Impact on Internet Use and Civic and Political Participation

Introduction

At the group level of analysis, the following three sub-questions were investigated to understand the characteristics of local community groups as well as their members and to recognize the features of a higher level for HLM. First, did internet use by local group members change over time (between 2005 and 2006), and what is the impact of internet use on civic and political interests and activities within different types of groups? Second, did the mode for group communication (face to face, telephone, postal mail, email or listservs, and online discussion) influence formal and informal political discussion within the groups (responses to whether a group ever has meetings at which political topics are on the agenda or discussed formally, and group ever chat informally about politics or government)?

First of all, I looked at the descriptive statistics for the group variables, and then examined the influences of group level factors, level of group internet use and group political discussion in the conceptual framework. (See t-test results in Tables 4-26.) These group level results and previous individual level results will be helpful in understanding the findings from the later multilevel analysis.

TABLE 4-26 MEMBERSHIP IN DIFFERENT TYPES OF GROUPS

% of sample that belongs to a group that is:	2005 N=717	2005 (same respondents as 2006) N=430	2006 N=430
Religious/Charitable/Support	56% (55.6%)	45% (45.3%)	46% (45.6%)
Civic/Political	17% (17.2%)	21% (20.9%)	22% (21.6%)
Social/Recreational	17% (16.9%)	21% (20.9%)	19% (19.3%)
Educational/Professional	9% (9.3%)	10% (10.2%)	11% (11.2%)

In both rounds of the Digital Government (DG) survey, the majority of group members reported being involved in religious/charitable/support groups. Participation in

civic/political groups increased from 17% (21%) to 22% between the rounds of the survey. Social/recreational groups appear to have increased in membership (from 17% to 19%) but when one looks only at those who responded to both surveys membership drops from 21% to 19%. Thus, at the community level, religious/charitable/support groups are the most popular, with civic/political groups second, social/recreational third and educational/professional fourth. The differences among the four types of groups were due to the ratio of more than one formal group involvement.³⁵ In round 2005, only 25.4% of respondents reported they were involved in more than one formal group.

In addition, Table 4-27 shows that internet users were more likely than non-users to belong to formal and informal local groups. This finding is similar to Katz and Rice’s series of studies, from 1995 to 2002, on internet use in national level data. Also, in one of the earliest national studies of local group memberships and internet use, Katz and Aspden (1997) found that internet users reported belonging to the most community groups—27% to one groups and a further 22% to two or more.

TABLE 4-27 INTERNET USE AND LOCAL GROUP MEMBERSHIP

Variable Name	2005		2006	
	Valid N	Spearman’s ρ Correlations	Valid N	Spearman’s ρ Correlations
Formal Group Affiliations	554	.179**	430	.205**
Informal Group Affiliations	553	.209**	430	.240**

** $p < .01$

³⁵ Each respondent was asked three times about the local community groups that s/he is formally involved in.

4.3.1 Descriptive Statistics: *Local group members vs. Non local group members*

Table 4.28 showed the descriptive differences between members and non-members of local groups. The mean ages of members (49.61 years old in 2005/52.66 years old in 2006) are older than non-members (45.63 years old in 2005/51.39 years old in 2006). Averages of the three psychological factors—trust in people, in government and extroversion—were higher for members than for non-members. In addition local group members' average internal, external political efficacy and community collective efficacy were higher than non-members.

TABLE 4-28 OVERALL DEMOGRAPHIC DIFFERENCES BETWEEN MEMBER AND NON MEMBERS

	Members Mean (SD/N) (2005/2006)	Non-Members Mean (SD/N) (2005/2006)
Age*	49.61 (16.416/N=435)/ 52.66 (15.673/N=284)	45.63 (17.542/N=274)/ 51.39 (15.070/N=145)
Trust in people*	3.5369 (.51739/N=434)/ 3.5898 (.47354/N=284)	3.4327 (.62784/N=275)/ 3.5000 (.55784/N=144)
Trust in government**	3.3249 (.86394/N=439)/ 3.3190 (.79252/N=279)	3.0476 (.96707/N=273)/ 2.9028 (.92607/N=144)
Extroversion**	3.3109 (.71243/N=439)/ 3.216 (.7241/N=283)	3.1277 (.80436/N=278)/ 3.017 (.7733/N=146)
Internal Political Efficacy**	3.0679 (.87885/N=427)/ 3.0144 (.88862/N=277)	2.7658 (.98163/N=269)/ 2.7786 (1.03928/N=140)
External Political Efficacy*	2.5195 (1.10782/N=437)/ 2.7153 (.90944/N=274)	2.4436 (1.13001/N=275)/ 2.3813 (.91403/N=139)
Community Collective Efficacy**	3.3712 (.68642/N=431)/ 3.3525 (.68888/N=278)	3.2904 (.74412/N=272)/ 3.3111 (.77716/N=135)
Offline Civic Activities and Interests**	3.5403 (.84592/N=439)/ 3.5085 (.80146/N=284)	2.6230 (.74735/N=278)/ 2.6651 (.85287/N=146)
Offline Political Activities and Interests**	1.4545 (.47672/N=439)/ 1.4507 (.42362/N=284)	1.2512 (.32289/N=278)/ 1.2373 (.28336/N=146)
Online Civic Activities and Interests*	1.7667 (.60125/N=326)/ 1.8503 (.65300/N=238)	1.7411 (.55746/N=195)/ 1.8548 (.55879/N=101)
Online Political Activities and interests*	1.2413 (.45015/N=326)/ 1.2129 (.38057/N=238)	1.1009 (.25457/N=191)/ 1.1716 (.33537/N=101)

** $p < .01$, * $p < .05$

4.3.2 Level of Group Internet Use

Between 2005 and 2006, 430 respondents reported that the use of electronic modes of communication such as email/listserv and online discussion increased in all types of local groups and measures were statistically significant. By controlling for the type of group, I identified through paired t-tests that electronic modes of communication increased significantly over time in civic/political and religious/charitable/support groups. This indicates that electronic modes of communication have been considered more as group communication channels.

TABLE 4-29 COMMUNICATION CHANGES OVER TIME

Communication changes over time	Variables used in paired t-test	Mean (2005/2006)	P-values (t-score)	N
All	Level of communication	4.7130	.003**	108
		5.2407	(-3.091)	
	Traditional mode of communication	3.1944 3.3981	.057+ (-1.924)	108
	Electronic mode of communication	1.4352	.001**	108
		1.7870	(-3.416)	
Civic/Political	Level of communication	6.2667 7.0667	.075+ (-1.849)	30
	Traditional mode of communication	4.2000 4.3000	NS	30
	Electronic mode of communication	1.4352	.003**	30
		1.7870	(-3.252)	
Religious/Charitable/Support	Level of communication	4.7500	.004**	80
		5.3375	(-2.934)	
	Traditional mode of communication	3.2875	.025*	80
		3.5625	(-2.280)	
	Electronic mode of communication	1.3875	.011*	80
		1.7125	(-2.616)	
Educational/Professional	Level of communication	10.5000 10.6667	NS	6
	Traditional mode of communication	6.5000 6.3333	NS	6
	Electronic mode of communication	4.0000 4.1667	NS	6
Social/Recreational	Level of communication	8.6818 9.9364	.092 (-1.766)	22
	Traditional mode of communication	5.4091 5.9545	NS	22
	Electronic mode of communication	3.1364 3.6364	.094 (-1.755)	22

**p<.01, *p<.05, NS: not significant

4.3.3 Group Political Discussion

Respondents reported statistically significant increases in political discussion within their local groups over time (in waves one and two of the survey). When I controlled for type of group, I found that statistically significant increases in political discussion within local groups had occurred in civic/political, religious/charitable/support, and social/recreational groups. The magnitude of the increase in educational/professional groups was substantial but not statistically significant, most likely because of the small number of these groups.

TABLE 4-30 POLITICAL DISCUSSION IN LOCAL GROUPS BY TYPE OF GROUP (PAIRED T-TEST)

	Mean (2005/2006)	P values (<i>t</i>)	N
All Groups Combined	2.25/3.00	.000** (-4.52)	245
Civic/Political Groups	2.76/3.56	.013* (-2.55)	84
Religious/Charitable	2.18/2.83	.001** (-3.30)	173
Educational/Professional	3.53/4.37	NS	38
Social/Recreational	2.8/3.61	.008* (-2.72)	75

** $p < .01$, * $p < .05$, NS: not significant

Summary

This analysis at the group level showed differences among different types of local community groups as well as in the characteristics of their members. In particular, I looked at the characteristic of group internet use and group political discussion. Overall usage of electronic modes of group communication increased. Also, group political discussion increased. Increases in group internet use and political discussion in local groups may positively influence individuals' view of the impact of the internet on civic and political participation. Such influences, however, cannot be verified only by group level analysis or the previous individual level analysis. The next section examines the multilevel analysis results, which link these findings at the group and individual levels.

4.4 Multilevel Analysis: Bridging Levels

Introduction

In this section, I will try to answer the following question: what are the effects of local group level factors (group internet use and group political interest) on individual citizens' perceptions of the importance of internet use for civic engagement and political participation, taking into account individual level factors? If an individual is a member of a local group that has a high level of internet use and high amounts of formal and informal political discussion and of taking political positions, I hypothesize that his or her level of agreement that "the internet has helped me feel more connected with people like me in the local area"³⁶ will be greater than others once individual characteristics are controlled.

According to Katz and Rice's (2002) panel study of national survey data in the United States (1995, 1996, 1997, and 2000), regular internet users were significantly more likely than non-internet users to belong to at least one local group. Their results were based on the group level of analysis. At the same time, at the individual level, the internet has provided a platform for a significant number of additional forms of political activity (Katz and Rice, 2002). Prior research results, however, could not detect pure group effects. Those results did not consider the problem caused by different levels of analysis. This section focuses on detecting group effects on individual citizens' levels of online political and civic behavior. It explores how much their local group's level of internet use and political interests are related to and affect individual online civic engagement considering individual civic and political attributes.

Determining this effect requires developing a statistical model that addresses a hierarchically structured data problem. For example, a sample from such a nested data set can be described as a multistage sample: first, one takes a sample of units from the higher

³⁶ The survey contained two more measures of attitudes on the use of internet, and both of these will be used as well: 1) the internet has helped me feel more connected with a diversity of people in the local area and 2) the internet has helped me be more involved in local issues that interest me.

level (e.g., local groups), and next samples the sub-units from the available units (e.g., I sampled the characteristics of individual members from each local group). In such samples, the individual observations are, in general, not completely independent. Thus, multilevel model (e.g., hierarchical linear models, HLM) can provide more accurate measures of the influences of local community groups on the impact of the internet on civic and political participation.

4.4.1 Model Specification

In this study, a two-level, random intercept model is used; then the study estimates the effects of group level characteristics on the extent of individuals' agreement about the helpfulness of the internet, after controlling for other independent variables. Level two consists of local groups' variables³⁷ and level one consists of individual members' variables. The equations estimated for the base model of this study are:

$$\begin{aligned}
 (1) \quad & \text{Helpfulness of Internet} = \beta_0 + \beta_1 (\text{Offline Civic Activities and Interests}) \\
 & + \beta_2 (\text{Offline Political Activities and Interests}) \\
 & + \beta_3 (\text{Online Civic Activities and Interests}) \\
 & + \beta_4 (\text{Online Political Activities and Interests}) \\
 & + \beta_5 (\text{Collective Efficacy}) + \beta_6 (\text{External Political Efficacy}) \\
 & + \beta_7 (\text{Internal Political Efficacy}) + \beta_8 (\text{Extroversion}) \\
 & + \beta_9 (\text{Trust in governments}) + \beta_{10} (\text{Trust in people}) \\
 & + \beta_{11} (\text{Income}) + \beta_{12} (\text{Education}) + \beta_{13} (\text{Gender}) + \beta_{14} (\text{Age}^2) + \beta_{15} (\text{Age}) + \varepsilon \\
 (2) \quad & \beta_0 = \gamma_{00} \\
 & + \gamma_{01} (\text{Group Political Discussion and Interests, Internet Use or Involvement}) + \varepsilon \\
 & * \beta_5 \sim \beta_{15}: \text{Control variables}
 \end{aligned}$$

³⁷ To obtain the information about formal local groups, we asked the same questions of those group members three times. We then categorized four different types of groups: a) civic/political, b) religious/support/charitable, c) educational/professional, d) social/recreational. Then, we were able to get 31 different combinations of local groups (possible maximum different combinations of local groups is 35).
 $(C_1^5 + P_2^5 + C_3^5 = 35)$

This analysis applied a multilevel analysis to the question, “*What is the combination of effects of different types of local group affiliation, group internet use (email, listserv, online discussion and website) and group political discussion and interests and level of group involvement on the likelihood of reporting that the internet is helpful to those more involved in local issues, to feel connected to people like me or diverse people, taking into account the civic and political participation of individual citizens?*”

Previous research on the impact of the internet on civic and political participation and this study both include hierarchically-structured data; therefore, they require a multilevel analysis. In order to achieve a deeper investigation of citizens affiliated with local groups and to help link the levels, the following hypotheses were formulated for a two-level analysis model.

- H1: The helpfulness of the internet will be greater in local groups with higher ***group internet use***, taking into account individual citizens’ extent of civic and political activities and interests (after controlling for their demographic and psychological factors).
- H2: The helpfulness of the internet will be greater in local groups with higher ***group political discussion and interests***, taking into account individual citizens’ extent of civic and political activities and interests (after controlling for their demographic and psychological factors).

This study hypothesized that both internet use and political discussion and interests of *group level variables* would be positively associated with dependent variable/construct: how helpful the internet has been in becoming more involved (in issue, community, diverse and similar people) when taking *individual level variables* such as civic and political activities/interests, psychological variables and demographic variables into account.

In this study, two models are developed: a group internet use model and a group political discussion/interests model because the two group level variables are highly correlated with each other (Pearson's $r=0.772$).³⁸

4.4.2 Intraclass Correlation

Before analyzing the two hypotheses of multilevel models, the intercept-only model (ANOVA model) is examined. The intercept-only model is useful because it gives an estimate of the intraclass correlation (ρ) by applying the equation:

$$1) \text{ In 2005, } \rho = \frac{\sigma_{u_0}^2}{(\sigma_{u_0}^2 + \sigma_e^2)} = \frac{\tau_{00}}{(\tau_{00} + \sigma^2)} = \frac{0.16471}{(0.16471 + 0.54178)} = 0.233$$

$$2) \text{ In 2006, } \rho = \frac{\sigma_{u_0}^2}{(\sigma_{u_0}^2 + \sigma_e^2)} = \frac{\tau_{00}}{(\tau_{00} + \sigma^2)} = \frac{0.12405}{(0.12405 + 0.56783)} = 0.179$$

These equations suggest that about 23% in 2005 and 18% in 2006 of the variance in the dependent variable, the extent of agreement on the helpfulness on the internet, is between local groups. This indicator is statistically significant ($p < 0.01$) in both years. It means that the average correlation on the variable among people from the same local group is higher than the average correlation among people from different local groups. Thus, these results suggest that the model of this study is suitable for employing HLM.

³⁸ Pearson Correlation (r) between "Group Internet Use" and "Group Political Interest" was 0.772, $p < 0.001$.

4.4.3 Hypothesis 1: Group Political Discussion and Interests

Hypothesis 1 was supported. The results of H1 showed that there was a statistically significant intraclass correlation (random effect: $p < 0.05$). There were positive influences of group and individual level independent variables. Thus, if someone joins local groups that provide opportunities for formal and informal political discussion and the groups has higher political interest (i.e., a political stance on any local or national issues), she or he reported that the internet is helpful for becoming more involved in local issues, feeling connected to diverse and similar people (see Table 4-31 for details).

In addition, the fixed effects of individual level variables, online civic and political activities and interests, are positively related and statistically significant ($p < .001$). This result confirms the part of the CEM model that found that someone who reports more online civic activities has more positive perceptions of the helpfulness of the internet for being involved in local issues. Trust in government, age and gender also turned out to be statistically significant. In the CEM model, young people use internet more so that age is an important predictor for the helpfulness of the internet for becoming more involved in local issues. Thus this HLM model confirms that finding from previous research. In this model, trust in government is positively related to the dependent variable. It means that those who trust governments more than others have positive perceptions of the helpfulness of the internet. Women, at least in this study, have more positive perceptions than men of the internet for becoming more involved in issues and feeling connected to community and other people.

TABLE 4-31 GROUP POLITICAL DISCUSSION AND INTERESTS MODEL

Fixed Effects			<i>Model 1(Baseline Model)</i>		<i>Model 2(Finial Model)</i>			
			β (2005/2006)	SE (2005/2006)	β (2005/2006)	SE (2005/2006)		
<i>Group Level Factor</i>								
	<i>For Initial Status(β_{00})</i>							
	Intercept (γ_{00})		2.2016**/ 1.6836**	0.0935/ 0.0929	2.1470**/ 1.3082**	0.1883/ 0.1485		
	Group Political Discussion and Interests				0.2560**/ 0.2906**	0.0880/ 0.0982		
Civic and Political Activities and Interests Factors	For Offline Civic Activities and Interests		0.0629/ -0.0184	0.0381/ 0.0471	0.0629/ -0.0184	0.0381/ 0.0263		
	For Offline Political Activities and Interests		-0.01463/ 0.1803	0.0726/ 0.1134	-0.0146/ 0.1803	0.0727/ 0.1221		
	For Online Civic Activities and Interests		0.7517**/ 0.7225**	0.0560/ 0.0691	0.7517**/ 0.7225**	0.0561/ 0.0478		
	For Online Political Activities and Interests		0.5751**/ 0.5762**	0.0826/ 0.1089	0.5751**/ 0.5762**	0.0826/ 0.0663		
Control Variables	Psychological Factors	For Trust in People	-0.0147/ -0.0400	0.0436/ 0.0715	-0.0147/ -0.0400	0.0436/ 0.0703		
		For Trust in Government	0.0367/ 0.0830	0.0305/ 0.0045	0.0367/ 0.0830*	0.0305/ 0.0437		
		For Extroversion	-0.0059/ -0.0355	0.0388/ 0.0511	-0.0059/ -0.0355	0.0389/ 0.0296		
		For Internal Political Efficacy	0.0119/ 0.0068	0.0289/ 0.0419	0.0119/ 0.0068	0.0289/ 0.0354		
		For External Political Efficacy	-0.0198/ -0.0850	0.0261/ 0.0436	-0.0198/ -0.0850	0.0629/ 0.0323		
		For Collective Efficacy	0.0117/ 0.0178	0.0396/ 0.0434	0.0117/ 0.0178	0.0362/ 0.0226		
	Demographic Factors	For Age/Age²		0.0007/ -0.000/ 0.0199/ -0.0002*	0.0076/ 0.0000/ 0.0104/ 0.0001	0.0007/ -0.0000/ 0.0199**/ -0.002**	0.0076/ 0.0000/ 0.0047/ 0.0000	
		For Gender		0.1070*/ 0.2183**	0.0599/ 0.8121	0.1070/ 0.2183**	0.0599/ 0.0455	
			For Education	-0.0067/ -0.0027	0.0000/ 0.0286	-0.0006/ -0.0027	0.0020/ 0.0281	
			For Income	-0.0209/ -0.0454	0.0491/ 0.0715	-0.0209/ -0.0454	0.0491/ 0.0484	
Random components and Deviation Statistics			<i>Model 1(Baseline Model)</i>			<i>Model 2(Finial Model)</i>		
			Component	df	χ^2	Component	df	χ^2
Intercept Variance (r_{0i})			0.16471**/ 0.1240**	30/27	407.5479/ 63.8219	0.5422**/ 0.57158**	29/26	371.9968/ 48.2896
Deviance			1705.5499/ 1069.0848			1706.9302/ 1062.6214		
Estimated Parameter			2/2			2/2		

*p<0.05, ** p<0.01

4.4.4 Hypothesis 2: Group Internet Use

Hypothesis 2 also was supported. Thus, if someone joins local groups that use the internet for communicating among members, she or he reported that the internet is helpful for becoming more involved in local issues and feeling connected to other people. The results showed that all fixed effects were statistically significant at (** $p < 0.01$) or (* $p < 0.05$). In terms of the intraclass correlation, there were significant effects ($\rho = .233$ / $\rho = .179$, * $p < 0.05$). There were positive influences of group and individual level independent variables. (See Table 4-32.)

In this second analysis, online civic and political activities and interests also turned out to be statistically significant ($p < .001$) and had positive influence in the perception of the helpfulness of the internet. In addition, external political efficacy is positively related to the perception of the helpfulness of internet. Kenski and Stroud (2006) contend that the internet has the potential to enhance external political efficacy because it enables citizens to interact with public officials and to hold them accountable. Similar to hypothesis 1 model, the age and gender variables are positively related to the perceived helpfulness of the internet.

TABLE 4-32 GROUP INTERNET USE MODEL

Fixed Effects		<i>Model 1(Baseline Model)</i>		<i>Model 2(Final Model)</i>		
		β (2005/2006)	SE (2005/2006)	β (2005/2006)	SE (2005/2006)	
<i>Group Level Factor</i>		<i>For Initial Status(β_{00})</i>				
	Intercept (γ_{00})	2.2016**/ 1.6836**	0.0935/ 0.0929	2.0883*/ 1.3608**	0.1860/ 0.1517	
	Group Internet Use			3.2310**/ 0.2196*	0.9420/ 0.0863	
Civic and Political Activities and Interests Factors	For Offline Civic Activities and Interests	0.0629/ -0.0184	0.0381/ 0.0471	0.0629/ -0.0184	0.0381/ 0.0473	
	For Offline Political Activities and Interests	-0.01463/ 0.1803	0.0726/ 0.1134	-0.01463/ 0.1803	0.0727/ 0.1139	
	For Online Civic Activities and Interests	0.7517**/ 0.7225**	0.0560/ 0.0691	0.7517**/ 0.7225**	0.0561/ 0.0694	
	For Online Political Activities and Interests	0.5751**/ 0.5762**	0.0826/ 0.1089	0.5751**/ 0.5762**	0.0826/ 0.1093	
Control Variables Psychological Factors	For Trust in People	-0.0147/ -0.0400	0.0436/ 0.0715	-0.0147/ -0.0400	0.0436/ 0.0718	
	For Trust in Government	0.0367/ 0.0830	0.0305/ 0.0045	0.0367/ 0.0830	0.0305/ 0.0456	
	For Extroversion	-0.0059/ -0.0355	0.0388/ 0.0511	-0.0059/ -0.0355	0.0389/ 0.0514	
	For Internal Political Efficacy	0.0119/ 0.0068	0.0289/ 0.0419	0.0119/ 0.0068	0.0289/ 0.0421	
	For External Political Efficacy	-0.0198/ -0.0850	0.0261/ 0.0436	-0.0198/ -0.0850*	0.0261/ 0.0438	
	For Collective Efficacy	0.0117/ 0.0178	0.0396/ 0.0434	0.0118/ 0.0178	0.0372/ 0.0436	
	Demographic Factors	For Age/Age²	0.0007/ -0.000/ 0.0199/ -0.0002*	0.0076/ 0.0000/ 0.0104/ 0.0001	-0.0007/ -0.0000/ 0.0199/ -0.0002*	0.0076/ 0.0000/ 0.0105/ 0.0001
		For Gender	0.1070*/ 0.2183**	0.0599/ 0.8121	0.1070/ 0.2183**	0.0599/ 0.0815
For Education		-0.0067/ -0.0027	0.0000/ 0.0286	-0.0067/ -0.0027	0.2020/ 0.0287	
For Income		-0.0209/ -0.0454	0.0491/ 0.0715	-0.0209/ -0.0454	0.0491/ 0.0709	

Random components and Deviation Statistics	<i>Model 1(Baseline Model)</i>			<i>Model 2(Final Model)</i>		
	Component	df	χ^2	Component	df	χ^2
Intercept Variance (r_{0i})	0.16471** 0.1240**	30/27	407.5479/ 63.8219	0.5234** /0.5787**	29/26	346.7015/ 52.2831
Deviance	1705.5499/ 1069.0848			1706.2735/ 1064.7383		
Estimated Parameter	2/2			2/2		

*p<0.05, ** p<0.01

Summary

This research has shown the sequential efforts for reconciling the two different levels of analysis to contribute to this area of research, the impact of the internet on civic and political participation. In the individual level analysis section, the results confirm that the internet uses for civic and political purposes are significantly associated with variables that had been considered in prior research. Several associations between online civic and political activities and interests with internal/external political efficacy and community collective efficacy are detectable when taking demographic variables and other psychological variables into account. In the group level of analysis section, several findings also are consistent with previous research that “people who belonged to local groups were more likely to use the internet.” The influences of local groups, however, cannot be verified by group level analysis. Due to this limitation and the necessity of connecting significant new findings (i.e. effects of political efficacy) from the individual level analysis, multilevel analysis was conducted.

The findings from the multilevel analysis show that the perspectives toward the helpfulness of internet on civic and political participation held by civic minded and politically active individual citizens are influenced by the extent of local group internet use and political interest. These results of the multilevel analyses suggest a positive association between citizens’ involvement in local groups and their civic engagement via the internet. There are intraclass correlations between citizens’ civic and political activities and political group discussion/interests, group internet use and group involvement: H1 and H2 are supported. There are positive impacts on individuals of group internet use and political interest. The internet is helpful for becoming more involved in issues and feeling more connected to others.

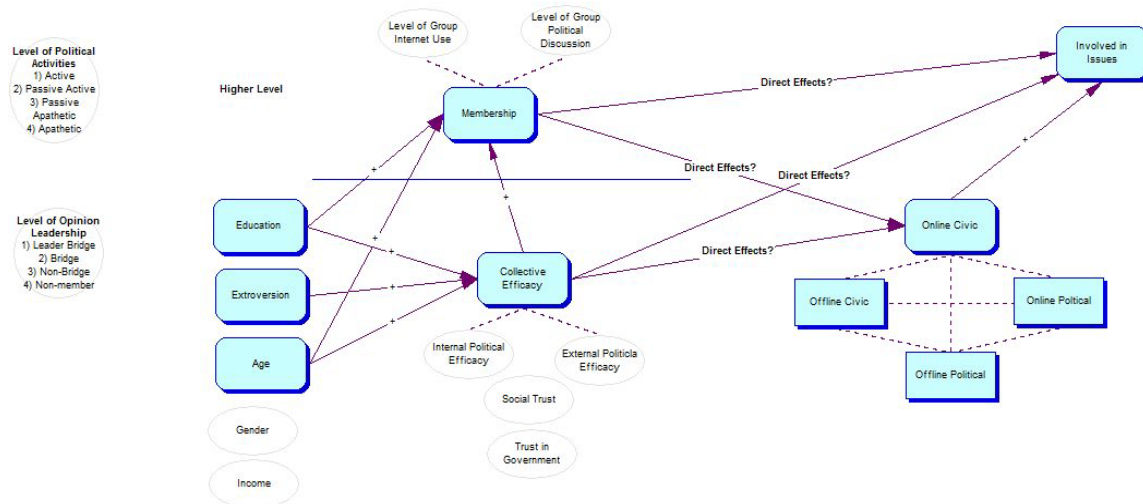
Thus, local groups play important roles in democratic civil society through aggregating, shaping, and cultivating collective public interest, will, and competence (Kavanaugh et al., 2006) when taking individual level variables into account. The analyses studied here provide more accurate explanation of the role of local groups in the impact of internet on civic and political participation at least at the local level.

4.5 Beyond the multilevel analysis

Introduction

The multilevel (HLM) model used in this study needs to have a clear distinction between lower level (individual level) and higher level (local group level) variables. In addition, this study presented ways to adapt and to present the potential use of multilevel analysis. However, there are blurred areas such as opinion leadership which represents to the level of group involvement and the level of political activities. These are basically at the individual level but cannot be measured or explained without the consideration of group level variables such as level of group involvement and type of groups. Thus the conceptual framework can be modified to Figure 4-4. However, the analysis could not be applied due to the small number of cases (respondents) at the higher group level. Thus, in this section, I will present a suggested modified model of the future work. And I will discuss the preliminary analysis of levels of opinion leadership and of political activities.

FIGURE 4-4 CONCEPTUAL FRAMEWORKS WITH LEVEL OF POLITICAL ACTIVITIES AND OPINION LEADERSHIP



In most prior work, politically and socially active citizens and opinion leaders used the internet more and were more involved in local groups. Thus, those who are politically active leaders in local groups are likely to exhibit positive perceptions about internet

helpfulness and online/offline civic and political participation, and these can be statistically significant. The HLM model can show different results depending on level of political activities³⁹ and level of opinion leadership.⁴⁰

4.5.1 Level of Opinion Leadership: Bridge and Non-Bridge

Opinion leaders who are socially and politically active are a small percentage of the population. They are able to informally, often by word of mouth, influence other individuals' attitudes or behavior in a desired way with relative frequency and spread ideas and information throughout a social network at the local level (Rogers & Shoemaker, 1971; Keller & Berry, 2003). In previous studies, people who belong to two or more local groups and had leadership positions in local groups were called Leader Bridges (a.k.a. "weak" social ties) (Kavanaugh et al., 2005). The notion of opinion leaders demonstrates the effectiveness of the internet in increasing civic and political awareness as well as participation among interested citizens. In addition, these influentials' role in disseminating and discussing ideas is essential to deliberative democracy. This role has previously been exercised through informal "word of mouth." More recently, the internet through email and listserv has augmented their role (Kavanaugh et al., 2005). Based on the data in this study, bridges (opinion leaders) use more electronic communication modes than do others (see Table 4-33).

³⁹ Many studies regarding political activities, especially those categorizing political participation levels rest on the work of Almond and Verba (1963). While subsequent researchers made refinements, most studies use three broad categories of participation: active, passive, and apathetic. In this study, I used four levels: 1) political active citizens, 2) passive-active citizens who are passive but higher than average on political activities, 3) passive-apatetic citizens who are passive and lower than the average, and 4) politically apathetic citizens.

⁴⁰ Among Americans, a small number of people (a.k.a. opinion leaders or bridges) in their social circles or groups are influentials. They influence others in informal ways such as by word of mouth in conversations. Often times, people seek valuable advice or guidance from them (Keller and Berry, 2003). In earlier works (Kavanaugh et al., 2003, 2005, 2006), people who act opinion leaders are more involved in the local group and use the internet for sustaining, facilitating, and increasing their involvement. In this study, I examine the differences among four levels: Leader Bridge, Bridge, Non-bridge, and Non-member.

TABLE 4-33 CHANGES IN COMMUNICATION MODES: BRIDGE VS. NON-BRIDGE

Communication changes over time	Variables used in paired t-test	Mean (2005/2006)	P-values (t-score)	N
Bridge	Level of communication	9.333/ 10.5417	.030** (-2.318)	24
	Traditional mode of communication	6.0417/ 6.5833	NS	24
	Electronic mode of communication	3.1667/ 3.7917	.040** (-2.645)	24
Non-Bridge	Level of communication	3.3929/ 3.7262	.037** (-2.118)	84
	Traditional mode of communication	2.3810/ 2.4881	NS	84
	Electronic mode of communication	0.9405/ 1.2143	.010** (-2.645)	84

** $p < .01$, * $p < .05$, NS: not significant

4.5.2 Degree of Political Activity: Active, Passive, and Apathetic Citizens

The Political Discussion Network responses (total Round 2 sample, N=430) were normally distributed. I divided respondents into quartiles based on their score (standardized z score) on the Political Discussion Network construct (see Table 4.34); standardized z scores ranged from a minimum of -1.42 to a maximum of 1.65 with a mean of -0.042. Each quartile for the Political Discussion Network construct has a range of 77 points. Respondents in the lowest quartile of political activity had standardized z scores in the range of -1.42 to -.65; respondents in the highest quartile of political activity had scores in between .88 to 1.65 as shown in Table 4-34. Thus, the percentage of respondents that fell into each "political activity quartile" is roughly what would be expected based on most prior studies (i.e., that political activists make up only about 8-12% of the U.S. population) (Kavanaugh et al., 2008). It is important to bear in mind that the quartiles refer to respondents' political activity scores, not the percentage of the sample. Thus, the most active political quartile includes only a small percentage of the sample.

TABLE 4-34 LEVEL OF POLITICAL ACTIVITIES: QUARTILES

Level of Participation	N	Percent	Range: z score	Mean z score
Active	30	7.0	0.88 to 1.65	1.135
Passive-Active	143	33.2	0.12 to 0.88	0.442
Passive-Apathetic	189	44.0	-0.65 to 0.12	-0.253
Apathetic	68	15.8	-1.42 to -0.65	-0.994

One-way ANOVA tests of Political Discussion in Local Groups, again broken down by quartile, showed statistically significant differences across the four levels of political participation. Active citizens reported the highest level of political discussion in their groups, followed by passive-active citizens, and then passive-apathetic; finally, politically apathetic citizens reported the lowest levels of political discussion within their local groups. Politically Active respondents were significantly higher on measures of discussion with local groups than were Passive-Apathetic and Apathetic citizens. But the politically Passive-Active were not significantly lower on these measures than the politically Active. (See Table 4-35.)

TABLE 4-35 POLITICAL DISCUSSION IN LOCAL GROUPS

	Apathetic (AP)	Passive- Apathetic (PAP)	Passive-Active (PAC)	Active (AC)
Political Discussion in Local Groups** F=7.441, DF=3/280, p<.001, $\eta^2 = .072$	2.18 ^{PAC, AC}	2.37 ^{PAC, AC}	3.57 ^{AP, PAP}	4.50 ^{AP, PAP}

**p<.01: Post Hoc Multiple Comparisons (Bonferroni) test was used on all variables; equal variances were assumed. Group superscripts indicate significant differences between the respective groups (Bonferroni test)

One-way ANOVA tests of both online political and civic interests and showed statistically significant differences across the four quartiles. Active and passive-active respondents were significantly different from all three quartiles for online political interests and activities. Although active and passive-active respondents did not significantly differ statistically in online civic interests and activities, both groups

differed significantly on this construct from passive-apatetic and apathetic respondents. (See Table 4-36.)

TABLE 4-36 ONLINE CIVIC AND POLITICAL PARTICIPATION

	Apathetic (AP)	Passive-Apathetic (PAP)	Passive-Active (PAC)	Active (AC)
Online Political Interests and Activities** F=30.739, DF=3/335, p<.001, η^2 =.216 ^a	1.06 ^{PAC, AC}	1.10 ^{PAC, AC}	1.26 ^{AP, PAP, AC}	1.73 ^{AP, PAP, PAC}
Online Civic Interests and Activities** F=9.934, DF=3/335, p<.001, η^2 =.082 ^b	1.62 ^{PAC, AC}	1.73 ^{PAC, AC}	1.98 ^{AP, PAP}	2.28 ^{AP, PAP}

**p<.01: Post Hoc Multiple Comparisons (Bonferroni) test was used on all variables; equal variances were assumed. Group superscripts indicate significant differences between the respective groups (Bonferroni test)

^a and ^b: Eta-Square is quite low. However, Eta-square is no of much use in the single sample t-test like this research.

Summary

These findings show that opinion leaders in local community groups used more electronic modes of communication. Moreover, highly civic minded and politically active as well as the group one tier down, passive active individual citizens show more interest in online activities for civic and political purposes. Due to the limitation of the current data set, it could not be statistically analyzed according to the model in Figure 4-1, which might be examined in future studies.

4.6 Findings of Focus Group Interviews

Introduction

In this section, I try to amplify the quantitative findings using the results of focus group interviews. The qualitative findings of focus group interviews provide support for two explicit links: 1) Political activists have positive attitudes on the internet as a useful tool for extending opportunities for civic and political participation, and 2) the internet has become a more significant method for local groups' communication among members and a tool for political participation.

4.6.1 Political Activists and Internet Use: Individual Level of Analysis

At the individual level of analysis, most interviewees had positive attitudes toward the internet in general and about new types of tools, especially blogs, as communication tools for social and civic life including political and civic participation. Active internet users used the internet for more than 20 hours a week and managed their web pages for two or three hours a week. Members of the three politically active focus groups -- political bloggers, internet users who are unconventional activists and internet users who are conventional activists -- stated that the internet and blogs helped them to access political information that they did not encounter in "mainstream" media such as TV, radio, and newspaper. These comments showed that the internet has become an important channel to gather political information, and it is recognized among internet users who have different levels of political interest.

The attitudes toward internet and blogs in particular were very positive, especially focusing on the community forum aspect. One participant said that Blacksburg has a better background for using the internet than other similar-sized towns because of the BEV and Virginia Tech. All members of her local group actively use the internet. One of the interview participants said that three leaders in his group linked their blogs to the group's website, and now many members post comments on their blogs. They all agree that blogs can provide an alternative format for civic and political information exchange

and discussion. Another participant said that political information exchanged through blogs happened in cyberspace, and she is also posting her political opinions on her blog:

... the first place you saw the fact that the people in the nursing home didn't die after four days [when Katrina hit] was in the blogs. And so, it's a matter of getting information from more than one view point.

In this way, websites and blogs provided alternative sources for political information and news. The following comments show the advantage of the internet, especially the new web technology, blog:

...one of the advantages of a blog is you actually do get eye witnesses. Now you can't tell whose the eye witness and whose making it up, but some of the information is the source, and some of it's not... and some of it, the political blogs, generally are opinion.

Several focus group participants, however, also complained about misinformation online and especially within blogs. Most interviewees emphasized the need for balance between online and offline forms of civic and political participation:

I followed the New Orleans situation with great detail. I have tons of stuff on it...I put out about three newsletters on the New Orleans timeline and then, there was too much, uh, misinformation. I usually, when I get the material together I like to get at least two different sources so that I don't have to go by one source.

While the internet offers alternative news sources and eyewitness accounts, it also provides other unfounded opinions and suspect remarks that are difficult to verify.

I find that so many things, well especially whenever you're just talking about blogging out there. Nothing is sourced, there is no way to validate, other than in somebody's opinion.

Nonetheless, for most, the diversity of information and knowledge represented by the many different websites and blogs far exceeds the fare presented by mainstream media.

To me that's part of the problem with blogs, is a lot of people just have more time than sense and, just go on and on and on and on.

The findings here suggest that internal political efficacy is typically stronger among internet users, especially those using discussion listservs. The internet users used the internet to raise awareness, educate others, and organize collective action:

I go to Blacksburg.gov a lot [the town government website]. And I found that they're awfully responsive. You can go and tell them you've got a streetlight out and they're there. Uh, I find it to be a wonderful website.

Some Passive-Apathetic participants, however, especially those of lower socioeconomic status, exhibited lower political efficacy and strongly believe that important decisions have already been made by power elites:

Well, you get so many minutes to speak and no matter where you are, "you're done" and they wave, you know, at that time, I don't know if they still do it but we were there until 1 am because they put anybody who wants to speak at the end in hopes that everybody will go. But it didn't matter what anybody had to say, they did what they wanted anyway. So, I felt that was pretty useless. A waste of our time...

4.6.2 Community Group Internet Use for Political Discussion: Group level of Analysis

This final point indicates that citizens will use the internet for political purposes, but only to the extent that they believe it is efficacious to do so. Therefore, offline circumstances must be favorable to civic and political participation coupled with group deliberative potential such as local group internet use for political discussion in order to support citizen-to-citizen interaction and information production. Local community groups can be the places those discussions will happen:

Um, I also use it [the Internet] to whip up the neighbors when we, we had to stop a subdivision in our neighborhood last year and our homeowner's association all talk by email and so we showed up at town council meetings in large numbers.

Summary

The results of the focus group interviews reinforce the HLM finding that the internet is helpful for participating in civic and political issues, and people shared positive experiences on the usefulness of the internet as a method for group political communication. In addition, the interview results indicate that the constructive role of the internet for increasing civic and political engagement is a strong influence not only on civic and political community groups but also on other types of local groups. Regardless

of the type of local group, groups will be an important arena for sharing experiences on internet use and the potential effect of the internet on civic and political participation.

Chapter 5 Discussion, Implications and Conclusion

This research has shown the application of multilevel models for reconciling the different levels—the individual level and the group level of analysis in looking at the impact of internet use on civic and political participation. The two different levels of analysis also were examined separately. At the individual level, this research investigated and found the effects of internal and external political efficacy and community collective efficacy as statistically significant individual level influences on internet use for civic and political purposes. At the group level, group internet use—which includes recent new internet technologies—and group political discussion were revealed as key influences on citizens' perspectives on the helpfulness of the internet for civic and political purposes. Finally, in multilevel analyses, those individual and group level independent variables were explored. The dependent variable/construct was how helpful the internet has been in becoming more involved in local community issues, diverse and similar people. This chapter will begin by summarizing the key findings of the study before discussing its implications. It also examines the limitations of the analysis and offers suggestions for future research.

5.1 Summary

There have been prominent debates about the effects of the internet on civic and political participation. Many of these controversies were based on preliminary findings during an early stage of the development of the internet. However, due to the rapid development of internet technologies, the impact of the internet on civic and political participation can be shown differently.

This study was motivated by recent changes in democratic society due to advances in Web 2.0 internet technologies. The internet has great potential for providing opportunities for civic and political participation, and yet there is little research on the internet's effect on civic and political participation, especially after the birth of Web 2.0.

In addition, a number of prior studies about the relationship between internet and society have emphasized the role of virtual communities. It seems that these overemphasized the merely online aspects of interaction, at least at the local level. At the local level, both offline and online communities are in geographical proximity, whereas only a few online communities are of this type at the national level. Thus, it is necessary to investigate the group level of analysis on the effects of the internet on civic and political participation. As mentioned before, this study tried to bridge the individual and group levels of analysis in examining the impact of the internet on civic and political participation at the local level.

Thus, I examined local groups' influence and explored significant factors that help explain its influence by using the Hierarchical Linear Model (HLM). The HLM detects the effects of the internet on civic and political participation, controlling for non-independent observation bias. In other words, it allows us to understand the real contribution of group internet use for civic and political participation, over and above other factors such as demographics, trust, extroversion, internal and external political efficacy and community collective efficacy.

Furthermore, I defined civic and political participation as a multifaceted concept, consisting of both online and offline individual citizens' civic and political interests and activities. This study drew on an unexamined portion of data from community level in depth household surveys in 2005 and 2006. Previous chapters examined the impact of the internet on and the role of local community groups in civic and political participation using diverse quantitative analyses and focus group interviews.

The empirical analyses focused on two factors. The first was the impact of measures of efficacy (internal and external political efficacy and collective efficacy) as important psychological factors in individual citizens' attitudes about the helpfulness of the internet. The second were variables on local group influences including the level of group political discussion and group internet use as crucial higher level factors in the appreciation of the helpfulness of internet use, especially new internet technologies such as blogs and wikis. In order to better understand the effect of local group membership (level of group

political deliberation, internet use, and involvement), on views of the helpfulness of the internet, taking into account the civic and political behavior and interests of individual citizens, I tested multilevel models.

The findings show that civic minded and politically active individual citizens are influenced by the extent of local group internet use and political interest in their perspectives of the helpfulness of the internet for civic and political participation. There are intraclass correlations between citizens' civic and political activities and group internet use and political group discussion/interests.

First, the internet is helpful for becoming more involved in issues of local interest. Local groups play important roles in democratic civil society through aggregating, shaping, and cultivating collective public interest, will, and competence (Kavanaugh et al., 2006).

Second, this study offers an investigation of internet use by individual citizen within local community groups. Although it is constrained because the data are limited to the local level, I suspect that similar patterns would be observed in similar types of communities across the United States. Overall, the role of local community groups and the use of internet within the groups appear to be emerging as an increasingly important vehicle for civic and political participation, helping to create social capital and to build a stronger civil society.

Third, to date, most members of local groups have more positive attitudes about the helpfulness of the internet than do non-members. They suspect that internet usage has helped them feel more connected to both similar and diverse others and encourages them to become more involved in local issues that interest them. This pattern shows that local community groups have been able to adopt internet technology in order to facilitate communication, and these groups evolve to encourage more communication and interaction.

Fourth, in previous work, the Civic Effects Model (CEM) successfully demonstrated the influence of group membership as an indirect influence on citizens' positive attitudes about the internet. In this study, I expanded the CEM with more in-depth group measures

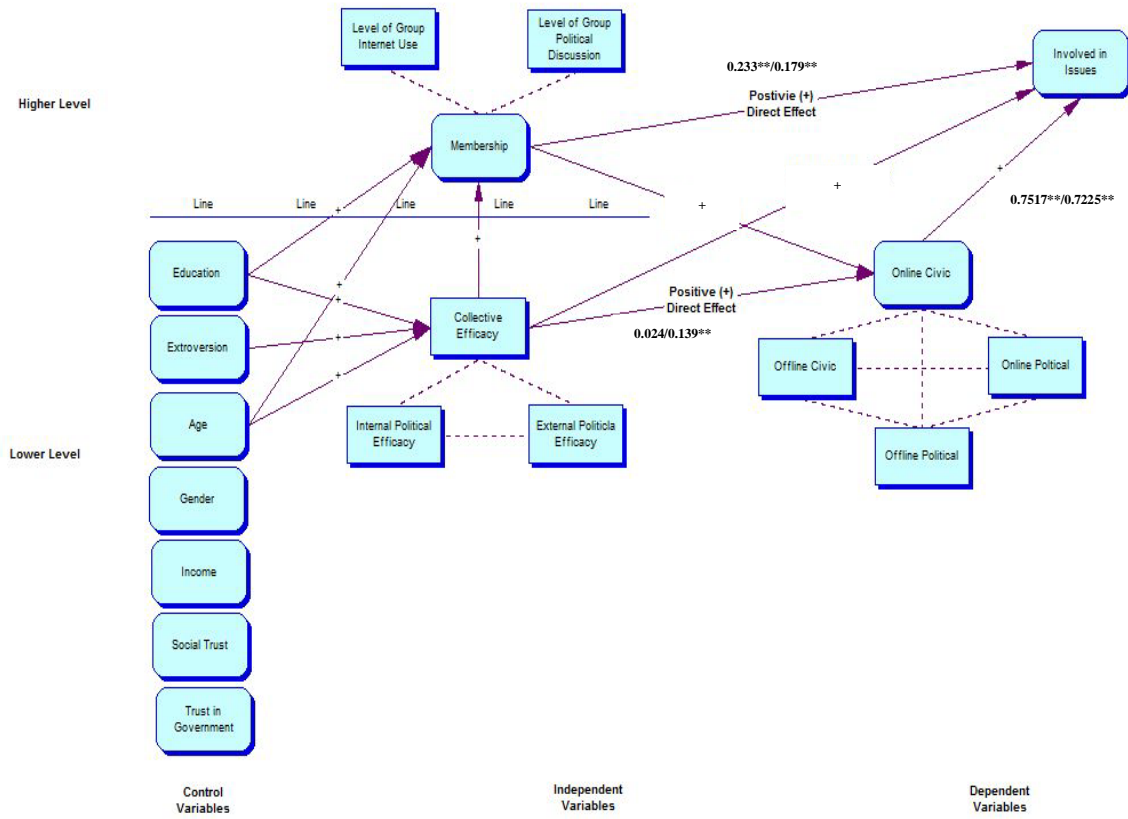
such as group political discussions and interests, group internet use and level of group involvement. By using multilevel analysis, I found the direct influence of group factors on assessments of the helpfulness of internet. Citizens who are associated in the same local community groups have similar perceptions of the helpfulness of internet. If their groups provide more political discussion opportunities and frequently use internet as group communication channels, then the members of those groups manifested more positive perceptions of the internet. Figure 5-5 shows the direct influences of group factors on views of the helpfulness of internet.

Finally, this study explored the influence of political and community collective efficacy on offline/online civic and political participation by using hierarchical regression. According to Bandura (2002), certain civic and political participation will occur only when positive self efficacy—internal political efficacy—meets positive judgments of the environment—external political efficacy. In this study, those who have higher levels of internal and external political efficacy reported more online civic and political interests and activities than others. In addition, the multilevel analysis results showed that political efficacy was positively related to the perception of the helpfulness of internet. Table 4-37 summarizes the study’s major findings.

TABLE 4-37 MAJOR FINDINGS

Level of Analysis	Main Research Question	Findings
Individual	<ul style="list-style-type: none"> Do psychological factors, especially internal and external political efficacy and collective efficacy, have an effect on the use of internet for civic and political participation? 	<ul style="list-style-type: none"> Political efficacy is positively related to online civic and political activities and interests. Several variables (extroversion, education and age) of the CEM is confirmed their influence online civic and political activities and interests.
Group	<ul style="list-style-type: none"> What is the impact of internet use (i.e., the electronic mode of communication for group communication and formal and informal political discussion on civic and political participation within different types of local groups? 	<ul style="list-style-type: none"> Overall usage of electronic modes of group communication and group political discussion increased.
HLM	<ul style="list-style-type: none"> What are the effects of <i>local group level variables</i> (group internet use and group political discussion and interests) lead to the <i>dependent variables</i>: how helpful the internet has been in becoming more involved in community issues, diverse and similar people, taking <i>individual level variables</i> (demographics and psychological factors) into account? 	<ul style="list-style-type: none"> The role and impact of local groups on the <i>dependent variable</i> more accurately analyzed. Individuals from same local group where civic and political learning take place are more likely to shared experience or knowledge about internet with members in new digital era.

FIGURE 5-5 FINAL RESULTS OF MODEL



** $p < .01$

5.2 Discussion and Implications

In the previous section, I summarized the findings of this study. In this section, I discuss why they are important, how they differ from prior research, and what they add to current field of research. The implications of the findings of this study potentially could help suggest future action in e-governance and guide research in this important area. Thus, this research contributes theoretically and practically to both the fields of e-governance research and civic and political participation studies. Before that discussion, I highlight the utility of the conceptual framework of this study.

Utility of the Conceptual Framework

As mentioned above, one of the findings of this dissertation indicated that citizens' attitudes on the usefulness of the internet for civic and political participation were influenced by measures of efficacy and local group level factors, such as group internet use and group political discussion. I see these findings as distinctly different from past research efforts on the impact of the internet on civic and political participation. First, methodologically, the conceptual framework contributes to expanding the use of HLM methods in research on the internet, participation, and local community organizations. I recognized the benefits that society might enjoy from internet use that leads to increased participation in local issues, but I was most concerned with viewing the issues in terms of local group membership, and whether local group membership or group level factors directly influence the impact of the internet on civic and political participation. The conceptual framework of this study proved useful for understanding local group effects on the impact of internet. Overall, I believe that the conceptual framework helped clarify previous findings and expanded them by using a new method.

E-governance

This study was conducted in the area of digital government research, *modeling online participation in local governance* by taking empirically validated measures from the literature on citizens' use of information and communication technology to participate in civic and political life, online citizen-to-citizen deliberation, and local voluntary association. Various empirical analyses including HLM were applied to the impact of internet use on civic and political participation in terms of demographic factors (education, age, gender, and household income), psychological factors (extroversion, trust, political efficacy, and community collective efficacy), and local group factors (level of group political discussion and group internet use). This exploratory effort contributes to e-governance studies by presenting the positive influence of local community level factors along with consideration of the individual level of influence, especially measures of political efficacy.

The second way in which this research contributed to e-governance is that we are now able to examine the *impact* of the internet beyond the functional e-government research model (e.g., a four stages model for e-government⁴¹) that emphasized the importance of government efforts and control and praised centralization. However, the conceptual framework of this study showed the crucial role of local community groups on e-governance, which is more decentralized, participatory, and deliberative than e-government. In terms of citizen-to-citizen interaction, the rapid evolving internet may in part serve to help counteract a three-decade trend of declining engagement, which is crucial for democratic (e-)governance (Verba, Schlozman, & Brady, 1995; Putnam, 2000).

Civic and Political Participation

This study also fills a gap in existing literature on the relationship between online civic and political participation and political efficacy and the role of nonprofit organizations, especially local community groups, in citizen participation in local governance. Few studies to date have examined the effects of the internet on civic and political participation using the HLM approach. This research begins to fill the gap by identifying and clarifying the confused definitions of civic engagement, civic participation, political engagement, and political participation in this digital age. The proposed model integrates a civic effect model with political efficacy and group political discussion and internet use. Surveys and focus group interviews were used to investigate the model.

Secondly, previous studies showed the positive relationship between individuals' internet use and civic and political participation. But the HLM, which considers both factors at the individual and group levels, was not applied. In addition, the use by local groups of new internet technologies that are user friendly, user generated contents, and two way social networking features confirmed the important role of community groups in the civic and political participation of an informational society.

⁴¹ The four stages model proposes a “stages of growth” model for fully functional e-government. Four stages (cataloguing, transaction, vertical integration, and horizontal integration stages) outline the multi-perspective transformation *within* government structures and functions (Layne and Lee, 2001).

Finally, existing studies have mainly focused on voting activities as dependent variables. I expand on current studies of civic and political participation by investigating both direct appreciation of the usefulness of the internet for civic and political participation and drawing special attention to local e-governance. In most prior studies, the national level received the most attention.

5.3 Limitations

First, a limitation of this study is the causal analysis of survey data. HLM implicitly assumes a causal relationship between two different level factors such as political efficacy (individual level) and political group discussion (group level) and citizens' attitudes about the helpfulness of internet. The causality is limited because the findings came from a particular time period (2005 and 2006) and region (towns of Blacksburg and Christiansburg, and Montgomery County, Virginia).

Thus, I have clarified in this study that the findings I report pertain specifically to Blacksburg, Christiansburg and Montgomery County. And I acknowledge that internet penetration in this setting is higher than average for smaller towns and rural areas in North America. However, the case study of Blacksburg and Montgomery County can serve as a future model of what many communities may soon be like with respect to utilization of the internet. Internet diffusion and penetration studies (by Pew, among many others) show rapid growth in most areas of the U.S., reducing this gap in internet utilization, and making Blacksburg and Montgomery County less of an outlier.

Second, I acknowledge and emphasize that the “self-reporting” in the surveys is a limitation of the study. This is, of course, a limitation of survey research in general. Nonetheless, the survey responses provide the basis for systematically testing hypotheses and developing explanations that can be tested in further studies—some employing converging methods such as interviews and session logging- and that can be compared with similar research literature.

5.4 Future Research

As this study progressed, it generated more research questions of interest. This section presents some ideas for future research using additional data collected in this study and data to come from future studies.

Expanded HLM framework

As mentioned in the previous chapter, the current survey data set is limited —especially by the small size of higher group level numbers.⁴² It can be empirically analyzed like the model in figure 4-4. In future studies, the examined HLM framework should explore diverse approaches. Such research could result in valuable lessons learned, which may expand our knowledge of not only politically active opinion leaders but also some politically passive individual citizens about their perceptions of the impact of the internet on civic and political participation.⁴³

Longitudinal Research

For a deeper investigation of citizens affiliated with local groups, this study used multilevel analysis. The results of the multilevel analyses suggest a positive association between citizens' involvement in local groups and their civic engagement via the internet (using the extent of reported internet helpfulness in individuals' involvement in issues of local interest). Although there are several limitations such as the relatively small amount of local data and limited group level data, I offered ways to adapt and to present the potential use of multilevel analysis. In the near future I will attempt to use a longitudinal data set (more than two years) for analyzing the citizens affiliated with local groups and

⁴² HLM with opinion leadership and level of group political activities can be one potential area for expanding this research model.

⁴³ Not only politically active citizens but some politically passive citizens also reported increased internet use to communicate with other citizens and with fellow members of their community groups about local or national issues (Kavanaugh et al., 2008).

their use of the internet for political and civic purposes. All in all, this future study will contribute to the understanding of growing evidence that the internet increases civic and political participation by citizens affiliated with local community groups.

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Appendix A: Survey Questionnaire

Community and Civic Participation Survey 2005/2006

<u>SAMPLE RECORD</u>	
Callback Date	Last Contact Date
Callback Time	Last Contact Time
Definite/Indefinite Callback	Number of Attempts
Final Call Disposition	Number of Refusals
FIPS Code (all Montgomery County VA)	Record Number
Interviewer ID	Record Priority
Interviewer Message	Record Status
Last Call Disposition	Respondent Number
	Telephone Number

<u>CALL DISPOSITIONS</u>	
1 = No Answer	9 = Hard Refusal
2 = Busy Signal	10 = Automated Refusal/Screening Service
3 = Answering Machine	11 = Disconnected/Changed Number
4 = Callback	12 = Fax Tone
5 = Non Residential Number	13 = Temporarily Out of Service
6 = Language Difficulty	14 = No Resident Over 18 Years Old in Household
7 = Hearing Difficulty	15 = Not In Montgomery County (CATI Code)
8 = Soft Refusal	16 = Partially Complete Interview (CATI Code)
	17 = Complete Interview (CATI Code)

CALLING INFORMATION: Randomized Montgomery County Phone Number

Hello, my name is _____ and I'm calling from the Virginia Tech Center for Survey Research. We are conducting a study of citizens in Montgomery County regarding their opinions about their community and local government. The survey only takes a short while. Our research requires that I speak to an adult [AGE 18 OR OLDER] in your household. Would that be you?

[GO TO Q1] YES 1
NO 2

May I speak with that person?

[REPEAT FIRST TWO SENTENCES OF A, GO TO Q1] YES 1
NO 2

When may I call back to speak with (him/her)?

So that I will know whom to ask for, what is (his/her) name?

IF RESPONDENT OBJECTS: "We only need the person's first name, the last isn't necessary."

[REPEAT BACK FOR PRONUNCIATION IF NECESSARY, TERMINATE CALL, AND CODE DISPOSITION]

Screener: First, do you live in Montgomery County?

YES [GO TO Q1] 1
NO (Specify area of residence: _____) 2
DK/RF 3

End1: I'm sorry, our study requires that I speak with residents of Montgomery County only. Thank you for your time.

Q1. Where do you live currently?

BLACKSBURG 1
CHRISTIANSBURG 2
MONTGOMERY COUNTY 3
OTHER (Please specify: _____) 4
DK/RF 5

Q2. Is this the community you identify most closely with, or do you identify more closely with another community in the local area?

IDENTIFIES MOST CLOSELY WITH COMMUNITY WHERE THEY LIVE 1
IDENTIFIES WITH ANOTHER COMMUNITY (Please specify community: _____) 2
DK/RF 3

Q3. How many years have you lived in [CATI INSERTS Q1 RESPONSE]?

YY
DK/RF 99

IF Q3=0, ASK Q3a. "How many months?" DK/RF 99

Q4. How many times have you moved in the last five years?

DK/RF 99

Q5. To what extent do you think most people in the local area can be trusted? Would you say very much, somewhat, not very much, or not at all?

VERY MUCH 1
SOMEWHAT 2
NOT VERY MUCH 3
NOT AT ALL 4
DK/RF 5

Q6. To what extent do you think most people in the local area are inclined to help others?

VERY MUCH 1
SOMEWHAT 2
NOT VERY MUCH 3
NOT AT ALL 4
DK/RF 5

Q7. Now I have a few questions about any formal local groups you might be involved with. We're interested in groups that have a formal leadership structure, like places of worship, service organizations, homeowners associations, sports teams, or other similar organizations. How many local groups like this are you involved with?

DK/RF 99, NO MAX

IF Q7≤3, CREATE LOOP STARTING AT 1 AND ENDING WITH Q7 RESPONSE, IF Q7>3, CREATE LOOP STARTING AT 1 AND ENDING WITH 3

IF Q7=0, GO TO Q18

Q8. [IF Q7>3, INSERT "I'd first like to ask you about any of these groups that communicate using the Internet"] [INSERT for LOOP 1 "So that I can ask you a few questions about each of these groups,"] please tell me the name of [INSERT "one of these groups" for LOOP 1, "the next group"]?

Don't Know "DK", Refuse "RF"

Q9. Please tell me how the people in this group communicate with each other. Do they communicate using...

CHOOSE ALL THAT APPLY

face to face communication? 1
telephone? 2
postal mail? 3
email or listserv? 4
on-line discussion? 5
does this group have a web site? 6
does the group communicate in any other ways I haven't mentioned? (Please specify: _____) 7
DK/RF 8

Q10. Are you an official member of this group?

YES 1
NO 2
DK/RF 3

Q11. Do you attend meetings of this group regularly?

YES 1
NO 2
DK/RF 3

Q12. Do you perform volunteer work for this group?

YES 1
NO 2
DK/RF 3

Q13. Do you hold a leadership position in this group?

YES 1
NO 2
DK/RF 3

Q14. Do you contribute money to this group?

YES 1
NO 2
DK/RF 3

Q15. Does this group ever have meetings at which political topics are on the agenda or discussed formally?

YES 1
NO 2
DK/RF 3

Q16. Do the people at the meetings of this group ever chat informally about politics or government?

YES 1
NO 2
DK/RF 3

Q17. Does this organization ever take a stand on any local or national issue?

YES 1
NO 2
DK/RF 3

END FORMAL GROUP LOOP

Q18. Now I have a few questions about any informal local groups you might be involved with. These groups are less structured and might meet on a regular basis, and include more than just your family members. Informal groups are groups like a book group, bridge group, a carpool, or just friends or neighbors with whom you regularly do activities like exercising. How many local informal groups like this are you associated with?

DK/RF 99, NO MAX

IF Q18≤ 2, CREATE LOOP STARTING AT 1 AND ENDING WITH Q18 RESPONSE, IF Q18>2, CREATE LOOP STARTING AT 1 AND ENDING WITH 2

IF Q18=0, GO TO Q22

Q19. [IF Q18>2, INSERT “I’d first like to ask you about any of these groups that communicate using the Internet”] [INSERT for LOOP 1 “So that I can ask you a few questions about each of these groups,”] please tell me the name of [INSERT “one of these groups” for LOOP 1, “the next group”]?

Don’t Know “DK”, Refuse “RF”

Q20. Please tell me how the people in this group communicate with each other. Do they communicate using...

CHOOSE ALL THAT APPLY

face to face communication? 1

telephone? 2

postal mail? 3

email or listserv? 4

on-line discussion? 5

does the group communicate in any other ways I haven’t mentioned? (Please specify: _____) 6

DK/RF 7

Q21. Do you get together with this group regularly?

YES 1

NO 2

DK/RF 3

END INFORMAL GROUP LOOP

Q22. On average, please tell me how often in the last six months you did each of the activities I mention.

a.	First, read local news in the newspaper?	about once a day?	several times a week?	about once a week?	about once a month?	less than once a month?	or never?	DK/RF
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b.	read national or global news in the newspaper?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
c.	attended a religious service?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
d.	attended a public meeting?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
e.	attended a local political talk or meeting?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
f.	wrote or called a local government official?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
g.	did volunteer work?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
h.	discussed politics?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
i.	talked to family members about local issues or concerns?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
j.	talked to family members about national or global issues or problems?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
k.	talked to people outside your family about local issues or problems?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF
l.	talked to people outside your family about national or global issues or problems?	ABOUT ONCE A DAY	SEVERAL TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	LESS THAN ONCE A MONTH	NEVER	DK/RF

Q23. Please tell me how often in the last two years you did each of the activities I mention.

a.	attended a neighborhood meeting?	about once a week?	about once a month?	several times a year?	about once a year?	or never?	DK/RF
b.	wrote a letter or email to a local area newspaper editor?	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	SEVERAL TIMES A YEAR	ABOUT ONCE A YEAR	NEVER	DK/RF
c.	called in or emailed a local radio station?	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	SEVERAL TIMES A YEAR	ABOUT ONCE A YEAR	NEVER	DK/RF
d.	circulated or signed a petition for a local candidate or issue?	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	SEVERAL TIMES A YEAR	ABOUT ONCE A YEAR	NEVER	DK/RF
e.	watched a town council or board of supervisors meeting on cable television?	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	SEVERAL TIMES A YEAR	ABOUT ONCE A YEAR	NEVER	DK/RF
f.	worked locally for a political campaign?	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	SEVERAL TIMES A YEAR	ABOUT ONCE A YEAR	NEVER	DK/RF
g.	contacted a local public school	ABOUT	ABOUT	SEVERAL	ABOUT	NEVER	DK/RF

	official about an issue of concern to you?	ONCE A WEEK	ONCE A MONTH	TIMES A YEAR	ONCE A YEAR		
h.	protested about a local issue?	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	SEVERAL TIMES A YEAR	ABOUT ONCE A YEAR	NEVER	DK/RF

Q24. What do you consider to be the most important issue currently facing the local area?

RESPONSE PROVIDED (Please specify: _____) 1
 NO RESPONSE PROVIDED [GO TO Q31] 2
 DK/RF [GO TO Q31] 3

Q25. How many people outside your immediate family do you usually talk to about [INSERT Q24 RESPONSE]?

_____ DK/RF 99

IF Q25=0 OR 99, GO TO Q28

Q26. In general, do the people you discuss this issue with share your point of view about the issue?

YES 1
 NO 2
 DK/RF 3

Q27. In general, do the people you discuss this issue with have about the same level of knowledge about the issue as you?

YES 1
 NO 2
 DK/RF 3

Q28. How likely would you be to attend a public forum on this issue? Would you be very likely, somewhat likely, not very likely, or not at all likely to do this?

- VERY LIKELY 1
- SOMEWHAT LIKELY 2
- SOMEWHAT UNLIKELY 3
- NOT AT ALL LIKELY [GO TO Q31] 4
- DK/RF 5

Q29. How likely would you be to speak up at a public forum on this issue?

- VERY LIKELY 1
- SOMEWHAT LIKELY 2
- SOMEWHAT UNLIKELY 3
- NOT AT ALL LIKELY [GO TO Q31] 4
- DK/RF 5

Q30. How likely would you be to express an opinion that is different than that of others on this issue at a meeting?

- VERY LIKELY 1
- SOMEWHAT LIKELY 2
- SOMEWHAT UNLIKELY 3
- NOT AT ALL LIKELY 4
- DK/RF 5

Q31. In general, do you most prefer getting news from sources that share your political point of view, from sources that don't have a particular political point of view, or from sources that challenge your political point of view?

- SOURCES THAT SHARE POINT OF VIEW 1
- SOURCES THAT DON'T HAVE POINT OF VIEW 2
- SOURCES THAT CHALLENGE POINT OF VIEW 3
- OTHER (Please specify response: _____) 4
- DK/RF 5

Q32. Does anyone in your household use a cell phone?

- YES 1
- NO 2
- DK/RF 3

Q33. Do you use the Internet from any location?

- YES [GO TO Q38] 1
- NO 2
- DK/RF 3

Q34. Do you know anyone who uses the Internet?

YES 1
NO 2
DK/RF 3

Q35. Have you ever asked someone to send an email message for you?

YES 1
NO 2
DK/RF 3

Q36. Have you ever asked someone to get information online for you?

YES 1
NO 2
DK/RF 3

Q37. Have you ever received information that came from the Internet from someone else?

YES 1
NO 2
DK/RF 3

GO TO Q45

Q38. Do you use the Internet from work, from home, from a personal digital assistant or PDA, cell phone, or from some other place?

CHOOSE ALL THAT APPLY

WORK 1
HOME 2
PDA/CELL PHONE 3
OTHER (Please specify: _____) 4
DK/RF 5

Q39. [IF Q38_2 IS NOT SELECTED, GO TO Q40] What kind of Internet connection do you have in your home?

CHOOSE ALL THAT APPLY

dial up? 1
cable modem? 2
DSL? 3
any other kind of connection? (Please specify: _____) 4
DK/RF 5

Q40. For how many years have you been using the Internet?

YY
DK/RF 99

IF Q40=0, ASK Q40a. "How many months?" DK/RF 99

Q41. In a typical day, how many hours do you spend using the Internet from any location?

DK/RF 99

Q42. Have you ever heard of web logs or blogs?

YES 1
NO 2
DK/RF 3

Q43. How often in the past six months have you used the Internet for each of the purposes I mention.

a.	First, to get national or global news. Would you say you've used the Internet for this purpose...	several times a day?	about once a day?	a few times a week?	about once a week?	about once a month or less?	or never?	DK/RF
b.	to get local news?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
c.	look for information on the Blacksburg Electronic Village or BEV website?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
d.	work on-line for a political party or candidate?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
e.	look for information on the Montgomery County website?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
f.	look for information on the Town of Blacksburg website?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
g.	to communicate with other residents about local concerns or issues that interest you?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
h.	[IF Q42>1, GO TO Q43k] read a web log or blog, or an on-line journal?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
i.	post a comment on a web log, blog, or on-line journal?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
j.	write in your own web log, blog, or on-line journal?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
k.	to post factual information for other citizens?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
l.	express your opinion in on-line forums or group discussions?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
m.	try to influence a government policy or affect a politician's view?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF
n.	How often in the past six months did you send email to a local government official?	SEVERAL TIMES A DAY	ABOUT ONCE A DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ONCE A MONTH OR LESS	NEVER	DK/RF

Q44. [IF Q43f=6, GO TO Q45] Have you ever watched the video of Town Council meetings on the Town of Blacksburg web site?

- YES 1**
- NO 2**
- DK/RF 3**

Q45. Have you ever received announcements or news by email or telephone from Montgomery County or Blacksburg? For example, the Montgomery County Board of Supervisors summary or the Blacksburg Alert?

- CHOOSE ALL THAT APPLY**
- YES, MONTGOMERY COUNTY 1**
- YES, BLACKSBURG 2**
- NO/NEITHER [GO TO Q48] 3**
- DK/RF [GO TO Q48] 4**

Q46. [IF Q45_1=0 (NOT SELECTED), GO TO Q47] Would you say the information from Montgomery County was very helpful, somewhat helpful, not very helpful, or not at all helpful?

- VERY HELPFUL 1**
- SOMEWHAT HELPFUL 2**
- NOT VERY HELPFUL 3**
- NOT AT ALL HELPFUL 4**
- DK/RF 5**

Q47. [IF Q45_2=0 (NOT SELECTED), GO TO Q48] Would you say the information from Blacksburg was very helpful, somewhat helpful, not very helpful, or not at all helpful?

- VERY HELPFUL 1**
- SOMEWHAT HELPFUL 2**
- NOT VERY HELPFUL 3**
- NOT AT ALL HELPFUL 4**
- DK/RF 5**

ALL RESPONDENTS, IF Q33>1, GO TO Q52d

Q48. [IF Q43f=6, GO TO Q49] How would you rate the quality of the Town of Blacksburg web pages? Would you say it is excellent, good, fair, or poor?

- EXCELLENT 1**
- GOOD 2**
- FAIR 3**
- POOR 4**
- DK/RF 5**

Q49. [IF Q43e=6, GO TO Q50] How would you rate the quality of the Montgomery County web pages? Would you say excellent, good, fair, or poor?

EXCELLENT 1
GOOD 2
FAIR 3
POOR 4
DK/RF 5

Q50. Overall, to what extent would you say the Internet has improved the way you interact with the elected officials and staff in your local government? Would you say it has improved your interaction a lot, somewhat, not very much, or not at all?

HAS NOT HAD REASON TO CONTACT GOV'T. OFFICIALS 1
A LOT 2
SOMEWHAT 3
NOT VERY MUCH 4
NOT AT ALL 5
DK/RF 6

Q51. Overall, to what extent would you say the Internet has improved the way you interact with other citizens about issues in the local area?

A LOT 1
SOMEWHAT 2
NOT VERY MUCH 3
NOT AT ALL 4
DK/RF 5

Q52. Please tell me your level of agreement with each of the statements I mention.

a.	The Internet has helped me feel more connected with people like myself in the local area. Do you...	strongly agree?	somewhat agree?	somewhat disagree?	or strongly disagree?	DK/RF
b.	The Internet has helped me feel more connected with a diversity of people in the local area.	STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE	DK/RF
c.	The Internet has helped me become more involved in local issues that interest me.	STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE	DK/RF
d.	Generally speaking, I am outgoing and sociable.	STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE	DK/RF
e.	I am talkative.	STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE	DK/RF
f.	Sometimes local politics and government seem so complicated that persons like me can't truly understand what's going on.	STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE	DK/RF
g.	I don't think local public officials care much what people like me think.	STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE	DK/RF
h.	There are plenty of ways for people like me to have a say in what our	STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE	DK/RF

	local government does.					
i.	I am convinced that we can improve the quality of life in the local community, even when resources are limited.	STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE	DK/RF

Q53. In general, do you trust your local government in handling local problems a great deal, a good deal, a fair amount, not very much, or not at all?

- GREAT DEAL 1
- GOOD DEAL 2
- FAIR AMOUNT 3
- NOT VERY MUCH 4
- NOT AT ALL 5
- DK/RF 6

Q54. In general, would you say you follow international affairs very closely, somewhat closely, not very closely, or not at all?

- VERY CLOSELY 1
- SOMEWHAT CLOSELY 2
- NOT VERY CLOSELY 3
- NOT AT ALL 4
- DK/RF 5

Q55. How about national affairs?

- VERY CLOSELY 1
- SOMEWHAT CLOSELY 2
- NOT VERY CLOSELY 3
- NOT AT ALL 4
- DK/RF 5

Q56. State affairs?

- VERY CLOSELY 1
- SOMEWHAT CLOSELY 2
- NOT VERY CLOSELY 3
- NOT AT ALL 4
- DK/RF 5

Q57. Local affairs?

- VERY CLOSELY 1
- SOMEWHAT CLOSELY 2
- NOT VERY CLOSELY 3
- NOT AT ALL 4
- DK/RF 5

Q58. Are you currently a registered voter?

YES 1
NO 2
DK/RF 3

Q59. Did you vote in the last presidential election?

YES 1
NO 2
DK/RF 3

Q60. Did you vote in the last local election?

YES 1
NO 2
DK/RF 3

Q61. Can you tell me whether School Board members in Montgomery County are elected or appointed?

ELECTED 1
APPOINTED 2
DK 3
RF 4

IF ASKED WHY WE NEED THIS INFORMATION: "This is just a question about local information you may have been following since people vary widely in terms of how closely they follow current local events."

Q62. Do you remember which administrative position was recently filled for the Montgomery County Public Schools?

YES (Please specify: _____) 1
NO/CAN'T REMEMBER 2
RF 3

Q63. Where has Montgomery County opened a new branch of the public library system?

CHOOSE ALL THAT APPLY
VIRGINIA TECH CORPORATE RESEARCH CENTER (CRC) 1
SHAWSVILLE 2
OTHER (Please specify: _____) 3
DK/RF 4

Q64. Now I have a few final questions about you. In what year were you born?

DK/RF 9999

Q65. Counting yourself, how many people are currently living in your home?

IF ASKED: "Do not count college students living away at school."

IF Q65=1, GO TO Q67

Q66. How many of these people are under the age of 18?

DK/RF 99

Q67. Do you own or do you rent your current home?

OWN OR BUYING 1
RENTING 2
OTHER 3
DK/RF 4

Q68. What is the highest level of formal education you have completed?

EIGHTH GRADE OR LESS 1
SOME HIGH SCHOOL 2
HIGH SCHOOL GRAD [OR GED] 3
SOME COLLEGE/CERTIFICATE PROGRAM 4
GRADUATED FROM COLLEGE OR CERTIFICATE PROGRAM 5
SOME GRADUATE LEVEL WORK 6
COMPLETED GRADUATE SCHOOL/PROFESSIONAL SCHOOL 7
DK/RF 8

Q69. Are you currently married, single, divorced, separated, or widowed?

MARRIED 1
SINGLE 2
DIVORCED 3
SEPARATED 4
WIDOWED 5
LIVING WITH PARTNER 6
DK/RF 7

Q70. Are you currently employed full-time, employed part-time, self-employed, unemployed and looking for work, unemployed and not looking for work, a student, retired, disabled, or are you a homemaker?

CHOOSE ALL THAT APPLY
EMPLOYED FULL-TIME 1
EMPLOYED PART-TIME 2
SELF-EMPLOYED (INTERVIEWER: MAKE SURE TO CODE FULL- OR PART-TIME) 3
STUDENT 4
UNEMPLOYED LOOKING FOR WORK 5
UNEMPLOYED NOT LOOKING FOR WORK 6

RETIRED 7
DISABLED 8
HOMEMAKER 9
DK/RF 10

Q71. Do you consider yourself to be White, Black, Asian, Hispanic, or a member of some other group?

WHITE 1
BLACK/AFRICAN AMERICAN 2
ASIAN/PACIFIC ISLANDER 3
HISPANIC 4
OTHER (Please specify: _____) 5
DK/RF 6

Q72. Was your estimated total household income before taxes last year less than \$50,000 or was it \$50,000 or more?

IF ASKED: The question refers to calendar year 2004/2005.

LESS THAN \$50,000 1
\$50,000 OR MORE 2
DK/RF 3

Q73. You might be invited to a paid focus group at some point during the next six months. Would it be o.k. if someone called you to ask if you could participate in a focus group?

YES 1
NO 2
DK/RF 3

Q74. GENDER

IF UNABLE TO DETERMINE GENDER: "Just one more question, our survey requires that I ask if you are male or female."

MALE 1
FEMALE 2

That concludes our survey. We appreciate your help on our project. Thanks again and have a good evening/good afternoon!

IF ASKED: "This study is being conducted by Virginia Tech with support from the National Science Foundation in order to understand citizen participation in local community and attitudes toward local government. All calls are being made from the Virginia Tech Center for Survey Research in Blacksburg. If you need more information about the study, please feel free to call Dr. Andrea Kavanaugh, the study director, at 231-1806."

Appendix B: Focus Group Interview Questions

Overarching Flow of Questions

1. What technology are you using?
 - a. Blogs (Groups 1,2): prioritize on heavier bloggers (write, read, post)
 - b. Cell phone (Group 3)
 - c. Internet (Group 4,5)
2. How are you using the technology for political purposes? Discussion, information, deliberation?
3. Does using IT empower you? How? Why? Why not?
What is missing?
4. Separate set of questions for No Internet, High Political Participation

QUESTIONS

1. How and What of all bloggers:

- how did you get started
- how do you use blogs (purpose/frequency/forage for info)
- what audience?
- which service do you use?
- how do you verify info that you use, cite, read?

Discussion notes: Blogging among politically active and inactive (why and how): what got you into it (how you got started), foraging practices, and how do you use blogs? Ask about audience; how do you authorize/verify information that you find?
Discussion/deliberation occurring on blogs?

2. Does technology empower you to be more equal/influential in politics/local deliberation?

Discussion Notes: Does technology empower you to be more equal/influential in politics/local deliberation? Does IT help people overcome feeling that government doesn't care about them? People with low SES feel empowered by information technology? Do Net users feel more informed since blogging? Greater equality since blogging? With whom are you discussing issue? Do you feel more comfortable engaging in a chat line rather than in person? Especially if the issue directly affects you. You may be very upset about an issue, but you're not comfortable going to Town Hall. Groups people belong to that represent their perspective to town council and board of supervisors? (neighborhood associations, etc.) How they contact neighbors? F2f, phone, internet?

3. Cell phone use among low socio-economic status (SES) population:

- how using cell phone (computing tasks: storing, retrieving, downloading)

- different services (phone versus data)
- Mix of phone and computer (calendar, address book)

4. How do you use information technology for political purposes?

- what's the purpose (see information, advice, inform, discuss)
- whom do you talk to?
- follow up? How do you act on information? What happens after you obtained information, carried out with others some discussion and deliberation? Do you go to Town Council meeting?

Discussion notes: High political participation: What kind of rhetorical strategies are they using – information passing? Or genuine exchange of information and informal learning? How is blog used?

5. What capabilities and functionalities of the tools are missing?

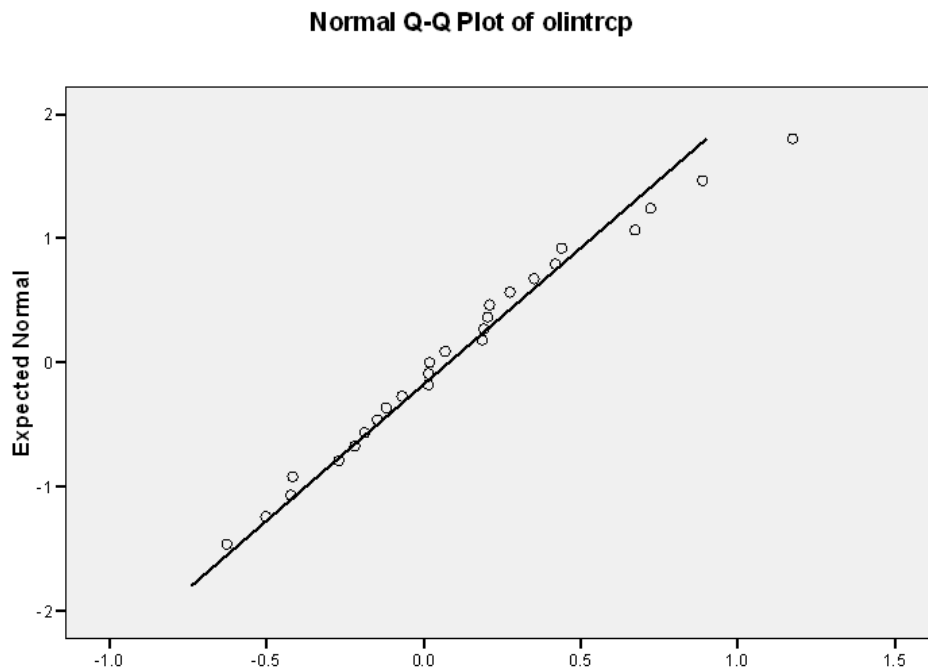
- What would make you use IT more?
- What is hard to do?
- What opportunities exist?

Discussion notes: Where have you gotten frustrated? When have you given up? Barriers? (e.g., on Google it's hard to find the blogs). Questions that lead more directly to tool (software) development.

Appendix C: Results of Tests for Normality and Linearity

Inspection of residuals is a standard tool in multiple regression analysis to examine whether assumptions of normality and linearity are met. Multilevel regression analysis also assumes normality and linearity, and inspection of the residuals can be used for the same goal. In multilevel analysis, many different residual plots can be made. The following plots show the normality and linearity of three models in this study.

FIGURE APPENDIX C. 1. NORMALITY AND LINEARITY TEST FOR LEVEL-2 RESIDUAL: GROUP INTERNET USE MODEL



FIGUER APPENDIX C. 2. NORMALITY AND LINEARITY TEST FOR LEVEL-2 RESIDUAL: GROUP POLITICAL DISCUSSION AND INTEREST MODEL

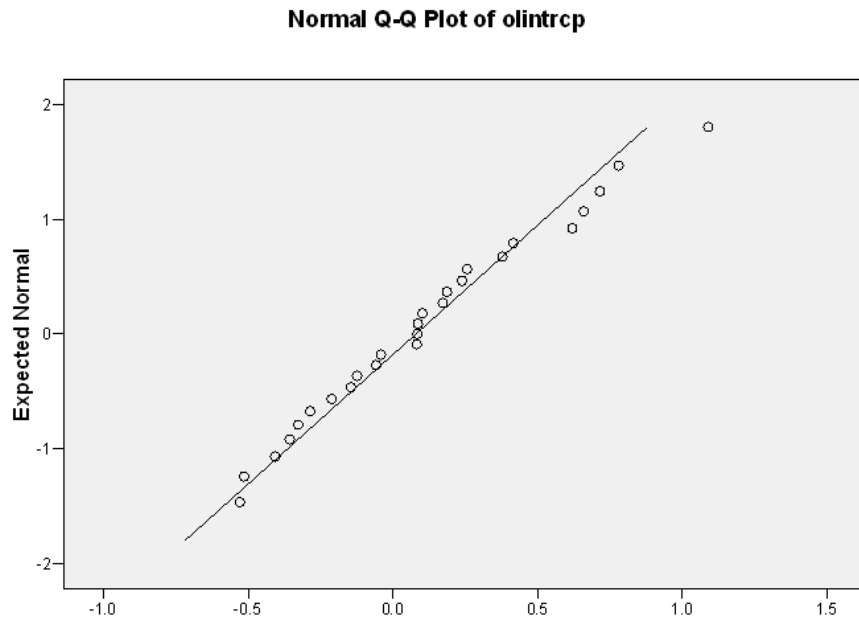


FIGURE APPENDIX C.3. NORMALITY AND LINEARITY TEST FOR LEVEL-2 RESIDUAL: LEVEL OF GROUP INVOLVEMENT MODEL

