TOWARDS A NETWORKED PUBLIC SPHERE:

HOW SOCIAL MEDIA TRIGGERS CIVIC ENGAGEMENT THROUGH NEWS

CONSUMPTION AND POLITICAL DISCUSSION

BY

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ABSTRACT OF THE DISSERTATION

Towards a networked public sphere:

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This dissertation studies the affordances of social network sites (SNSs) that

appear to amplify the participatory effects of news information and political talk on civic

engagement. It also advances a theoretical model that might account for these effects.

More particularly, due to SNSs' underlying properties that make the structure of political

discussion translucent and promote media information seeking by contacts' notifications,

it is argued that this participatory dynamic has a positive effect on collective efficacy (a

personal-psychological mediator traditionally associated with civic engagement).

Drawing on the O-S-R-O-R (orientations-stimulus-reasoning-orientations-response)

model of communication effects, it is suggested that the ways SNSs facilitate access to

news information and promote political discussion through integration of peer-generated

information, affect how people engage with others and process information. This, in turn,

affects the traditional mediation of news consumption and political discussion on civic

engagement. To test the relationships between the variables identified in the proposed

model, this dissertation relies on data collected from a survey of college students ($N = 808$). Results indicate that whereas political discussion that originated in SNSs has the strongest effect on civic participation, collective efficacy partially mediates the association between interpersonal discussion and engagement. Concerning structural features in which political discussion occurs, results showed that network heterogeneity and discussion among weak ties moderate positively the effects on civic engagement.

To test this model in an experimental setting, 151 students participated by commenting on the White House's Facebook and YouTube accounts and those of other federal agencies during a two-week interval. The experiment also aimed to contribute to a more accurate understanding of SNS by contrasting participation in social media channels that afford different levels of access to information, identifiability and levels of engagement, traditional predictors of online deliberation. More specifically, since Facebook automatically notifies users' networks when content is generated, and discussants present more personal information in their profiles than in the more anonymous YouTube, empirical support was found for the idea that users process information more carefully and develop a higher sense of connection with others in Facebook. The results showed that the stronger sense of identification and engagement led users to get more involved in the discussions, which increased the effects of deliberation on collective efficacy. The experiment confirmed that discussion in social media served as a catalyst for collective efficacy and this positive relationship was found to be stronger in Facebook than in YouTube, supporting the view that the formation of a networked public sphere is strongly affected by the type of audiences (contacts) that users have in their networks.

Acknowledgement

While I was collecting and analyzing the data, I dreamed many times to write this part of the dissertation. After 15 months for first time I feel I'm done... Yes, I finished! and there are some people that I need to say thanks for their incredible support and assistance in helping me to reach this part. My first words are for my beloved wife and beautiful kids. She helped me to start, continue and finish this dissertation, and my kids gave me the stamina and inspiration to continue until the end. I couldn't be more grateful to my parents, in-laws and brothers who were always supporting and encouraging me to finish what I started more than 4 years ago. I don't have enough words for Dr Katz, my mentor and advisor, the person who guided me in this process. He was the first person who told me "Let's do some good research" and now, only after two and a half years, we have published many articles together and I can see a very auspicious future in the "academia." I also have words for Dr Gibbs, who "polished" me and taught me how to write a paper, and for Dr Campbell and Dr Weber, who encouraged and refined me ideas. Hopefully this research will contribute to understand a little bit more how social media is changing the way we relate to and with others. Finally, I have to say that only consider this opportunity as an opportunity that Hashem gave me to bring more light to this world.

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Executive Summary

     This dissertation studies the affordances of social network sites (SNSs) that appear to amplify the participatory effects of news information and political talk on civic engagement. The dissertation also advances a theoretical model that incorporates key predictors of civic engagement, identified by previous research, that are strongly associated with social media use. These predictors include (1) the manner in which individuals acquire information from news media; (2) the social influence dynamics of content generation that emerge from users' discussions and peer-generated content; and (3) the subsequent cognitive involvement in processing that information. Drawing on the O-S-R-O-R (orientations-stimulus-reasoning-orientations-response) model of communication effects, and following a network perspective, it is argued that the ways SNSs facilitate access to news information and promote political discussion through integration of peer generated information, affect how people engage with others and process information. This, in turn, affects the traditional mediation of news consumption and political discussion on civic engagement. More specifically, since SNSs' underlying properties make the structure of political discussion more transparent and motivate media information seeking by contacts' notifications, this participatory dynamic should have a positive effect on collective efficacy, a personal-psychological mediator traditionally associated with civic engagement.

     By studying SNSs as a structure that facilitates simultaneous communication via both mass and interpersonal channels, and enhances collective efficacy as a result of political talk, this dissertation extends current theoretical models that consider political talk as a mediator of information consumption (Nisbet & Scheufele, 2004), able to trigger

a series of cognitive and expressive processes (Eveland, Shah, & Kwak, 2003) that activate participatory behaviors (Schefuele, 2000). To test the relationships between the variables identified in the proposed model, this dissertation relies on data collected from a survey of college students ($N = 808$) and on experiment with 151 students. Results from the survey indicate that whereas political discussion originated in SNSs has a stronger effect on civic participation compared to face-to-face and email conversation, collective efficacy partially mediates the association between interpersonal discussion and civic engagement. The theorized model performed better than an alternative structure in which civic engagement triggered information consumption and discussion between participants. This was further evidence in support of the proposed model. Concerning structural features in which political discussion occurs, it was found that network heterogeneity and discussion among weak ties moderate positively the effects on civic engagement.

In order to fully explicate the role of news consumption and discussion through social media in individuals' civic engagement, this dissertation seeks to establish an integrative structural model that also includes the effect of SNSs for passive information exchanges. These social platforms provide opportunities for users to be passively exposed to information and/or conversations transpiring in their networks through observation of their contacts' activity. Further, consistent with the idea that being exposed to political opinions and beliefs of peers may stimulate interest and knowledge (Lazarsfeld & Katz, 1955) the positive effect of news consumption and political discussion on civic engagement was found even in non-active information seekers and those exposed serendipitously to information.

To test in an experimental setting whether participation in SNSs, in the form of discussion about civic-related issues, has an impact on political collective efficacy, 151 students participated commenting on Facebook and YouTube accounts of the White House and other federal agencies during a two-week interval. The experiment confirmed that discussion in social media works as a catalyst for collective efficacy. This positive relationship was found to be stronger in Facebook than in YouTube, supporting the concept that formation of a networked public sphere is strongly affected by the type of audiences (contacts) in users' networks.

Chapter 1

Introduction

Scholars from various different traditions ranging from sociology to cognitive science have long sought to understand the conditions under which individuals are willing to participate and engage civically as members of communities (Bloom et al., 1956; Durkheim, 1995; Tocqueville, 1945). Yet across all these fields is the underlying assumption that when ties overlap in a community, leading individuals to be more integrated with each other (Putnam, 1995), community members will find themselves pulled into public life (Lin, 1999) and with increased civic engagement as the likely outcome (Verba, Schlozman, & Brady, 1995). Indeed, networks have historically been considered mechanisms for creating feelings of solidarity (Granovetter, 1982), which lead individuals to a deeper investment in public life (Wellman, 1979). Putnam (1995) also stresses the relevance of the "social trust" produced by these connections, which enables local participation, strengthens community relations, and simultaneously feeds a virtuous circle of civic engagement. Similarly, Coleman and Davis (1976) explain that networks function as a key that facilitates access to resources for individuals, a key that is not necessarily available in immediate circle of contacts, enabling involvement in civic affairs (Gil de Zuniga & Valenzuela, 2011; Kavanaugh, Reese, Carroll, & Rosson, 2005). In this sense, ties draw people into common interests and encourage public engagement (Jones, 2006); by contrast, lack of social networks and ties to the community discourages participation, making civic involvement more difficult (Huckfeldt & Sprague, 1995).

However, the relationship between community integration and civic engagement is not necessarily direct. Several scholars argue that it is mediated by communication (Katz et al., 2004; Mcleod et al., 1996; Scheufele, Nisbet, Brossard, & Nisbet, 2004; Shah, Cho, Eveland, &

Kwak, 2005), because it is through communication that citizens acquire information about issues and problems in the community and learn of opportunities and ways to participate (Katz & Rice, 2002; McLeod et al., 1996). Macleod et al. (1999) explain that while community integration supports the infrastructure for participating civically, mass media and interpersonal communication provide the knowledge and incentives to use the opportunities offered by the infrastructure. "If social networks or community ties fail to provide sufficient incentives or opportunities for civic participation, various forms of communication (e.g., civic journalism) can renew the links between individuals and their community or reveal alternative forms of participation" (p. 317). In fact, dissemination of political information through mass media has been traditionally considered to be a causative agent of public and civic participation (Chaffee, Jackson-Beeck, Durall, & Wilson, 1977), able to provide mobilization information (Norris, 1996), resources for political discussion (Shah et al., 2005), possibilities for exposure to conflicting viewpoints (Mutz, 2002), and more opportunities for audiences to reflect upon political and civic issues (Eveland, 2002).

Nevertheless, Putnam (2000), among others, (Mutz & Reeves, 2005; Patterson, 1993; Postmes, 1985; Robinson, 1975), claims the mobilization effect of media is limited, and that television and other entertainment media even deflect people from civic matters. Two main arguments have been given to explain this negative relationship. The first is based on the time displacement theory that situates media consumption and community-based activities at two ends of a continuum (McCombs, 1972). Putnam argues that given the limited amount of leisure time available to individuals, use of media constrains the different communicative activities they can engage in; therefore, consumption on the "entertainment side" has taken away from the resources allocated at the other end (Putnam, 2000). According to this first argument, media distracts

audiences through easy entertainment, keeping people at home and away from civic and community spaces. The second argument focuses on the effect that the sensational coverage of news has on audiences. It blames the journalistic tendency to emphasize conflict between political actors and negative visions about them, which in turn, fosters pessimistic evaluations of political actors and institutions (Gerbner, Gross, Morgan & Signorielli, 1980; Newton, 1999). Robinson (1975) coined the term ''videomalaise'' to explain how the search for bigger audiences has forced the media to dwell on dramatic news about scandals, conflicts, political incompetence and corruption, eroding confidence in democratic institutions and promoting a culture of cynicism about politics. Research explains that journalists engage in a number of routine practices that amplify the conflict-orientation of politics (Patterson, 1993) propagating incivility in political discourse, which has been associated with adverse effects on political trust (Mutz & Reeves, 2005).

In response to time displacement theory and the "videomalaise" claim, several scholars have criticized these findings. Hooghe (2002) and others (Newton, 1999; Norris, 1996) argue that the empirical evidence about the negative effects of media consumption has not been unequivocal: most studies do not reveal significant or strong effects and, more importantly, no indications of the time-replacement effect have been found at the individual level. Further, research has shown that consumption of television, the most criticized medium as an agent of alienation from civic life, can have positive effects (Shah, 1998; Graber, 2001). Television news has consistently explained a significant amount of candidate-issue knowledge (Zhao & Chaffee, 1995). Becker and Dunwoody (1982) concluded that television news use predicts knowledge of local elections, whereas Culbertson and Stempel (1986) found that when audiences focus on news programs, television use is positively correlated with the number of arguments voters can

recall on an issue. Shah (1998) showed that even other types of television content, such as social dramas, allow viewers to understand community problems in personal terms, fostering increased reflection about civic life. These conflicting findings have led proponents of more psychological perspectives of media effects to argue that it is not the time spent with the medium, but rather what audiences consume that makes the difference (Gil de Zúñiga & Rojas, 2010; Norris, 1996; Shah, Kwak, & Holbert, 2001). Thus, while amusement and entertainment programs may have negative effects on participatory behaviors, a more positive outcome is expected from informational uses of media, such as news consumption (Norris, 1996).

Given the nature of the debate between media optimists and media pessimists, and the different traditions involved in the discussion, whether and how media consumption ultimately affects civic engagement probably remains an open empirical question. However, the same cannot be said about the effects of another key communication channel: citizens' discussion networks (Gil de Zuniga & Valenzuela, 2011). As noted below, scholars agree that social networks help maintain and promote an active citizenry (e.g., Huckfeldt & Sprague, 1995; Lazarsfeld, Berelson, & Gaudet, 1944; Weimann, 1994). Studies from different disciplines have shown that individual-level variables alone are insufficient for explaining political behavior, and that interactions within and across different types of community settings can be important catalysts for civic action (Scheufele, Nisbet, Brossard, & Nisbet, 2004). Research has consistently found a positive relationship between the size of the network in which individuals discuss civic matters and their participatory behaviors (Eveland & Hively, 2009; Huckfeldt, Mendez, & Osborn, 2004; McLeod et al., 1999; Moy & Gastil, 2006). Researchers explain that as network size increases, the probability of interaction on the part of network participants with sources of new information grows, since it is also more likely to encounter a higher number of

politically active individuals. Similarly, McLeod et al. (1999) argue that larger networks are more likely to stimulate discussion, since on a larger network people have more possibilities of finding individuals with whom they share interests and feel comfortable interacting.

The significance of political talk within networks and its influence on political and civic engagement has also been found with Internet use (Cho et al, 2009; Shah et al., 2007), and the relevant literature concludes that particular motives (i.e., informational usage; Shah, Kwak, & Holbert, 2001) and forms (e.g., email; Shah et al., 2005) of Internet use do lead to increased interpersonal communication about political issues (Sotirovic & McLeod, 2001), which in turn spurs civic engagement (Scheufele, Nisbet, Brossard & Nisbet, 2004) and increases political knowledge (Eveland, Hayes, Shah, & Kwak, 2005), self-efficacy (Jun, Kim, & Gil de Zúñiga, 2011), and political participation (Kwak et al., 2005). These participatory effects are relevant today, given the emerging social media and other user-driven platforms that rely on interactive information-sharing, user-generated content, user-centered design, and collaboration. The capabilities of horizontal interpersonal communication highly embedded in these Web 2.0-based applications, which facilitate citizens' abilities to rebroadcast content (e.g., news) by adding personal commentaries, enhance the capacity for discussion, engagement, and promotion of a "two-step flow" of information (DiMaggio, Hargittai, Neuman, & Robinson, 2001; Katz & Rice, 2002).

Objectives of this dissertation

This dissertation studies the affordances of Social Network Sites (SNSs) to amplify and propagate the effects of news information and political discussion in cognitive processes – i.e. an individual sense of collective efficacy- that ultimately will activate behavioral outcomes –i.e. undertaking an act of civic engagement. This assessment proceeds by pursuing three goals. The

first is to advance a theoretical model that incorporates key predictors of civic engagement which are strongly associated with social media use: the manner of reception by which individuals acquire information from news media; the influence of content generation that emerges from users' discussions and peer-generated content; and the subsequent cognitive involvement in processing that information. Drawing on the O-S-R-O-R (orientations-stimulus-reasoning-orientations-response) model of communication effects (McLeod et al., 1999) and following a network perspective, this study argues that the ways in which SNSs facilitate access to news information and promote political discussion by integrating peer-generated information influence how people engage with others and process information. This ultimately affects the traditional mediation of news consumption and political discussion on participatory outcomes. More specifically, the dissertation proposes a model in which: communication behaviors (i.e., news media use and discussion about public affairs) mediate the effects of socio-demographic variables (i.e., income, education, age, gender, and race) and political dispositions (i.e., political interest, strengths of political views) on participatory behaviors (civic participation). The proposed model also controls for structural features within which the political discussion occurs, such as frequency, types of ties and network heterogeneity.

The second goal is to explore whether users who are serendipitously exposed to political information through their networks would represent a net gain in terms of civic engagement. Scholars have studied the effects of news on political knowledge in passive audiences (Krugman & Hartley, 1970), and although they suggest that these audiences do not display the same political interest as the active ones (Zhao & Chaffee, 1995), several studies have found that even unmotivated exposure to news can produce learning (Graber, 1988; Keeter & Wilson, 1986). As will be discussed in greater detail later, SNSs afford opportunities of "pervasive awareness,"

whereby individuals are regularly broadcasting and receiving news stories from their contacts. One possible "participatory" ramification of this new social environment is related to the fact that although users might not be interested in consuming political information, they may be exposed to news shared by their contacts or tempted to reply to comments posted by them, participating indirectly in news threads initiated by news media but "mediated" by their networks. In fact, studies about political campaigns on SNSs have shown that users do not necessarily search for political information, but rather find it while they go online for other purposes (Kohut,2008), especially when they connect to SNSs such as Facebook (Utz, 2009). On the other hand, research has related lower civic engagement levels with the lack of accidental exposure to political information (Prior, 2007). Cable television and the Internet have increased media choice to such high levels that the likelihood of "chance encounters" with any political content has declined significantly (Baum & Kernell, 1999; Prior, 2005), allowing users to "filter" content and be exposed only to what they want (Sunstein, 2001). Therefore, given that the underlying "social nature" of Web 2.0-based applications challenges this selective exposure, a "serendipitous information" scale was developed in order to compare the effects of news exposition on participatory behaviors in active and passive information seekers.

The third goal of this study is to test in an experimental setting whether participation in SNSs -in the form of discussion about civic related issues- has an impact on political efficacy. This sense of being able to act effectively has been extensively documented in previous research as a main psychological variable that can explain citizens' participation and political attitudes (Niemi, Craig & Mattei, 1991). Proponents of citizen deliberation theories argue that it is through discussion that citizens can receive confirmation of their views and feel more confident in expressing their ideas; this increases their self-efficacy in political issues and they

consequently tend to feel more capable of dealing with civic affairs (Gastil, Deess & Weiser, 2002). Relying on the normative theory of political discussion and the influence that user-generated content has on psychological empowerment factors, this dissertation analyzes the phenomenon of holding visible discussions via social media and their effect on participants' sense of political efficacy. Additionally, based on the notion that one's awareness of an audience, or sense of ''publicness'' augments the effect of self-presentation on identity (Gonzales & Hancock, 2008; Schlenker et al., 1994), it is expected that discussants shift their identities to become more consistent with the publicly-adopted online behavior. This may lead participants to internalize this civic attitude when they realize that thousands of users may follow their posts and ideas. For that purpose, a between-participants experiment was designed to test the proposed outcomes, in which 151 participants commented during two weeks on the White House's and several other federal agencies' Facebook and YouTube accounts.

Relevance of the study

A deeper understanding of how the young population is consuming political information and discussing it with their networks on social media sites is justified on both theoretical and practical grounds. From a communication perspective this is important since the growing number of services whose content is primarily user-driven (e.g. blogs, social network sites, micro-blogs and digital media sharing formats) is changing the manner of reception by which individuals acquire and discuss information. Although social media users may not be interested in following news, they may "encounter" political information through comments made by their friends or simple invitations to read an article. The juxtaposition of institutional and peer information sources may in fact change the information processing and social influence dynamics among these sources (Walther, DeAndrea, Kim & Anthony, 2010). Scholars have argued that new

analytics and paradigmatic frameworks able to integrate mass and interpersonal communication approaches are needed to understand how the interposition of traditional media with content generated by peers may affect the quality and quantity of information exchanged and influence personal behaviors and attitudes (Caplan, 2001; Price & Cappella, 2002; Walther et al., 2011). Boyd (2011) and others (Castells, 2007; Friedland, Hoves, & Rojas, 2006) have suggested new conceptualizations to consider the individuals' networks as a type of public forum or audience (boyd, 2011), and based on the influence that the visibility of these connections may have on users, analyze how they affect perception and interpretation of political messages. This dissertation continues this line of inquiry by examining: how interpersonal contacts motivate media information seeking; the dynamics of the content generation that emerges from users' discussions; and the subsequent cognitive involvement in processing that information.

Similarly, the precedency of peers' comments on information that is broadcast by media may not only generate a higher interest in the content of news, but also trigger democratic and participatory behaviors. For deliberative theorists, political deliberation can have a transformational influence on citizens, since they discover legitimate solutions to political problems only by engaging in sustained, reflective discourse (Chadwick, 2008). From a normative perspective, democratic theory assumes that through discussions, members of society can clarify their views, understand the opinions of others, improve ideas, and foster civic engagement (Dunkan & Lukes, 1963; Gutmann & Thompson, 2004; Price & Capella, 2002). As Finkel (1985) and Gastil et al., (2002) point out, it is through deliberation that political participation is made possible. On the one hand, when citizens engage in political debate, they develop more civic attitudes and motivations that enable deeper engagement in political affairs. But also by promoting debate, citizens sort out conflicting preferences for action through

discussions, affecting the practices and policies of their leaders and ultimately ensuring a democratic process of governance (Stromer-Galley & Wichowsky, 2010). Consequently, if users share news stories and discuss this information in a Web 2.0 environment, more political expressions may be triggered, leading young people to civically engage through public discussion in social media.

There are also practical advantages to studying the effects that news consumption and political discussion in social media may have on participatory behaviors. A better understanding of why users share information and discuss specific topics may help news sites to forge connections with communities of users instead of focusing on particular individuals to promote their content. Similarly, in Web 2.0-based environments, journalists may prefer to target more informed groups or opinion leaders in order to get comments from them and add value to the original information. In this way, the original news may gain not only quality but also reputation and significance, since comments by opinion leaders may also be used as endorsement or to gain insights. Politically-oriented groups that are using social media as deliberative spaces to discuss and encourage civic participation could gain a better understanding of the role that information consumption has in increased information exchange among participants. This is turn, could help leaders to foster norms of reciprocity and trust with their audiences, creating more opportunities for civic engagement (Gil de Zuniga, Jun & Valenzuela, 2012). Further, the use of these social media applications by federal agencies has become a growing phenomenon (Norton & Citron, 2010). Therefore, for government agencies that rely on networked technologies to communicate and engage with the public, conversations among audiences may contribute to a better understanding of the information broadcast by them and help their audiences to make sense of what they are informed about.

From a civic perspective, this dissertation is also relevant. Research has consistently shown that young adults are more disengaged from politics than adults (Bauerlein, 2008; Wattenberg, 2007), and they also have lagged behind older Americans in terms of registration, voting, and most other forms of political involvement (Keeter et al., 2002; Pasek et al., 2006). Their media habits are also different: adults are much more likely to read a newspaper, tune in to traditional evening television news, or listen to news on the radio than are younger adults (Baumgartner & Morris, 2010). This reality contrasts with the fact that the vast majority of American youth are relying less on traditional news media and more on online media for political information (Kohut, 2008). After the 2008 election, political actors consolidated the use of SNSs for their campaigns: all major party candidates used social media during the 2008 campaign (Hayes, 2008), while some began their use even in the 2006 midterm election (Gueorguieva, 2008), redefining how young adults are learning about civic participation and politics (Hargittai & Hinnant, 2008; Smith & Rainie, 2008). A study by the Pew Internet and American Life Project showed that during the 2008 election, 65% of SNS users aged 18–29 years engaged in at least one of five political activities through SNSs during the 2008 campaign, such as joining a political group on the site or obtaining information about a candidate (Smith, 2009). Although much of their involvement is entertainment-oriented, Smith and Rainie (2008) found that these younger citizens were significantly more likely than their elders to watch political video clips online, use SNSs for political purposes, and express opinions in online forums.

Further, although it is possible to argue that social media attracts only those who are already politically active, research has shown that SNSs are presenting a new way to engage young audiences (Vitak et al., 2011) by getting them involved in politics on their own terms

(Zhang, Johnson, Seltzer, & Bichard, 2009). As will be explained below, even though young adults may not be interested in politics, they may be exposed to news shared by their contacts, or tempted to reply to comments posted by them, getting political information through their online network of friends and acquaintances, which, in turn, may generate political interest. In fact, research has shown that most young people (65%) come across news online casually or accidentally in the midst of other pursuits. In contrast, a majority of Internet users over 30 years of age (55%) actively seek out their news (Patterson, 2007). Alternatively, greater interest may be generated by the sense of empowerment that users feel interacting with these sites when they contribute content to the sites or share the information with others (Leung, 2009). Therefore, there is a need to clarify the dynamics involved in the informational use of social media applications (e.g., news sharing), and specifically the affordances of SNSs to amplify the participatory effects of political talk on civic engagement.

Moreover, one of the main debates among scholars about the role of the Internet is whether it contributes to or harms the normative goals of plurality and diversity embodied in the concept of ''deliberative democracy'' (Brundidge, 2010; Mutz, 2002; Sustein, 2001; Wojcieszak & Mutz, 2009). Researchers have debated whether the new online opportunities afforded by the Internet are facilitating higher exposure to diverse viewpoints and "cross-cutting" political views, or to more homogeneous contacts. Although research indicates that political discussions among like-minded people might strengthen individuals' attitudes toward a range of political issues (Fiorina & Levendusky, 2006) and contribute to voting along party lines (Cho, 2005) reinforcing existing political dispositions (Walsh, 2006), several authors warn that exposition to like-minded perspectives may lead to the fragmentation of public opinion and an increasingly polarized citizenry, to the detriment of democracy (Huckfeldt et al., 2004; Stroud, 2008; Sunstein, 2001).

The fragmentation thesis argues that users' increased control over communication online is augmenting their preference to expose themselves to like-minded others, avoiding political difference and ignoring opinion-challenging information, which makes Internet users less likely to be tolerant of challenging viewpoints. This dissertation extends the debate to SNSs, exploring whether the affordances these tools provide give users more opportunities to be exposed to a greater variety of political viewpoints.

Organization

Following the introduction, this dissertation is organized into six chapters. Chapter 2 introduces the O-S-R-O-R (orientations-stimulus-reasoning-orientations-response) model of communication effects and analyzes affordances present in SNSs that amplify and propagate the news and political discussion. More specifically, chapter two explains which SNSs properties make political discussion more transparent and help share media information through contacts' notifications, and how this participatory dynamic has a positive effect on collective efficacy, a personal-psychological mediator traditionally associated with democratic indicators. Additionally, the chapter presents the participatory effects that news consumption has on users who are serendipitously exposed to political information by their networks. Drawing on the concepts of selective exposure and evidence that SNS participation provides a new setting for tie formation (Steinfield, Ellison & Lampe, 2008) and maintenance of larger networks (Ellison, Steinfield, & Lampe, 2011), the chapter argues why SNSs may be providing increased exposure to diverse political views and the possible impact for participatory behaviors.

Chapter three describes the methods used to collect the data, gives an overview of the data set, and explains the conceptualization and operationalization of the main variables. Chapter four presents the results of the statistical analysis, as well as a brief discussion about the main

implications of the findings. Chapter five describes the experiment in which 155 participants commented during two weeks on the White House accounts (and those of several other federal agencies) on Facebook and YouTube. It starts exploring the differences between these two channels and then discusses possible participatory outcomes based on social presence and cognitive involvement frameworks. Chapter six describes the methods used to collect and analyze the data of the experiment, and presents the results of the statistical analysis, as well as a brief discussion about the main implications of the findings. After presenting the main findings of the experiment, chapter seven concludes with a more general discussion of the dissertation, concluding with the idea behind the new "networked public sphere" and the positive effect that users' networks has on engagement.

Chapter 2

Literature Review

Social network sites: A definition and brief overview

Over the last three election cycles, the use of the Internet to obtain political information has grown consistently (Robertson, Vatrapu, & Medina, 2010). Forty percent of all Americans went to the Internet to get news about the 2008 campaign (Smith & Raine, 2008), whereas 39% of Internet users "dug into unfiltered" campaign material, such as candidate debates, position papers and speech transcripts in the last election (Fox, 2008). Scholars emphasize the Internet's provision of immediate information, availability of diverse viewpoints, ability to customize content and to find more detailed data as the main aspects of why there is high preference for this medium when it comes to political information (Shah, Cho, Eveland, & Kwak, 2005). However, the new online environment, heavily based on Web 2.0 applications, not only opened opportunities for citizens to get more customized news and learn about events in a timely manner. It also has made information consumption a user-centered process that relies on interactive information-sharing platforms. With the arrival of new personal broadcasting technologies, the traditional sender-receiver model of communication developed for mass media was altered, allowing users to become content generators rather than just consumers (Sundar, 2008). As Rheingold (2008) noted: "Whatever else might be said of young adult bloggers, dorm-room video producers, or the millions who maintain pages on social network services like MySpace and Facebook, it cannot be said that they are passive media consumers" (p. 97).

Within this new user-centered atmosphere, social network sites (SNSs) have become a growing phenomenon. Traditionally defined as web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other

users with whom they share a connection, and (3) view their list of connections and those made by others within the system (boyd & Ellison, 2007), SNSs' popularity is on a constant rise. By late 2008, MySpace and Facebook each had 60 million users and accounted for 6%-8% of all time spent online (Smith, 2009), whereas in March 2012 Facebook reported more than 835 million users (Facebook, 2012). Similarly, LinkedIn, a website catering to professional workers, quadrupled its size to more than 25 million members in one year (Lafayette, 2008) and by March 2012, it reached 161 million users (LinkedIn, 2012). Twitter recently celebrated its sixth birthday and proclaimed a total of 140 million users and more than 340 million tweets per day (Twitter, 2012); whereas YouTube announced that over 4 billion videos were viewed per day and had more than 800 million users per month (YouTube, 2012).

Literature grounded in human computer interaction and communication disciplines has recognized four unique elements of this new set of web applications (boyd & Ellison 2007; Lerman, 2007b; Sundar, 2008). First, with the arrival of new personal broadcasting technologies, the traditional sender-receiver model of communication developed for mass media was altered, allowing users not only to be considered audiences, but also to become active "senders" and content-generators (Sundar, 2008). Rettberg (2009) differentiates SNSs from previous web applications in terms of the abilities afforded by these platforms to interchange information and develop complex narrative structures out of simple pre-determined templates, in which users only have to upload their photos, videos, texts, data, or simply fill in the information required by the system, and seemingly by magic, a well-constructed page appears. YouTube, the most popular video-sharing portal, exemplifies this feature. Through this system's users not only can watch, download, upload, and share high-quality videos anytime, anywhere through friendly mechanisms, they also can use these interactive systems to respond and make comments on what

others have said. Currently, there are thousands of conversations around a piece of media, where users comment on the media itself as well as on other users' comments. Manovich (2009) argues that these conversations have found an ideal place in the Web infrastructure, since software allows such conversations to become distributed in space and time, where people can make comments regardless of their location, and the conversation can theoretically be endless. As several authors have claimed, social media has allowed individuals, for the first time in human history, to make their personal thoughts, reactions, and opinions easily accessible to the global community of Internet users (Castells, 2007; Dellarocas, 2003).

Second, in these social network platforms, users not only create content, they also categorize collectively the information present on the Web (Golder & Hubberman, 2006), which gives users the capability to tag all types of data and to annotate relevant information for future retrieval. The categorization and classification features that these social platforms offer are perhaps of equal or greater importance than the content generated by their users, since the tagging features allow them not only to create content, but also to control how they organize it (Mathes, 2004). By marking content with descriptive terms (also called keywords or tags), users are creating metadata about documents, books, articles, or photographs that can facilitate organization entries and access of information for other users as well (Mathes, 2004). It is important to note that each platform has different mechanisms for tagging information. Unlike tagging in Flickr or de.licio.us for instance, where users employ descriptive terms like "sunset" or "vacations" to share semantic annotations within a community, tagging in Facebook is the linking of a face in a photo or a public status update with a registered user (Burke, Marlow & Lento, 2009). For participatory purposes, the singling-out feature afforded by Facebook is relevant because "tagging" others highlights particular actions, making them not only visible to

the "tagged" users but also to their entire network. In this way, common annotations, collective classifications and social-tagging systems demonstrate one of the most important aspects of these platforms: SNSs are not only about information exchange, but also about how users in communities or networks process the information in a social way (Lerman, 2007a).

Third, users of SNSs are constantly evaluating content. Although social tagging systems can help to organize the content generated by millions of users per day and to search more efficiently for data, the problem in the social media era is not only how to categorize information, but rather how users can swiftly move through very large sets of data and select the pieces which are relevant for them (Hanani, Shapira, & Shoval, 2001). Interestingly, social media platforms allow users to evaluate content in two different ways: actively, by making comments (e.g. reviewing the service of a new restaurant) or ranking more specific information (e.g. the quality of a certain item), and passively, by tracking how users interact with the content offered in the platform (Web-browsing patterns). Information-filtering systems, for instance, can learn a user's profile automatically by monitoring his or her regular web-browsing activities and recognizing patterns in the material that users discover. Once the system identifies a certain profile, text documents are filtered by comparing the user's patterns with the document's profile, employing a pattern-supported similarity metric (de Vel & Nesbitt, 1998). Online retailers such as Amazon use the personal information collected, such as the user's history of purchases, click-stream data and/or demographic information, and then recommend different items, tailoring the product to the user's specific needs (Adomavicius & Tuzhilin, 2005). Similarly, YouTube offers videos that may be of interest to individuals, and Facebook matches people with similar interests and then makes recommendations to other members on this basis. Auto-generated indicators of information, often based on users' traffic (e.g. counters on home pages indicating the number of

visitors), could be seen as one of the most relevant indicators introduced by this social web for making credibility and quality judgments about the underlying content (Sundar, 2008). Social-networking sites such as Facebook automatically indicate the number of contacts in any given person's network, whereas all the videos on YouTube indicate the number of viewers.

Fourth, users also have the ability through these new applications to form social networks by creating a profile within a bounded system and designating other users with similar interests as contacts, followers, fans, viewers, or friends (boyd & Ellison, 2007). Skeels & Gruding (2009) argue that the modern era of SNSs is the result of mixed factors that converged simultaneously: Instant Messaging applications, commercial phone-based text messaging, text-messaging web portals, and, specifically, two web services – Classmates.com and Six Degrees – were the bases upon which SNSs were built. Skeels and Gruding explain that messaging applications popularized the buddy lists and quasi-real-time communication, while mobile-phone use and text-messaging expanded the consumer space, notably to young consumers. One of the main differences with virtual communities is that in SNSs users have their own group of contacts, which can be added to their profile by sending requests for "friendship" to them. When the other party agrees to it, the relationship is displayed in the network of friends (Ultz, 2010). By contrast, in other SNSs, such as Twitter, reciprocity is not necessary: top users by the number of followers are mostly celebrities and they do not follow their followers back. Sixty-seven point six percent of users, for example, are not followed by any of their followings, and only 22.1% have reciprocal relationships with them (Kwak, Lee, Park & Moon, 2010).

Finally, it is important to note that reviewing the literature in this area, several authors have referred to these platforms as social networking sites and not social network sites (Barnes, 2006; Dwyer, Hiltz, & Passerini, 2007; Livingstone, 2008). This difference in terminology can

be tricky since "networking" emphasizes relationship initiation, often between strangers (boyd & Ellison, 2007). While networking is possible on these sites, research has noted that this practice is not the primary use on many of them (Ellison et al., 2007; Steinfield et al., 2008; Valenzuela, Park, & Kee, 2009). More than 90% of Facebook users, for instance, employ this social network to simply stay in touch with distant friends or stay abreast of their activities, but not to initiate new relationships with people they do not previously know (Ellison et al., 2007). In fact, studies have indicated that rather than make new connections, users spent time trying to find out more about people that they have met offline, and to maintain or re-connect with longtime acquaintances, such as high school friends (Lampe, Ellison, & Steinfield, 2006; Joinson, 2009). Therefore, to avoid confusion associated with "networking" and unintended connotations associated with relationship initiation, following boyd and Ellison (2007) this study uses the term "social network sites" (SNSs).

Given the importance that SNSs play in this new user-centered environment, this dissertation studies the affordances of SNSs to amplify and spread news information and political discussion on participatory behaviors. More specifically, it advances the theoretical O-S-R-O-R (Orientation-Stimulus-Reasoning-Orientation-Response) framework on communication effects proposed by Shah et al. (2007) and then supported by Cho et al. (2009) and Jun et al. (2011) incorporating collective efficacy (2nd orientation) as a mediator between political discussion (reasoning) and participation (response). Furthermore, the model considers three characteristics highly embedded in SNSs that are able to affect the traditional mediation of news consumption and political discussion on participatory outcomes. The first one is related to the form by which individuals acquire information from news media: users today are "network-informed" by their lists of contacts and acquire most of the information from news media

through these networks. Secondly, SNSs integrate peer generated information with the original message broadcasted by the media and by making the political discussion translucent, the platform for debate facilitates the formation of a networked public sphere. And third, in this networked public sphere, peer-generated comments precede the information broadcasted by media; this has a direct influence on how users process the information and get involved cognitively.

Mediated communication and civic engagement

Two main approaches have traditionally dominated the communication literature in its attempts to explain the determinants of political participation and civic engagement (Cohen, Vigoda, & Samorly, 2001). Following the sociological approach, several scholars have relied on the "standard socioeconomic status model", first proposed by Almond and Verba (1963) and then developed by Verba and Nie (1972), which emphasizes the role of socioeconomic status (SES) and explains that participation is primarily driven by individuals' resources and culture (e.g. time, money, skills, values). The rationale is that citizens with high SES are located in social environments that enforce participatory norms as well as civic skills, which encourages them to participate more in politics (Brady, Verba, & Schlozman, 1995). According to this model, individuals' decisions to participate would be a reflection of the resources accumulated through the individual's life cycle (Verba et al., 1995), whereby high-status individuals accumulate both skills and attitudes that predispose them toward political activity (Leighley, 1995). Actually, nearly all empirical studies of political participation that follow this model have found that individuals with more resources (high SES) show more knowledge about politics, efficacy in dealing with public affairs issues, and willingness to engage in participatory activities (Brady et al., 1995; Cohen et al., 2001).

Relevant for the discussion is the fact that, as will be explained below, several scholars have suggested that the SES-participation link is mediated by a number of communication related variables such as news consumption (e.g., McLeod et al., 1999; Scheufele & Shah, 2000). Informational variables have been found to mediate the SES-participation link, indicating that demographic variables work through newspaper reading and television news viewing, as well as other variables, to influence involvement in participatory activities (McLeod et al., 1999; Scheufele & Shah, 2000). Research has explained public affairs information-seeking in general, and use of newspapers in particular, as a consequence of generalized interest in political life (e.g., McLeod et al., 1996, 1999). Thus, political interest would serve as a catalyst, focusing greater attention on news media and would encourage other forms of political information consumption, which in turn would lead to more participatory behaviors.

This mediated communicational perspective, as will be developed below, is grounded in the psychologically oriented approach (e.g. Abramson, 1983; Campbell, Converse, Miller, & Stokes, 1960; Cohen et al., 2001), which focuses on personal attitude as a variable determinant of political participation. Party identification, political efficacy, and political trust have been some of these psychological mediators most frequently analyzed since the 1950s (Sabucedo & Kramer, 1991). For example, Campbell et al. (1960) found that party identification was a strong predictor of civic engagement: individuals with a strong party identification were more likely to engage in political behavior and support the advocated party than those with weaker party attachments. In another classic study, Converse (1972) associated the lower levels of political engagement during 1960 through 1968 to the steady decline in political efficacy, the individual's feeling of being able to have an impact upon the political process. Similarly, Miller (1974) studied the effects of political trust in civic behaviors and found a positive relationship between

the lack of trust in the political system and declining levels in political engagement. Interestingly, the previous studies concluded that these psychological mediators were statistically significant despite large, overall increases in the population's education and income. This led scholars to suggest that SES does not directly affect political participatory behaviors, but rather has an impact on civic orientations and participatory attitudes (e.g. political efficacy, political knowledge), which in turn affect civic engagement (Cohen et al., 2001).

Furthermore, researchers have found that these political orientations also vary with an individual's demographic characteristics and the strength of his or her political disposition. Reviewing research that demonstrates the positive relationship between SES and political orientations, Phares (1976) showed that people with a lower SES present low self-esteem, whereas higher SES is positively related to higher levels of political efficacy (Leftcourt, 1976). Jung (2010) also reviewed several studies that show how gender (male), race (Caucasian), and education (college degrees) augment the likelihood that individuals are informed, interested, and feel efficacious about politics (Delli Carpini & Keeter, 1996; Verba et al., 1995; Wolfinger & Rosenstone, 1980). This line of research argues that the environmental stimulus (SES) and psychological variables (personal predispositions) are not competing concepts in terms of explaining participatory behaviors, but instead serve as useful mechanisms for clarifying how those preexisting variables influence political engagement (Cohen et al., 2001; Jung, 2010). Explaining why education and social class affect individual participation in collective action, Paulsen (1991) theorized that the way school reinforces the family socialization of class position produces a sense of political efficacy. This encourages subsequent activism among students who are from families with moderate to high levels of socioeconomic status.

Following a similar line of research, scholars have suggested that communication behaviors (information dissemination, media or interpersonal forms of communication) largely mediate the effects of demographic, dispositional, and social structural factors on cognitive and participatory outcomes (Sotirovic & McLeod, 2001; see more recently Shah et al., 2007 or Cho et al. 2009). The communication mediation model illustrates how the field of communication moved beyond the simple stimulus–response (S–R) perspectives of direct and universal effects (Katz & Lazarsfeld, 1955) to a more process-oriented perspective (McLeod et al., 2001) where communication's influence is still strong (Nisbet & Scheufele, 2004), but is itself indirect (Eveland, 2000), shaping participatory behaviors through its effects on discussion about public affairs (Shah et al., 2005). The model is an extension of Markus and Zajonc's (1985) O-S-O-R models, where a given stimulus (S), or message, and response (R) are shaped by audience member orientation (O). The first orientation refers to "the set of structural, cultural, cognitive, and motivational characteristics the audience brings to the reception situation that affect the impact of the messages" (McLeod et al., 1999). The second "O" represents the orientation change that takes place between the time frame of receiving a message and acting on it. While the model draws attention to the ways in which various user dispositions mediate the effects of news consumption on civic and political involvement, Shah et al. (2007) provide evidence of an added layer of mediation between the stimulus and the subsequent orientation. The additional (R), or reasoning, refers to the role of intra- and interpersonal sense-making, which takes place through political discussion with others. They note that today's new media environment yields heightened opportunities for reasoning with and through others, boosting the salience of this aspect of media processes and effects.

This dissertation utilizes the expanded O-S-R-O-R as a framework to test the structure of mediational relationships among information consumption, political discussion, and civic participation in the new social media environment. Further, it presents an integrative model that theorizes relationships among news consumption and political talk in social media, taking into account the antecedents and mediators of the influence that news consumption and political talk have on civic engagement. For that purpose, the theorized model considers:

a) The resource approach (Verba et al., 1995) by controlling for the role that socioeconomic status (SES) may have on users;

b) The priming effects of news presented in the agenda-setting theory, by considering the fact that news exposure prompts further elaborative thinking on those issues;

c) The cognitive mediation model (Eveland, 2001; 2004), by integrating the impact that elaboration in news media has on political outcomes;

d) And it also follows a network perspective by considering in the analysis the structure in which political discussion occurs and how participants are included in the conversations.

Networked public as audiences

For democratic theorists, a good citizen is an informed citizen (Dahl, 1989). As many studies suggest, people rely on news media for inspecting government performance, acquiring political information, and understanding the political world (Chaffee et al., 1977; DelliCarpini, 2004; McCombs, 2004). Following a normative perspective, scholars have traditionally distinguished the importance of media for providing information that enables citizens to make informed decisions about candidates, politicians, and issues (Schultz, 1998). Based on rational theories of behavior in which the cost of information is an important factor shaping actors' political strategies (Downs, 1957; Schumpeter, 1947), behaviorists assume that the lower the cost

and the higher the accessibility of political information, the higher the aggregate level of citizen

engagement will be (Bimber, 2001). Consistent with this instrumental perspective, research has

found that dissemination of political information through mass media is positively related to

political and civic participation (Chaffee et al., 1977). And even though there are some voices

that have proclaimed about the limitations of the mobilization effect of media (Putnam, 2000;

Patterson, 1993; Postmes, 1985; Robinson, 1975), scholars in general agree that the information

acquired increases individuals' political knowledge (Eveland, 2004), leading people to discuss

social issues with others (Shah et al., 2005), develop political perceptions (e.g., Neuman, Just, &

Crigler, 1992), and form attitudes (Scheufele, 2000).

　　　With the advent of Web 2.0-based applications, news media now facilitates content

access (news) via invitations made by the audiences. In fact, users today do not need to visit a

news media or a political website to access information, but rather they may also be "invited" by

their contacts to gain access to that information in their own SNSs. This means that although the

interaction between the media and its audiences still has a vertical direction (as a channel of

unidirectional mass communication), the capabilities for horizontal communication embedded in

these social applications allow users to rebroadcast the content (e.g., news) and "share" the

information with others. Further, based on rational theories of behavior, it may be argued that

compared to other channels, social media's accessibility for information consumption (e.g. news

sharing with only one click or being notified by contacts), combined with lower costs for

dialogue initiation (e.g. co-presence is not needed and networks are potentially "available" to be

reached 24/7), may facilitate news consumption and political discussion. Verba et al. (1995)

explain that when the barriers for participation are high, only the most interested individuals

engage civically.

Similarly, Bimber (2001) argues that the cost and accessibility of political information are related to citizens' level of engagement: the lower the cost and higher the accessibility of political information, the higher the aggregate level of citizen engagement. In this case, the cost of information is a relevant factor able to shape actors' political strategies, a fact which supports theories of behavior that posit that citizens are engaged in purposeful searches for information as a precursor to political behavior, and it is also resonant with behavioral political science theories in which easier access to information is able to positively affect participation (Bimber, 2001). This perspective is grounded in the assumption that any behavior previously believed to be avoided because of cost concerns (such as gathering information, voting, or joining an association) then becomes more likely under the new informative conditions offered by the Internet, with low –or actually no cost- communication (Xenos & Moy, 2007). Moreover, scholars have referred to the Internet's ability to facilitate citizens' capacity to obtain political information and to stimulate political discussion among them through mediating political organizations, directing government web sites, and sharing information, vis-à -vis email, Listservs and chat rooms (Weber, Loumakis, & Bergman, 2003).

In fact, research shows that these participatory possibilities afforded by social media are encouraging and empowering average people to share their voices (Katz & Rice, 2002; Leung, 2009). More than a third of American Internet users are contributing to the creation and/or dissemination of news via their social media channels (Rainie, Purcell, & Smith, 2011), and a significant portion of users choose their news sources based on whether they can "share" the site's content with others. Rainie et al. (2011) reported that 44% of online news consumers only visit news sites if they can share the content, which implies that a substantial number of users have become involved with sources of news, thus further mediating the relationship between the

original source and other consumers. Moreover, users in SNSs do not necessarily have to be personally "invited" by others to access information broadcasted by news media. Members within a person's network on Facebook, for example, are automatically notified of that material when their contacts make a comment, simply "like" a news story, or consume any other information. Similarly, when users visit news websites that have integrated Facebook in their platform such as CNN.com, users can see which news stories have been read and evaluated by their contacts and other users. As Hampton, Lee and Her (2011) suggest, Web 2.0-based applications such as the "status update" offered by many social networking services, afford opportunities for "pervasive awareness," whereby individuals are regularly broadcasting and receiving information from their networks.

Consequently, based on the idea that it is through media that citizens acquire information about issues and learn of opportunities to participate, and secondly, based on the research that has found dissemination of political information through mass media being positively related to political and civic participation, it is expected that individuals who consume more political news also will present higher levels of civic engagement. Similarly, drawing from rational theories of behavior, it is also expected that lower costs of political information and higher levels of accessibility to that information will lead users to consume more political information. Since social media facilitates access to news information by contact notifications and horizontal communication, it is anticipated that social media users will have higher exposure to news content than do those who rely on offline and traditional online media. Thus, it is expected:

H1a: Consumption of news in social media will be positively related to time spent on social media.

H1b: Consumption of news in social media will be positively related to civic participation.

Additionally, since users in SNSs receive news stories from their networks without necessarily being exposed (directly) to the original content, or consume information through social news aggregators such as Digg, where the audiences decide and rate which stories should be promoted to the front page, users might be socially influenced by their networks and process the information differently. More specifically, research has shown that when other users are attributed as the source of online news, audiences like the stories more and perceive higher quality in them than when they are exposed directly to the news (Sundar & Nass, 2001). Similarly, Knobloch-Westerwick et al. (2005) found that users pick more articles if news portals feature explicit recommendations from other users. The strength of these recommendations was a strong predictor of the time exposed to the article. These findings are consistent with the "bandwagon effect", suggesting that how others react to a message is used as a heuristic by individuals to judge the same message (Axsom, Yates, & Chaiken, 1987).

This aspect is relevant because, in contrast to broadcast and more traditional online media, "social feedback" mechanisms such as audience ratings (e.g. "likes" or "thumbs-up"), recommender systems (e.g. invitations to consume news based on similarities with other users), and counters indicating number of visitors, readers or viewers, are embedded in the social media platforms and precede the information broadcasted by media. Using the prominence-interpretation theory, Fogg (2003) notes that two things happen when people assess credibility online: users first notice something that causes them to evaluate the content based on that element (Prominence) and then they make a judgment about the information (Interpretation). A regular Internet user for instance, may interpret a slow link on a website or a URL redirecting him/her to a different address as a sign that the site has been neglected – or that the site was not carefully created in the first place; which in turn, will affect the subsequent judgment of the

information presented on it (Fogg, 2003). Similarly, since social feedback mechanisms precede the information and present a prominent space in SNSs, the process of evaluation and interpretations of the content presented by media, according to this framework, would be based on the social elements presented in the prominence stage.

Sundar (2008) explains that since adolescents have a strong motivation to be in on the latest trends and tend to orient their actions in order to fit into social groups, such cues to bandwagon effects may be particularly powerful for them. In fact, recent empirical studies suggest that users put more emphasis on social validation than traditional expert sources when assessing online information (Hargittai, et al., 2010; Pettingill, 2006). This is also consistent with the relevance that young people assign to "others" as sources of information discussed by Flanagin and Metzger (2008). Therefore, according to this line of research, it may be expected that users grant more validation to the information presented or rated by others than they do to direct exposures. This is anticipated to have a direct influence on how users process that information and get involved cognitively, leading individuals to trigger more carefully information processing (Eveland, 2002), which in turn will strengthen the effects that political information could have on them (Schefuele, 2002). As a result, users can have more chances to extract meaningful information out of their media consumption (Hardy & Schefuele, 2005). Thus, it is projected that:

H1c: Consumption of news in social media applications will be more strongly associated with civic participation than is consumption of traditional broadcast and online media.

Towards a Networked Public Sphere

The significant role of the media in provoking political conversation and fueling debate among media consumers has been documented by several scholars (Katz, 1992; Page, 1996).

Both the likelihood and frequency of engaging in political talk have been found to be positively associated with the use of media in acquiring information about public affairs (Bennett, Flickinger, & Rhine, 2000). In explaining why media exposure might lead to political conversation, research in communication has traditionally given two reasons. The predominant view is based on the two-step flow of communication and suggests that individuals garner information from the media, which they then elaborate in interpersonal encounters (Lazarsfeld & Katz, 1955). Communication scholars explain that this information gained from media exposure boosts audiences' sense of topical understanding, and as a result, they feel more competent to be able to talk about the topic (e.g. Koch, 1994; Southwell & Torres, 2006). In distinction to the primacy of the issue suggested in the two-step flow approach (Walther et al., 2011), this second reason is based on research in communication that has related interpersonal motivations to mass media information-seeking (Chaffee & McLeod, 1973).

Drawing on the uses and gratification approach, Atkin (1972) and Wenner (1985), among others, explain that audiences consume news in anticipation of an impending conversation, a motivation termed "communicatory utility" by the literature in uses and gratification (Atkin, 1972). According to this approach, people would garner information from mass media when they anticipate future communication with others. This gives the news a degree of awareness or "communicatory utility" about a topic that the individual expects to mention in a later conversation (Chaffee & McLeod, 1973). Furthermore, research has shown that knowing that one will discuss the news with others encourages an anticipatory elaboration of one's political understanding during and after news exposure (Eveland, 2001). Eveland (2004) explains that individuals expecting to engage in political discussion invest more heavily in processing the information when first exposed to it, because they want to be prepared to engage in a later

discussion. This would trigger more careful information processing and strengthen the effects of traditional media use (Schefuele, 2002). As a result, this type of use will motivate audiences to consume media more carefully and they will have more chances to extract meaningful information (Hardy & Schefuele, 2005).

Although the positive role of interpersonal discussion in news comprehension has been studied since the original two-step flow model (Katz & Lazarsfeld, 1955), only recently have scholars converged on the idea that citizens' understanding of news depends on an interactive effect of mass and interpersonal communication (Gastil & Dillard, 1999; McLeod et al., 1999; Mutz, 2002; Shah et al., 2005). The assumption is that the impact of mass mediated information on a person's understanding of politics should be highest if this person is exposed to relevant information and talks about it with other people; this allows the person to think differently about the issue and develop a better understanding of it (Nisbet & Scheufele, 2004). Eveland and Thompson (2006) argue that individuals who talk about politics recount the news media information as part of their conversations, which gives them additional opportunities to be exposed to the information and augment their comprehension of it.

Additionally, research has found that interpersonal communication increases citizens' abilities to extract meaningful information from traditional news sources (Eveland, 2002; Scheufele, 2002)."Talking about politics helps individuals gain mobilizing information from media sources and thus increases willingness to participate. Put differently, interpersonal discussion about politics plays a significant role in translating mass-mediated messages into meaningful individual action" (Scheufele, 2001, p. 29)**.** In fact, current understanding privileges theoretical models that consider communication factors as mediating and/or moderating variables (Nisbet & Scheufele, 2004), able to trigger a series of cognitive and expressive processes

(Eveland, Shah, & Kwak, 2003) that activate participatory behaviors (Schefuele, 2000). Based on previous research that has emphasized the significance of political talk as a news consumption mediator (Cho et al., 2009; Shah et al., 2007), it is also expected that reasoning behaviors (the first "R" in the O-S-R-O-R model) generated by interpersonal conversations are going to mediate the relationship between consumption of political information ("S") and participatory behaviors (2nd "R").

Since SNSs enable the co-creation of content by integrating peer-generated information to messages originally broadcasted by the media, and make possible simultaneous communication by juxtaposing both mass and interpersonal channels within the same medium, it can therefore be argued that the SNS' social structure enhances not only information acquisition but also the capacity to discuss the information presented by the media (Gil de Zuniga, Jun, & Valenzuela, 2012). This is turn, as explained above, may potentially increase the elaboration and reflection of the same information, which helps individuals make sense of what they were informed about while gaining mobilizing information. Furthermore, the ways in which SNSs facilitate content distribution and discussion through contacts' notifications also introduce new affordances that shape how people engage with others in these environments. These platforms allow users to communicate with a large group of people (just like the mass media) while preserving and even building the connectedness afforded by interpersonal communication methods (Teresi, 2012). If a user posts a comment about a news story, the message becomes public not only for the visitors/readers of the news media where the comment was posted, but also for the user's network. This forms more "open" communities since any fan, follower, or viewer of the media can participate in the discussion, but it also connects with the "bounded"

network -since contacts are individually notified about comments- a system which generates a network informed audience.

Moreover, by relying on mass information-sharing to simplify social interactions, SNSs have provided users a perfect setting for facilitating news consumption and discussion through comments generated by other users, thereby enabling the formation of a networked public sphere. This is because users would not necessarily visit, call, or email someone else to express their opinion about the news if they did not believe that the other person would be interested in the information. As Teresi (2012), based on Walther (1995) explains, discussants who engage in information-sharing through face-to-face, telephone, or email expect that the conveyed information is personally relevant to them. However, disclosing such information on a SNS provides users a non-invasive way to interact with their networks: comments are visible to anyone who has access to that person's profile and participants use this space to interact with their networks by posting information that they would otherwise share through traditional interpersonal channels with just a few people (boyd, 2012). Therefore, instead of taking the time to call each person in their network individually, users are able to share their thoughts with their network as a whole and learn what their network is thinking or commenting about the news by simply logging onto a SNS (Teresi, 2012). Thus, it is possible to expect:

H2a Political talk in social media will have direct effects on civic participation.

H2b Political talk in social media will also have an indirect effect on civic participation, by serving as a mediator between the consumption of political information and civic participation.

Social learning theory offers a framework that is applicable in explaining why users may discuss public affairs more through SNS than through other channels (Bandura, 1977; Bandura, 2001). Bandura theorizes that most of the behavioral, cognitive, and affective learning acquired

by individuals can be explained by social observations. Social learning theory suggests that humans have an advanced capacity for observational learning that enables them to rapidly expand their knowledge and skills through information conveyed by models in their immediate environments. According to this logic, individuals' conceptions of social reality are greatly influenced by what they see, hear, and read, and to a large extent, people act based on their images of reality. Therefore, these role models observed in their immediate environment have the potential to transmit new ways of thinking and behaving, which influences individuals to begin acting like them even without external incentives (Bandura, 1977). Bandura (2001) argues that the modeling or learning process involves four mains steps: (a) Attention: individuals must pay attention to the modeled behavior to learn; (b) Retention: it is necessary to remember the behavior in order to learn and reproduce the behavior; (c) Reproduction: individuals should have the ability to organize their responses and act according to the model behavior; and (d) motivation: if new "learners" are not motivated to reproduce what they saw, individuals will not change their behavior.

Relevant to this research is the fact that SNSs provide all these steps for social learning to occur, particularly when friends' actions are aggregated in a content feed (Burke, Marlow, & Lento, 2009). The News Feed feature I Facebook allows newcomers to view friends' actions and recall them later. Users can also link content, which makes their contribution more salient; this may motivate users to participate in creating content. Indeed, Burke et al. (2009) found that friends' behavior during newcomers' first two weeks is one of the most important predictors for newcomers' activities. Similarly, Vitak et al. (2011) reported that exposure to a network's political activity on Facebook such as posting comments and/or videos about Obama, visible through the News Feed, was one of the most important variables in predicting the level of

political activity of Facebook participants. Therefore, based on rational theories of behavior (e.g. SNSs lower costs to get information) and social learning theory (e.g. individuals' conceptions of social reality are greatly influenced by observation), it is possible to explain the positive relationship between time spent on social media and information consumption/discussion as a reinforcement effect. That is, since these platforms facilitate news consumption and subsequent discussions among users, and they learn from their friends' activities and "replicate" their actions; it is therefore reasonable to expect that users will encounter more civic-oriented activities in SNSs. Consequently, the more likely it is that they see their friends engaging in these activities, the more likely they will follow their friends' lead.

Thus, following theoretical models that consider political talk as a mediator of news consumption on civic engagement that helps individuals gain mobilizing information and increase their willingness to participate, it is expected that political talk in social media will have a direct and indirect effect on civic engagement. Moreover, since social media integrates content generated by peers with the information broadcasted by media in the same platform, it is anticipated that news consumers in SNSs will discuss more about political news than users who consume news from offline and traditional online media. And thirdly, SNS comments generated by peers precede the information broadcasted by media, which makes the participants' discussions more salient and frequent. Therefore, since knowing that one will be discussing with others promotes greater elaboration of the news and a better understanding of political issues, it may be argued that the dynamics of political talk in social media will make users more cognizant of possible discussions when they post comments, which causes them to process the information more carefully. Similarly, since in SNSs when users post comments about news they have to "tag" the information, this makes the conversations more salient, because the tagging is

embedded in the user's comment. Consequently, it may be also argued that this feature gives users additional opportunities to be exposed to the information, which augments their comprehension of the issue. Thus, it is anticipated that:

H2c: Consumption of news through social media will lead users to discuss political news more than users who consume news from offline and traditional online media.

H2d: Political talk in social media applications will be more strongly associated with civic participation than will the discussions through email and FtF.

Heterogeneity and Weak Ties as moderators

The connection between the composition of people's social environments and political participation has already been widely acknowledged, and there is a strong consensus that political activity is rooted in social structure (Huckfeldt, Sprague, & Levine, 2000; Mutz, 2002; Verba, Schlozman, & Brady 1995). These studies agree that individual-level variables are insufficient in explaining civic engagement and that interactions within and across different types of community settings can produce trust, knowledge, and incentives among individuals, which in turn enables civic action (Scheufele, Nisbet, Brossard, & Nisbet, 2004). Most of this research has followed a social network perspective, in which a type of interaction is referred to as a social network relation, and pairs who maintain one or more types of relations are said to maintain a tie (Haythornthwaite, 2005). "Across a set of individuals, person-to-person connectivity builds into social networks. Such networks reveal how resources flow and circulate among these individuals, and what subsets or cliques of individuals are more connected than others" Haythornthwaite, p. 126). Drawing on the social network literature, research has traditionally shown that the tie determines the ways, means, and expression of communications, and it determines the motivation, needs, and desires for communication (Granovetter, 1982;

Haythornthwaite, 1996; Marsden & Campbell, 1984). This line of research has identified several features that distinguish ties by strength, which are normally measured based on a series of variables such as frequency of contact, duration of the association, intimacy of the tie and provision of reciprocal services (for a deeper discussion of more specific measures see Marsden & Campbell, 1984). The logic is that those individuals who relate with more casual friendships or work relationships (e.g. coworker relationships that represent weaker ties) also engage in fewer, less intimate exchanges and share fewer types of information and support than those who report stronger relationships (Haythornthwaite, 2002). In this way, pairs of stronger ties would include in their interactions a higher intimacy, more self-disclosure, reciprocity in exchanges and consequently more frequent interaction (Granovetter, 1982; Marsden & Campbell, 1984).

Granovetter, (1982) for example, understands ''weak ties'' as loose connections between individuals who usually afford useful information but typically not emotional support. On the other hand, tightly-knit individuals, or those who maintain an emotionally close relationship, such as family and close friends, are those who might be in a position to provide emotional support or access to scarce resources (Putnam, 2000). Although there are several variables to measure the strength of a tie (e.g., frequency of contact or duration of the association), this dissertation followed the work of Kenny (1994) and Gil de Zuñiga and Valenzuela (2011), who consider the degree of closeness and intimacy as the main indicator, since they consider that discussion networks of friends and family members are usually characterized by "intimacy, trust, respect, access, and mutual regard" (Kenny, 1994, p. 718), whereas in discussions with coworkers, acquaintances, and/or visitors there is no shared intimacy.

Research has consistently found a positive relationship between the weakness of ties and political participation (Huckfeldt, Mendez, & Osborn, 2004; McLeod et al., 1999; Moy & Gastil,

2006). Scholars suggest that bridging ties, especially networks of weak contacts, are especially valuable for the dissemination of information and political mobilization (Grannovetter, 1985; Putnam, 2000; Wellman, 1997). These weak ties facilitate the exchange of information between distinct groups, and help expedite the flow of ideas among groups (Kavanaugh, Reese, Carroll, &, Rosson, 2005). Similarly, the weak contacts interact using information and resources that citizens cannot find in their immediate environment of relatives and close friends. Hampton (2003) found that residents of a networked neighborhood were able to organize and mobilize collectively, in large part due to the weak ties among them. Similarly, other scholars have emphasized that in situations where online networking facilitates knowledge sharing, weak ties may be more important for collective action than strong ties (Nie, 2001). Gil de Zuñiga and Valenzuela (2011) explain that opportunities for participation are usually structured around groups; therefore individuals with more diverse networks have a higher likelihood of being recruited to participate in civic organizations. Consequently, although bonding capital (or strong ties) may help individuals to form and maintain the connections that keep community groups viable by providing access to information circulating in their network and a ready hand to help (Granovetter, 1982), their close association limits their access to other resources. Therefore, the "strength of weak ties" (Granovetter, 1982) would be their connection to "outsider" individuals who differ from their network of strong ties, but from where they would be able to get information and resources from other networks (Granovetter, 1982)

Further, the social network literature has demonstrated that as tie strength increases from weak to strong, so does the motivation to communicate, the number and types of information and resources exchanged, and the amount of support communicated. Interestingly, research has suggested that the structure of individuals' networks has been particularly altered during the last

two decades (Hampton, Livio & Sessions Goulet, 2010; Putnam, 2000), and the number of people with whom people discuss important matters has centered on the closest ties that increasingly consist of densely knit networks that focus on the home (McPherson, Smith-Lovin, & Brashears, 2006). Based on Fischer (1992), Hampton, Sessions and Her (2011) the explanation is that this tendency towards privatism is supporting cohesion within tightly knit personal networks, but it sacrifices interaction with more diverse social ties. Putnam (2000) explains that tightly-knit groups of individuals, or those who maintain an emotionally close relationship, such as family and close friends, are those who might be in a position to provide emotional support or access to scarce resources, but they can also be repressive and tend to be culturally and ideologically homogeneous (McPherson, Smith-Lovin, & Cook, 2001). Based on previous studies that have found that close homophilous ties are also the first stop for social comparison (Cross, Rice, & Parker, 2001), Hampton et al. (2010) suggest that the likelihood of attitudinal similarity and conversion among strong and homophilous ties means that these ties are also likely to be the last stop in opinion formation, which may have a negative affect on both civic and political engagement.

Contrary to this perspective, pioneering research in the 1950's found that exposure to cross-pressures (divergent perspectives or conflicting influences on individuals' political preferences) had negative impacts on political engagement, since it generates greater ambivalence about political actions (Berelson, Lazarsfeld, & McPhee, 1954) and increases the complexity of issues, which hinders citizens' actions (Lazarsfeld et al., 1955). In fact, Mutz (2002) found that individuals who have frequent interactions with heterogeneous discussion partners -characterized by political disagreements- tend to withdraw from political activity in order not to jeopardize social relationships. However, more recent research has demonstrated the

positive aspects of heterogeneous discussion networks (Gastil & Dillard, 1999; Gil de Zuniga & Valenzuela, 2011; Huckfeldt et al., 2004; McLeod, Scheufele, & Moy, 1999; Scheufele et al., 2004; Scheufele et al., 2006). As McPherson et al. (2006) and Hampton et al. (2010) argue, these studies suggest that political talk with those who think differently forces people to continually improve their stances, because having opinions challenged by non-likeminded people is a process that fosters individuals' political identities and may disseminate mobilizing information, all of which may spur political participation (Eveland & Scheufele, 2000). Similarly, Moy and Gastil (2006) explain that participants in heterogeneous networks are more accustomed to encountering opposing points of view, which makes them less intimidated about speaking up. This increases levels of self-efficacy, which may stimulate civic and political participation.

Furthermore, Scheufele et al. (2004) argue that exposure to disagreement is likely to produce greater cognitive activity (Levine & Russo, 1995) since it forces individuals to learn about alternative perspectives, which makes them reflect more carefully on what they already know. This process enhances discussants' political knowledge, a key mediator traditionally associated with democratic indicators. Following a deliberative approach, Moy and Gastil (2006) found that exposure to dissonant views contributes to greater understanding, awareness, tolerance and appreciation for alternative perspectives, whereas Quintelier, Stolle and Harell (2011) examined a panel of 4,235 young people for a two-year period and found that having politically diverse social networks increased political participation. Moreover, consistent with the "communicatory utility" gratification and the idea that subjects will process news content more carefully in anticipation of discussions with non-likeminded others (Eveland, 2004), network heterogeneity has also been associated positively with news consumption (McLeod, Sotirovic, & Holbert, 1998). Scheufele et al. (2006) explain that diversity of opinions in a network leads

discussants to increase their need for information on a wider range of topics, which causes post hoc information-seeking to bolster initial positions or even reconsider original stances on issues.

To summarize the research in this area, it is possible to anticipate that ties and heterogeneity of the network will affect the type of conversation between users and moderate the consequent effects on participatory behavior. Consequently, based on previous research it is expected that conversations among weak ties and unlike-minded others would increase the positive impact on civic engagement. Thus, it is expected that:

H3a: The relationship between political talk and civic engagement will be stronger in social media users who discuss with weak ties.

H3b: The relationship between political talk and civic engagement will be stronger in social media users who discuss with heterogeneous contacts and diverse others.

Additionally, scholars have noted that when network heterogeneity interacts with types of ties, the effects on civic and political participation can be altered. Kwak et al. (2005), for example, found that the level of engagement was higher among individuals whose discussion partners had similar backgrounds and viewpoints. However, as network size increases and conversation is extended to weaker ties, the positive trend for homogeneity is also mitigated by the size of the network. A similar interaction was noted between heterogeneity and network size: although discussion among heterogeneous individuals was negatively related to political participation, the combination of large and heterogeneous discussion networks generates a situation in which individuals tend to report higher levels of mobilization. Campbell and Kwak (2011) found similar interaction effects in mobile-mediated discourse. While political participation declines in individuals with a small composition of homogeneous discussion networks, participation levels rise in larger networks when ties are like-minded. Although these

interaction effects are not constant and depend on several factors (e.g. attention to discussion, see Kwak et al. for details), they might be useful for explaining the apparent conflicts in this line of research and elucidating the conditions in which exposure to heterogeneous networks might play a positive role in political or civic engagement.

One plausible interpretation is given by Mutz (2002), who holds that individuals are more likely to withdraw from political activities that are not supported by their core ties (e.g. fearing social punishments), but not necessarily when they interact with weakly integrated groups, where unsanctioned or sanctions are less likely to be effective. Contrary to these findings, Wojcieszak (2009) found that the positive link between online participation and political engagement is weaker for like-mindedness of strong ties, but not for those who are embedded in heterogeneous closely knit groups. Therefore, since the intersections between political discourse, network characteristics, and civic involvement are so complex that it is difficult to hypothesize a clear direction of results, it is sensible to advance the following research question:

RQ: For individuals, controlling for demographics, interest in politics, and media use, how does the interaction between number and heterogeneity of networks in political discussion impact civic participation?

Social media use and heterogeneity

Similar to the question presented above, it is important not only to ask about the effects that discussions with heterogeneous groups may have in civic participation, but also whether the affordances these tools provide give users more opportunities to be exposed to a greater variety of political viewpoints. In fact, one of the main debates among scholars about the role of media in general and information and communication technologies in particular is whether they contribute to or harm the normative goals of plurality and diversity embodied in the concept of

''deliberative democracy'' (Brundidge, 2010; Mutz, 2002; Sustein, 2001; Wojcieszak & Mutz, 2009). Although research indicates that political discussions among like-minded people might strengthen individuals' attitudes toward a range of political issues (Fiorina & Levendusky, 2006) and contribute to voting along party lines (Cho, 2005) reinforcing exiting political dispositions (Walsh, 2006), several authors warn that exposition to like-minded perspectives may lead to the fragmentation of public opinion and an increasingly polarized citizenry, to the detriment of democracy (Huckfeldt et al., 2004; Stroud, 2008; Sunstein, 2001). In fact, research has shown that the chances of encountering opposing views in political matters are declining (Sunstein, 2001). People generally select their conversation partners in political matters very carefully, and conversation about public affairs occurs mostly among friends and like-minded others (see Conover, Searing & Crewe 2002; Huckfeldt & Sprague 1995; Lev-On, 2008).

The concept of selective exposure is not new. McGuire (1968) and Klapper (1960) already in the 1960's noted the correspondence between people's beliefs and the information to which they are exposed. Most of the arguments for selective exposure rely on the theory of cognitive dissonance (Festinger, 1957). However, researchers have argued that the increasing fragmentation of the media environment has contributed to a higher degree of polarization. Sunstein (2007) claims that in today's environment, it is far easier to use the media to avoid politics altogether, which has increased the selective exposure and fragmentation phenomenon. Similarly, Prior (2007) traces the decreased volatility in elections and increased partisanship for voting behavior in the United States to the fragmentation of the U.S. media environment and the lack of accidental exposure to political information. He argues that before the fragmentation of the U.S. media environment in the early 1970s, when few options were available and those options regularly featured newscasts, the likelihood that even those citizens who were not

particularly interested in politics would encounter political information and, thus, would learn about politics was high. However, the rise of the cable industry and the fragmentation of media made it easier for audiences to select the type of exposure to news, helping those who prefer nonpolitical content to easily escape political information. Due to increasing fragmentation of media environments and the resulting greater choice of available media content, accidental exposure to political information decreases. Consequently, since, on the one hand, parts of the electorate become less involved in politics due to rising media choice, and, on the other hand, those who were involved identify more strongly with party politics on either side, elections become more polarized.

This line of research, which has been named the fragmentation thesis (Bennett, 1998), has been prominent among debates over the role of the Internet in the contemporary democratic process (Kim, 2011), and accuses the Internet of making users less likely to be tolerant of challenging viewpoints (Stroud, 2008; Sunstein, 2007). Johnson, Bichard and Zhang (2009) explain that the Internet produces a wealth of information and, at the same time, gives users total control over what sites to visit (Garrett, 2006). Thus, selective exposure in the Internet is more possible than in any other setting (Albrecht, 2006). In fact, researchers have found that Internet users exercise selective exposure when they pursue partisan information (Garrett, 2006; Mutz & Martin, 2001; Stroud, 2008), and newsgroups typically are populated with groups of like-minded individuals, making it easy for them to find sites featuring people who share their views (Johnson et al., 2009; Wojciewszak & Mutz, 2009).

Following the concept of selective exposure, the fragmentation thesis argues that, in online settings, users' increased control over communication is augmenting their preference for exposing themselves to like-minded others, avoiding political differences and ignoring opinion-

challenging information. Stroud (2010) articulates two reasons to explain why media consumers develop more extreme and polarized attitudes when they are exposed to views that resonate with their own. The first, and stronger one, is that by hearing arguments that are in favor of their group, members are persuaded to develop more polarized attitudes in the direction of the group norm. Citing Isenberg (1986), Stroud explains that in an identical process, "consuming media advancing a shared point of view should provide people with information supporting their perspective and therefore, produce polarization" (p. 558). The second one is related to social comparison, whereby people expect to be perceived adequately by the group members and, consequently, regulate their beliefs according to the ideas pursued in the group. Similarly, Stroud (2010) notes that individuals in like-minded groups pursue more homogeneous information because it has a social utility, and they may feel that the information gained and/or expressed contributes to the group's argument pool.

Although research has provided evidence of selective exposure on the Internet, the empirical evidence is inconclusive. Iyengar and Hahn (2009), for example, found that Democrats preferred to view CNN, and to avoid Fox News, while Republicans exhibited the opposite pattern. Similarly, Johnson, Bichard and Zhang (2009) concluded that blog users avoid information that challenges their political beliefs, and generally pursue information that supports their points of view. Stroud (2010) also found that people's political predispositions predict their selection of political talk radio, cable news, and Internet websites. However, there are also arguments against selective exposure to political information on the Internet and several studies have seen the Internet as a medium that facilitates the chances of encountering diverse political views (Benkler, 2006; Bimber, 2004; Brundidge, 2010; Lev-On, 2008; Jun, 2012). In their attempts to theorize mechanisms in which exposure to difference may occur through Internet use,

scholars have argued that the structure offered by the Web enables exposure to diverse

discussion networks and facilitates a broader exposure to a variety of political viewpoints.

Inadvertent exposure in a 2.0 environment

From a structural point of view, Lev-On (2008) explains that search engines are not

refined enough to filter and tailor the extensive amounts of information that users exactly

request, and frequently these filtering mechanisms unintentionally expose users to opposing

views. Benkler (2006) argues that the networks and information presented on the Internet are

concentrated in high-visibility websites entangled with lower-visibility websites that have similar

content. Consequently, whereas the Internet does present the dominant political information as

traditional media, Benkler (2006) claims that, given its structure, the Web also presents an

important opportunity for alternative and heterogeneous ideas to attract attention. Further, the

low costs associated with making messages public on the Internet may also allow otherwise

unnoticed minority opinions to catch the users' attention (Jun, 2012). Similarly, Lev-On (2008)

explains that by exposing and directing traffic to popular organizational hubs, search engines can

also allow users to locate organizational hubs of collective action that are, arguably, especially

important for 'unprivileged' or 'disorganized' interests. Absent this organizational infrastructure,

such causes may not attract and mobilize enough support.

More important, these hubs also include links that, when followed, can easily route

people to other relevant sites. Brundidge (2010) develops this argument and claims that since the

Web today is based on hyperlinks and tags, and it is structured on blogs, chat rooms, and SNSs,

users are not necessarily restricted to specific information, but rather are invited to "browse"

messages as they are continuously forwarded and directed or referred to similar information (Jun,

2012). Based on this idea, it may be argued that in the Web today there is not a clear "political"

online space. "People may go to an online breast cancer support group, for example, and may inadvertently be exposed to a heterogeneous political discussion on the U.S. healthcare system" (Brundidge, 2010, P. 684). Brundidge (2010) uses the term "traversability," to describe this seamless movement from one Internet space to the next, and explain that the "blurring" boundaries that cyberspace provides augment the chances of this serendipitous exposure to other opinions. Indeed, previous research has reported experiences from many young adults who do not actively search for political information, but rather find it while they go online for other purposes (Kohut,2008), especially when they connect to SNSs such as Facebook (Utz, 2009). Similarly, Cornfield (2005) concluded that 36% of Internet users find information by accident and not as a result of a directed search, while Wojcieszak and Mutz (2009) found that exposure to political difference takes place in apolitical settings, indicating that it may happen somewhat unexpectedly.

Relevant for this discussion is the fact that inadvertency of media may facilitate exposure to diverse discussion networks, as previous research has noted (Brundidge, 2010; Kim, 2011; Jun, 2012; Prior, 2007). Following Brundidge, it may be argued that SNSs offer several mechanisms that may inadvertently facilitate exposure to political difference. First, these platforms provide opportunities for users to be passively exposed to information and/or conversations transpiring in their networks through observation of their contacts' activity. Since users are notified when their contacts comment on news or "like" information in SNSs such as Facebook, it may be expected that those users will have a higher exposure to information that otherwise would go unnoticed. Second, SNSs enable the co-creation of content by integrating peer-generated information to messages originally broadcasted by the media, and make possible simultaneous communication by juxtaposing both mass and interpersonal channels within the

same medium. This capability offered by these platforms would make the delineation between

discussion and news even more greatly blurred, and since communication would occur on

various levels at the same time (Brundidge, 2010), these blurred boundaries would tightly

connect the content presented by the news and discussion between users, allowing them to

discuss with others, and facilitating the sharing of political perspectives through news comments.

And, third, research has found that the chances to get this sort of exposure to differences in

political perspectives inadvertently are much higher in apolitical spaces such as the workplace

(Mutz & Martin, 2001; Scheufele et al., 2004). Since today Facebook users frequently "befriend"

generic "causes" such as a medical institution in order to get more information about a specific

treatment, for example, or to know other people with the same illness, it is very likely that under

those conversations, users will inadvertently be exposed to political discussion on

complementary topics such as the U.S. healthcare system.

Further, since more than a third of American Internet users are contributing to the

creation and/or dissemination of news via their social media channels, and a significant portion

of users choose their news source based on whether they can "share" the site's content with their

contacts and friends (Rainie et al., 2011), it may be argued that any SNS today has the potential

to become an apolitical place in which users meet to discuss public affairs after users share

information with their networks. As Shah et al. (2005) and Brundidge (2010) explain, news and

political discussion go together, one leading to the other. In this way, the more users are exposed

to political information, the more they have to talk about. The more they comment on that

information and discuss with others about those issues, the more opportunity they have to expand

the heterogeneity of their discussion networks, even inadvertently. Similarly, those who receive

comments from their contacts in SNSs are more likely to encounter a diverse group of people

than in established newsgroups: an important number of people use synchronous forms of communication, so users may be less able to predict whether they will be talking with like-minded people than with blogs or newsgroups, and, therefore, will be exposed to a greater variety of viewpoints (Brundidge, 2008). In sum, given the fact that SNSs facilitate content distribution and discussion through contacts' notifications, blurring the boundaries between the content presented by news and the comments generated by users, these affordances may create a mechanism that shapes how people engage with others in these environments, facilitating accidental exposure to political differences, heterogeneous contacts and diverse others users. Thus, it is expected that:

H4a: Time spent on social media will be positively related to discussion with heterogeneous contacts and diverse others.

H4b: Time spent on social media will be positively related to accidental exposure to information.

H4c: Exposure to accidental information will mediate the influence of SNS use on discussion with heterogeneous contacts and diverse others.

Collective efficacy as empowerment in 2.0 environments

Turning now to the second "O" in the model, the potential of collective efficacy (orientation) will be considered as a mediator between political discussion (reasoning) and participation (response). Political efficacy is the term used to represent an individual's perceived ability to influence the political system (McPherson, Welch, & Clark, 1977). This sense of capability of acting effectively has been extensively documented by previous research as one of the key psychological variables that is able to explain citizen participation and political attitudes (Niemi, Craig, & Mattei, 1991). It has been conceptualized as an individual's belief that through

their actions they can influence political processes (Tan, 1980), and has been shown to be highly predictive of participatory behaviors (Scheufele & Nisbet, 2002) and voting intent or behavior (Pinkleton & Austin, 2001). Scholars from the communication field have also shown that efficacy mediates the impact of socioeconomic factors and media use on participatory behaviors (Cohen et al., 2001; McLeod et al., 1999). Individuals who feel politically efficacious are more likely to vote and believe that ordinary citizens should be active within their communities (Coleman & Davis, 1976). The literature in the political area has traditionally recognized two dimensions: one internal, that represents the perceptions of an individual's ability to attain desired results in political contexts using his/her own capacities and resources, and one external, that refers to people's beliefs about the political system's responsiveness to concerns (Coleman & Davis, 1976).

However, although most of the research on efficacy has focused on the individual level (Mulvey & Klein, 1998), concerted political action may also depend on perceptions of the group's efficacy (Gecas, 1989). This is because political change cannot be realized without the shared belief that other community members are also capable in exerting control over political matters (Lee, 2005; Yeich & Levine, 1994); therefore, political change is not solely affected by the individual's belief in their own capacity, or self-efficacy (Caprara, Vecchione, Capanna, & Mebane, 2009). During the last two decades, the concept of collective or group efficacy (Bandura, 1982) has started to be used as a basis of the efficacy construct, and similar to political efficacy, scholars have emphasized two main dimensions (Van Zomeren, Postmes, & Spears, 2008). From an "internal efficacy" perspective, the notion of group efficacy has been conceptualized as the judgments that members of a group have about their capabilities to engage in successful political action (Gecas, 1989). This emphasis is based on Bandura's definition

(1997), which conceptualizes collective efficacy as the group's shared belief in its conjoined capabilities to organize and execute the courses of action required to produce given levels of attainment (1997, p. 477). What collective efficacy is to a group is analogous to what internal efficacy is to a person, since the main focus is on the shared belief held by individuals about the group's capabilities and skills for performing a collective action (Lee, 2005).

On the other hand, Yeich and Levine (1994) understand collective efficacy in terms of the perceived responsiveness of governmental authorities and institutions to the collective action that emerges from organized groups. This "represent[s] perceptions of system responsiveness to collective demands for change" (p. 260). The previous dimension is relevant because according to this second perspective, collective efficacy would be a variant of external efficacy, making it impact context-dependent on the environment rather than the abilities of individuals. In other words, this conceptualization does not focus on the abilities of the group but rather on how the system responds to the actions that emerge from the collective action (Yeich & Levine, 1994). The present dissertation considers both perspectives: following Van Zomeren et al. (2008), the conceptualization integrates the beliefs that individual actions have the potential to transform the situation and destiny of their group (Drury & Reicher, 2005) and change the social structure where the person belongs (e.g., Gergen, 1999) with the responsiveness of the political system to the collective demands for change. Therefore, drawing from the internal and external dimensions of the construct, collective efficacy will be conceptualized as a citizen's belief in the public's capabilities, as a collective actor, to organize and execute the courses of action required to achieve social and political outcomes.

Collective efficacy can be expected to operate in relation to civic and political engagement at the group level in a manner similar to self-efficacy at the individual level (Mulvey

& Klein, 1998), but extending the concept of individual causality to collective agency exercised through a shared sense of efficacy (Caprara et al., 2009). Bandura (2001) argues that "the more efficacious groups judge themselves to be, the higher their collective aspirations, the greater their motivational investment in their undertakings, the stronger their staying power in the face of impediments, the more robust their resilience to adversity, and the higher their performance accomplishments" (p. 270). Consistent with the literature at the individual level, research has found collective efficacy positively associated with high neighbourhood reliability and reduced levels of violence (Sampson, Raudenbush, & Earls, 1997), community integration and online participation (Kavanaugh et al., 2005), support for the democratization process (Lee, 2006), mobilization and protest involvement (Seligson, 1980), civic engagement (Kim &Ball-Rokeach, 2006), and political participation (Lee, 2010). Although scholars have traditionally focused on deliberative theories to claim that it is through discussion that citizens feel more confident to express their ideas, increase their efficacy, and reassure their capabilities to deal with civic affairs (Gastil et al., 2002), communication infrastructure theory (CIT) offers a more comprehensive framework for studying how communication technologies can enable a sense of collective efficacy that, ultimately, might contribute to sustained community-building and civic engagement (Ball-Rokeach, Kim, & Matei, 2001; Kim & Ball-Rokeach, 2006b).

Based on deliberation theories (Gamson, 1992; Wyatt et al., 2000) and the narrative paradigm which considers stories as a vehicle through which people assimilate values and make decisions (Friedland, 2001), the most basic premise of CIT is that communities are "story-telling neighbourhoods," in which the act of story-telling within a network of residents actively builds a sense of community identity and collective efficacy (Ball-Rokeach et al., 2001). Kim and Ball-Rokeach (2006a) explain that without resources for constructing and sharing stories with others

about the community, it is impossible to form a community since communities are built on shared discourses about who the members are, what the most important opportunities and obstacles are, what members should do to address them, and how. CIT studies how narratives facilitate collective community identification by differentiating 'story-teller' agents at a macro (mainstream media), meso (e.g. local media, newsletters or flyers) and micro level (residents themselves). Kim & Ball-Rokeach (2006a) argue that individuals' civic engagement depends on two basic multilevel factors. The first factor is whether individuals have an integrated connectedness to the opportunities to "story-tell" the neighbourhood (as an individual-level factor). The second factor is whether they live in a local environment featured by contextual elements that facilitate the creation and sustenance of an integrated story-telling network (as a neighbourhood-level factor).

Furthermore, the story-telling model of the civic engagement's development considers collective efficacy and neighbourhood belonging as two mediating factors for civic participation, through which residents ''internalize'' and ''activate'' local stories in their everyday lives (Kim & Ball-Rokeach, 2006a). Communication infrastructure theory argues that connections to local storytellers first increase the level of belonging among individuals, facilitating the identification of problems and opportunities for participation, and thereby perceived collective efficacy, activating their sense of agency. According to the framework, once individuals identify themselves with an issue and discuss it with others, they begin to believe that it is possible to mobilize collective efforts and solve community problems. This sense of efficacy, in turn, augments the likelihood of civic participation.

Moreover, Ball-Rokeach et al. (2001) found that even when residents have a high level of belonging, increased collective efficacy activates participation even more intensively. The

authors explain that by being connecting to an integrated story-telling network, individuals are not only more likely to know what they could do to solve problems, but also where they can find the resources in the community to reach desired outcomes through their participation. Based on the communication infrastructure theory, Kim & Ball-Rokeach (2006a) conclude that individuals' level of collective efficacy and civic engagement would finally depend on two basic multilevel factors: whether or not individuals have an integrated connectedness to the opportunities to "story-tell" the neighbourhood (as an individual-level factor), and whether or not they live in a local environment featured by contextual elements that help create and sustain an integrated story-telling network (as a neighbourhood-level factor).

Since users are "network-informed" by their SNS lists of friends and acquire most news through these networks, it is possible to argue (following Kim and Ball-Rokeach) that SNSs will enable a communication infrastructure that generates and disseminates community stories while creating and sustaining an integrated story-telling network. Similarly, the interpersonal communication capabilities embedded in these Web 2.0-based applications enable users to rebroadcast content (e.g., news) adding personal commentary, which ultimately may increase opportunities for users to "story-tell" personal reflections regarding political issues or personal events related to the issues.

Further, by motivating media information-seeking through contacts' notifications and making translucent the structure within which political discussion occurs, it could be argued that this participatory dynamic may enable higher senses of collective efficacy that will contribute to civic engagement. Discussants in SNSs can see what their network members think about public affairs or respond "openly" to their personal inquiries when they need more information about issues. For instance, a status update complaining about the last policies implemented by the

government not only informs the user's network about the measure, but also generates supportive comments or advice that may lead users to think how to react. On the other hand, in SNSs users can easily identify mutual support in their networks. Because most of the interactions between individuals are "open" text-based, social exchange and social support are highly visible for all the contacts that form a network, even for those who are actively participating in these exchanges. In fact, research has shown that "public" interpersonal interchanges can nourish social trust between network members and recognize the possibility for mutual reciprocity (Kobayashi, Ikeda, & Miyata, 2006).

More specifically, social media has lowered the barriers to initiating communication with "latent" and weak contacts. Ellison, Steinfled and Lampe (2007) corroborated empirically the idea that SNSs may increase a person's weak ties because the technology is suited to maintaining these links cheaply and easily, which yields access to new and non-redundant information through a diverse set of acquaintances (Granovetter, 1982). SNSs allow users to integrate in their networks different sets of contacts, which may range from primary school classmates to co-workers and family. Valenzuela, Park and Kee (2009) also argue that through features such as "News Feed" in Facebook or the "Stream" in MySpace, SNSs can reinforce relationships with acquaintances by keeping users constantly updated about what is going on with their contacts (Hargittai, 2007). This in turn, can fulfill the informational needs of users, a key ingredient for strengthening weak ties and promoting collective action (Valenzuela et al., 2009). Thus, it is possible to argue that social uses of SNSs will generate access to new information based on updates posted by users, and this information will flow through networks that may serve as bridges between diverse sources of information, providing users resources from diverse social circles. Additionally, since SNSs support requests for information or perspective-sharing, and

networks usually respond to information or comments posted by users (e.g. Rainie et al., 2011), it is likely that users will find the resources in their networks or communities when they ask for help or want to clarify information presented by the media. In this way, it is expected that social media will expand the sphere in which reflective storytellers operate and take collective actions to solve problems. Thus, a direct relationship between collective efficacy and civic engagement is anticipated, as well as a mediation between political talk in SNSs and civic engagement through collective efficacy:

H5a Collective efficacy will be positively related to civic participation.

H5b Collective efficacy will mediate the relationship between political discussion and civic participation in SNSs.

Modeling the literature: Towards a 2.0 O-S-R-O-R Model of Communication

Although previous studies have elucidated the relationships between media consumption and civic engagement, few studies have simultaneously considered the effects of Web 2.0-based applications controlled for print, broadcast and online media use. Extant research on the influence of certain media classes is clear: although political information consumption and information seeking/processing behaviors have been traditionally associated with different forms of civic and political engagement (Chaffee & Martinelli, 1995; McLeod et al., 1999), current understanding privileges theoretical models that consider communication factors as mediating and/or moderating variables (Nisbet & Scheufele, 2004), able to trigger a series of cognitive and expressive processes (Eveland, Shah, & Kwak, 2003) that activate participatory behaviors (Schefuele, 2000). That means that use of media for information may encourage political discussions and increase the likelihood of communicating about civic life via interpersonal conversations in offline settings (McLeod et al., 2001; Sotirovic & McLeod, 2001), email and

personal online chat (Shah et al., 2005). However, this dissertation aims to advance this notion to social media platforms, and in this way predict that its use will also be related to political discussion and civic participation. Further, giving the affordances explained above, it is also expected that its effects on civic participation will be stronger than those of other media.

Consequently, it is predicted that informational uses of the three media analyzed (offline, online, and Web 2.0) will directly influence interpersonal discussion in the different settings (FtF, online via email, and through SNSs), which, in turn, will shape levels of civic participation through collective efficacy. This logic is based on a sizable body of research that has stressed the importance of (a) information consumption, (b) political talk and (c) political efficacy for civic engagement (e.g., Kwak et al., 2005; Shah et al., 2005). The link assumed is that news information will lead media consumers to discuss with others about civil society and political issues, and these conversations, in turn, will have a number of positive consequences for civic participation, such as exposure to diverse perspectives and opportunities for deliberation. Additionally, it is expected that a Web 2.0 environment would allow users to gain more knowledge and think more about the content presented in the news by sharing and discussing their views with their contacts. Although some scholars have expressed concern about the lack of commitment and offline benefits that users may get from interactions in SNSs (see Christensen, 2011 and Morozov, 2009 with the term "slaktivism"), it is also possible to argue, as was discussed above, that these forms of online interaction have the potential to encourage participation in a manner that even exceeds the effects of offline political talk.

Therefore, by drawing on the O-S-R-O-R (orientations-stimulus-reasoning-orientations-response) model of communication effects, it is possible to advance a theoretical model that highlights the effects of 2.0 Web-based uses on civic participation, while also considering other

media uses and communication behaviors. Although this dissertation focuses on social media as mechanisms of information and communication, taking into consideration previous research (Gil de Zuñiga et al., 2012, Kwak et al., 2005; Shah et al., 2005; Sotirovic & McLeod, 2001), it also considered online and offline communication behaviors as complementary, such that (a) modes of information-seeking are positively interrelated with each other, as are modes of citizen communication; (b) online and 2.0 Web-based forms of news consumption can lead to both online messaging and 2.0 Web-based discussion through SNSs; and (c) political talk can foster greater levels of political efficacy.

Figure 1 Theorized Model of O-S-R-O-R model of communication effects with collective efficacy
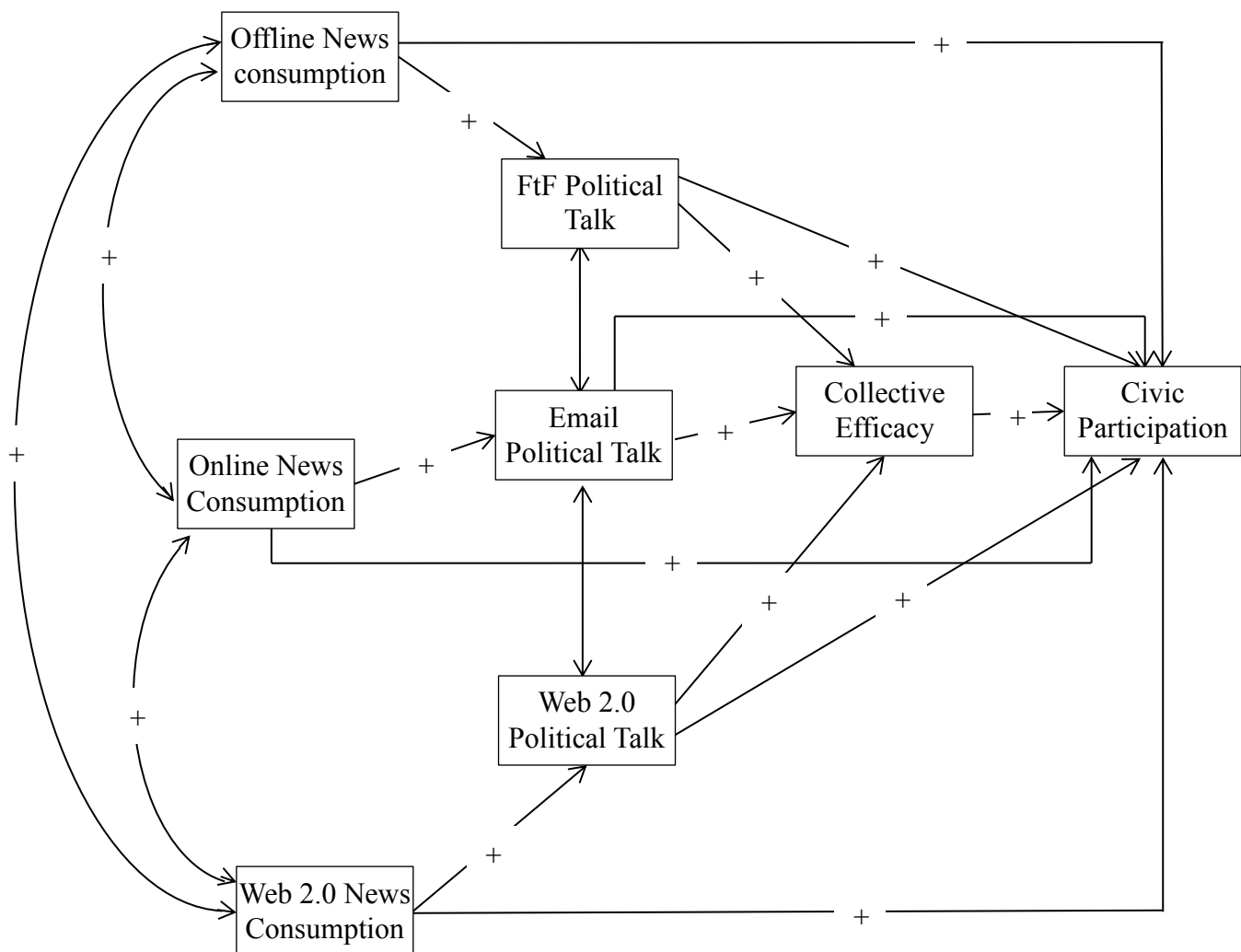
Chapter 3

Methodology

Sample

Data used in this dissertation was collected from university students during April and

May, 2012. More specifically, the participant population, a convenience sample, was acquired

from students currently enrolled at Rutgers University who were at least 18 years of age.

Students from 12 different classes at the School of Information and Communication were offered

extra credit by their instructors to participate in this study. The data collection included all

completed surveys from participants who were at least 18 years of age. The campus population at

the time of survey collection included 31,268 enrolled undergraduates and 50 percent of the

undergraduates were women (Rutgers University, 2012). Rutgers's student population is

predominantly Caucasian/White reporting 47.1 percent. The remainder of the population is 19.8

percent Asian, 11.4 percent Hispanic/Latino, 10 percent African American, 6.2 percent Foreign,

and 5.5 percent listed as other (Rutgers University, 2012). 105 answers were not considered for

analysis since they had a similar pattern in their answers or were partially completed, so the data

that finally was analyzed came from 808 participants, consisting of 60.2 percent female and 39.8

percent male. This difference with the Rutgers's student population could be due to the fact that

the data collection occurred in 11 classes offered through the School of Information and

Communication, which historically has a higher female/male proportion. The distribution of

different ethnic backgrounds included 49.6 percent Caucasian/White, 20.1 percent Asian, 8.1

percent Hispanic/Latino, 7.9 percent African American, 5.4 percent Indian or Indian American,

4.8 percent Pacific Islander, and 3.5 percent of others which is very similar to Rutgers

University's student population. The responses were collected using Zoomerang, an online

survey, and in total 2,094 students were offered extra credit to participate in this study. Thus the response rate was 38.7%.

Procedure

Instructors of undergraduate classes in the School of Information and Communication were approached by me to request permission for recruiting from their classes. Once this permission was granted, I went to the class in order to explain the goals of the study and then I emailed students to explain to them how to participate and give instructions. Instructors were asked to provide students extra credit for their participation in the research project. For those students interested in participating, a link was emailed with a 10-15 minute questionnaire. The link initiated a secure questionnaire available through Zoomerang. After following the correct consent procedures on the online survey, which can be found in the Annex, at the beginning of the survey students were requested to provide their student ID number in order to receive extra credit. Then students responded about their online activities, demographic information, and interests in civic and political activities. On the average, students took 12 minutes to complete the questionnaire. The data was collected between April 1 and May 5th, 2012.

Measures

Media Use. Respondents were asked to indicate on a 7-point scale how frequently they use

different media to get information about politics and public affairs ranging from (1) Don't use it at all to (7) almost all day. For offline consumption (Cronbach's α= .66), an average use index was created for television, radio and newspaper consumption. Since the variable was skewed (M = 2.25, Mdn = 2, SD = .87, skewness = 1.37), the natural logarithm was computed to produce a normalized distribution (M = .32, Mdn = .31, SD = .16, skewness = .02). For traditional online media (interterm r = .513, M = 2.45, SD =

1.4) it was used an averaged index of two items: websites of TV news organizations such as CNN and online news sites such as Google News. For Web 2.0 news media consumption (Cronbach's α= .67) was used an average index that included three applications/websites that cover the main areas of these new social media environments: Digg or NewsTrust where users rank stories; news organizations or journalists one follows on a SNS (e.g. Facebook); and blogs (M = 1.95, Mdn = 1.66, SD = 1.01, skewness = 1.52). Since the variable was also skewed, the natural logarithm was computed (M = .24, Mdn = .22, SD = .198, skewness = .53)

Interpersonal discussion on politics. Three separate items were prepared for face-to-face (FtF), online and Web 2.0-based political discussions. FtF political conversation was measured by a question that asked respondents, on the same 7-point scale as above, how often they discuss politics and public affairs with others in person (M = 4.6, SD = 1.5). For Web 2.0-based discussions it was asked participants how often they discuss politics and public affairs on SNSs or sites where other users can follow the discussion (M = 3.6, SD = 1.82), and for online the frequency they discuss these topics with others using personal chat, email or instant messaging (M = 3.01, SD = 1.78).

Collective efficacy. Drawing from previous research (Lee, 2005; Van Zomeren et al., 2008; Yeich & Levine, 1994), six questions on an 7-point scale (*M* = 3.1, *SD* = 1.5, Cronbach's α= .89) were averaged to calculate the shared belief held by individuals about the group's capabilities and skills to perform a collective action (e.g. "The collective action of people can improve society"), and also the perceived responsiveness of the environment to the collective action (e.g. "If enough citizens got organized and demanded change, politicians would take steps to end their problems").

Civic Participation. Six items related to college students' activities selected from previous

     research were used to measure participation in political activities, such as "Worked with

     others to solve a problem in your community" and "Participated in activities run by

     sororities or fraternities" (Campbell & Kwak, 2010; McLeod et al., 1999). The items,

     measured on a 6-point scale, ranging from (1) Never to (6) Almost every week, were

     averaged to create a single measure ($M = 2.9$, $SD = 1.1$, Cronbach's $\alpha = .79$).

Strong-tie discussion. Respondents were asked how frequently they discuss public affairs with

     family members and friends using a scale ranging from 1 (never) to 7 (all the time) in

     three different settings: FtF ($M = 4.8$, $SD = 1.47$), email, personal chat or Instant

     Messaging ($M = 2.8$, $SD = 1.8$), and through SNSs ($M = 4.1$, $SD = 1.7$).

Weak-tie discussion. Using the same 7-point scale respondents were asked how frequently they

     discuss about public affairs with coworkers, classmates or acquaintances in the three

     settings: FtF ($M = 4.3$, $SD = 1.58$), email, personal chat or Instant Messaging ($M = 2.3$,

     $SD = 1.6$), and through SNSs ($M = 3.7$, $SD = 1.8$).

Homogeneity. Respondents were asked using the same 7-point scale how frequently they discuss

     public affairs with users who think similarly to them in the three different settings: FtF

     ($M = 4.8$, $SD = 1.47$), email, personal chat or Instant Messaging ($M = 2.8$, $SD = 1.8$), and

     through SNSs ($M = 4.1$, $SD = 1.7$).

Heterogeneity. Following Mutz (2002) who treated heterogeneity as exposure to differing

     political views, and Kwak et al. (2005) that included measures for demographic

     differences as well, participants were asked how frequently they discuss with "People

     with extreme left or right views" and with "People of a different race or ethnicity" in the

     three different settings: FtF (interitem $r = .52$, $M = 3.4$, $SD = 1.4$), SNSs (interitem $r =$

.66, M = 3.1, SD = 1.5), and through email, personal chat or Instant Messaging (interitem

r = .71, M = 2.8, SD = 1.8, skewness = 1.45). Both items were averaged and combined in

a single measure. Since heterogeneity in email conversations was skewed, the natural

logarithm was computed (M = .21, Mdn = .02, SD = .25, skewness = .79)

Time spent on social media. Users were asked to indicate on the same 7-point scale (from Don't

use it at all to Almost all day) how much time they spent yesterday on SNSs such as

Facebook or Twitter (M = 4.1, SD = 1.5).

Serendipitous information. The scale aims to assess users' exposure to information

unintentionally, and it measures users' dispositions in the 2.0 environment to capture

information transpiring in their networks through observation of their contacts' activity.

Twelve statements such as "I come across news or information when a friend or contact

makes a comment on it in Social Network Sites (SNS) like Facebook or Twitter," and

"Using SNS such as Facebook, I'm exposed to news that I would otherwise not see." The

items, measured on a 7-point scale, ranging from (1) Never to (7) All the time, were

averaged to create a single measure (M = 4.67, SD = 0.57, Cronbach's α= .83).

Control Variables

Three demographic variables were used in the analysis. Gender (60.2% female), age in years (M

= 20.1, SD = 1.7) and education.

Education. Since education has been traditionally considered the main predictor for SES (Verba

et al., 1995), participants were asked about the highest level of formal education

completed by their mother and father in a 6-point scale ranging from (1) Less than high

school to (7) Graduate degree (Mdn = 2-year college), and indexed in an averaged item

(interitem r = .549, M = 3.6, SD = 1.2).

Political Interest. Respondents were asked separately about their interest in local community

politics and local community affairs, and in national politics and national affairs. The two

items were combined in scale ranging from 1, "actively do not like it", to 5 "very

interested" (interitem r = .47, M = 13.71, SD = 4.15).

Strength of Political Views. Since research has consistently found that users practice selective

exposure for partisan information (Stroud, 2008), and partisans are more likely to

consume information on candidates (Chaffee et al., 2001) and issue positions (Iyengar &

Hahn, 2009) that supports their points of views, it is expected that partisanship moderates

the effects of discussion with heterogeneous contacts and diverse others. Respondents

were asked to indicate their strengths of political views using a 5-points semantic

differential scale, ranging from Very liberal (8.6% of respondents); Liberal; Moderated;

Conservative; to Very conservative (3.1% of respondents). This item was folded into a 3-

point scale, ranging from weak to strong political views (M = 0.75, SD = 0.6).

Extroversion. Research has traditionally found extraversion related to online activities (i.e.

Amichai-Hamburger & Ben-Artzi, 2003). Although early studies of individuals' online

activities concluded that extraverted individuals were not as heavy Internet users as those

who were more introverted (Ellison et al., 2007), more recent studies have found that

extraverted individuals have more connections with others via SNSs (Zywica &

Danowski, 2008) and are positively related to belonging to Facebook groups and SNSs

use (Ross et al., 2009). This may be explained by the fact that current SNSs do not

provide anonymity, and, consequently, extroverted, rather than introverted users, tend to

engage in social media use (Correa, Hinsley, & De Zuniga, 2010). Respondents rated

their level of agreement using a 7-point scale 1 (strongly disagree) to 7 (strongly agree)

for each of the following statements "I am very outgoing around people I don't know well," and "I tend to be reserved around other people I don't know well" (reverse coded; interitem r = .683, M = 9.21, SD = 3.31).

Data Analysis

Confirmatory structural equation modeling (SEM) in complement with hierarchical multivariate ordinary least squares (OLS) regressions were used to test the predicted mediation of political talk on collective efficacy and civic participation, and to examine whether discussion about public affairs originating in SNSs was more strongly linked to civic participation than discussion via face-to-face and email (personal chat and/or instant messaging). The combination of these two statistical approaches was chosen for data analysis based on the following reasons. First, SEM combines confirmatory factor analysis (CFA) and path analysis in order to determine the extent to which correlations between dependent variables and independent variables are consistent with those predicted in the researcher's path model (Davis, 1985). In fact, SEM has been described as the most appropriate statistical methodology when taking a confirmatory (i.e., hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon (Kline, 2010). A critical assumption in SEM is that all aspects of the modeling process should be driven by theory, and that is the reason why it should be only used to evaluate a substantive theory with empirical data through a hypothesized model (Chou & Bentler, 1995). As Reisinger and Turner (1999) argue: "All aspects of SEM modeling must be directed by theory, which is critical for model development and modification. A clear misuse of SEM can occur when data are simply fitted to a suitable SEM and theory is expanded from the analytical result" (p. 72). Given that several studies have been conducted within the O-S-R-O-R framework, and most of the findings have been consistent with regard to the process of news media effects and discussion

about public affairs on participatory behaviors (e.g., Cho et al., 2009; McLeod et al., 1999; Shah et al., 2005; 2007), it was considered appropriate to choose this method for analysis since it was expected to confirm a hypothesized model within a structure, assuming it existed in the first place.

Second, SEM provides a method of dealing with multiple relationships simultaneously (Hu, 2008). Although the model could be tested via path analysis with the conventional multiple regression technique, that method does not provide information regarding the hypothesized model's goodness-of-fit, which makes it difficult to assess the adequacy of the theory underlying the hypothesized model. On the other hand, by simultaneously testing the structural paths between the variables (News Consumption → Discussion about public affairs → Collective Efficacy → Civic Engagement), it is expected to get a better understanding of the multiple direct and indirect effects theorized. SEM exhibits standardized path coefficients between variables, allowing researchers to identify a total effect of an independent variable on a dependent variable by summing up direct and indirect effects (Kline, 2010). In that sense, the fact that SEM allows the modeling of mediating variables and a more precise estimation of the indirect effects of the exogenous variables on all endogenous variables is also important for this research (Musil et al., 1998). Through this methodology, researchers can estimate not only the extent to which an endogenous variable (e.g. civic participation) is due to the direct effect of an exogenous variable (e.g. political talk), but it also allows for an estimation of how much of that variable's influence is indirect or mediated through a second endogenous variable (e.g. collective efficacy). This is an important element to consider because this study aims to inform the O-S-R-O-R model by adding collective efficacy as a potential intermediary process between communication stimulus and

subsequent orientations, and to test whether these pathways via SNSs facilitate civic engagement.

However, SEM also has a series of disadvantages that are important to consider, and, given the importance that control and blocks of variables have in this dissertation, it was considered useful to complement SEM with hierarchical regression analysis. Several reasons can be given to explain why this combination is important for the analytical strategy. First, hierarchical or fixed-order regression analyses are suggested when the extra amount of variance accounted for a dependent variable by a specific independent variable, or groups of variables, are an important focus of interest (e.g., Cohen, Cohen, West, & Aiken, 2003; de Jong, 1999). Given the topic this dissertation pursues, there is a general interest in exploring the use of SNSs to predict political talk in 2.0 Web-based environments. Because these uses are often correlated with political predispositions such as political interest (e.g. Shah et al., 2005), strengths of political views (Sotirovic & McLeod, 2001), and news consumption in SNSs, it is relevant to control political talk for the former set of variables (Cohen et al., 2003).

Although de Jong (1999) and Gustafsson and Balke (1993) argue that hierarchical factors (HF) model could serve the same purpose, since all latent predictors load on a second order factor and the variance of each latent predictor is partitioned into variance due to the second order factor and residual variance, for simplicity it was decided to use hierarchical regression analysis. The interpretation of those factors might be also difficult. Additionally, Cohen et al., (2003) recommend that when the independent variables are highly correlated and included simultaneously in the regression model, multicollinearity arises. Consequently, instead of simultaneously entering the latent predictors into the SEM model, it was decided to run several hierarchical regression analyses as a complementary approach. This is also important because

this complementary approach would not alter the model fit or affect the measurement part of the model; it is only helping the researcher to give a more clear interpretation of the extra amount of variance accounted for each dependent variable. And third, previous studies in the area have used similar analytical strategies (e.g. Gil de Zúñiga et al., 2009; Jun et al., 2011).

Analytical Strategy

The model, structured within the O-S-R-O-R steps, specifies that demographic variables (e.g., education, age, gender) and factors recognized by previous research able to influence political predispositions (e.g., political interest) serve as the "first orientation"(O); consumption of political information as "stimuli"(S); political discussion as a "reasoning process"(R); collective efficacy as political orientations(O); and civic participation as responses (R). Following the mediation model developed in the literature review, we anticipate that residualized values for Web 2.0 news use predict residualized values of political conversation, which ultimately predict residualized offline civic participation, mediated through the residualized values of collective efficacy. To formally test for these possibilities, a SEM model that residualized the effects of all the demographic and political disposition variables (age, gender, parents' education, extroversion, political interest, strength of political views) on the endogenous and exogenous variables was created. Through this procedure, all of the relationships among variables have the statistical influence removed of the control variables. The total variance in civic participation explained by the regression model was 26.9% with the control variables, and 13% without them.

Additionally, since some of the conversational variables between channels (e.g. heterogeneous and homogeneous networks) were highly correlated, to analyze the moderation and interaction effects of types of ties and heterogeneity of networks in civic engagement, the

variables were entered in three multiple regression models, as was discussed in the data analysis. To test Hypotheses H1a and H2b, a one-way ANOVA and multiple regressions as well were conducted. All the analyses were conducted using SPSS 19.0 and AMOS 20.0.

Chapter 4

How social media triggers civic engagement through political discussion

Results

Since social media facilitates access to news information by contact notifications and horizontal communication, H1a hypothesized that social media users will show higher exposure to news content than in offline and traditional online media. To test this hypothesis, hierarchical multivariate ordinary least squares (OLS) regressions were run to account for potential rival explanations and to assess the exact relationship between time spent in social media and consumption of information. Table 1 compares the relationship between time spent on social media and consumption of information in the three channels studied. As was expected, results showed that even after controlling for demographics and interest in politics, individuals who spend more time on social media also consume more news in this medium ($\beta = .19$, $p < .001$). Further, compared to other media, the standardized betas are significantly higher than consumption of information in traditional media ($\beta = .118$, $p < .001$) at a 0.001 alpha level, and in online media ($\beta = .148$, $p < .001$) at a 0.01 alpha level, supporting H1a. This difference can also be appreciated in terms of the higher explanatory power in consumption of information: whereas time spent on social media could explain 3.3% in Web 2.0-based applications, in online media could only explain 2.0% and 1.2% in traditional media. Additionally, two of the control variables were found to be predictive of news consumption, which bolsters the robustness of the regression model: political interest and strength of political views appeared to exert a positive effect on news consumption, in line with earlier research.

Table 1 OLS Regressions for News Consumption ($N = 808$)

	Traditional Media	Online Media	Social Media
Age	-.04	.028	-.023
Gender (1 = Female)	0.32	.01	-.02
Political Interest	.269***	.23***	.126***
Strength Political Views	.066*	.05	.082*
Education	.007	.036	.017
$\Delta R^2 (\%)$	7.5	5.6	2.2
Time spend in social media	.118***	.148***	.19***
$\Delta R^2 (\%)$	1.2	2	3.3
Constant	1.95	1.87	1.92
Adjusted $R^2 (\%)$	8.7	7.6	5.5

Notes: Cell entries are final-entry OLS standardized coefficients. R^2 change refers to the unique contribution of each block of variables controlling for the previous variables entered in the regression. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Before testing each one of the relationships hypothesized within the structural model, three analytical steps were conducted to attain the best model that fit the data. First, all the possible relational paths were set free to be estimated (a saturated model). This means that each variable in the model that predicts the next hierarchical step (e.g. news consumption in the three channels to political talk, political talk to collective efficacy, and collective efficacy to civic participation) was set to exert a direct influence on the variable in the next hierarchical steps. Although this dissertation focuses principally on the relationships between news consumption and political talk with the endogenous variables in 2.0 environments, and consequently the hypotheses only addressed these aspects, it is important to note that the model discussed predicts that informational uses of the three media analyzed (offline, online and Web 2.0) will directly influence interpersonal discussion in the different settings (FtF, online via email and through SNSs), which in turn will shape levels of civic participation through collective efficacy. The link assumed is that news information will lead media consumers to discuss with others about civil society and political issues, and these conversations in turn will have a number of positive

consequences for civic participation such as exposure to diverse perspectives and opportunities for deliberation.

Table 2 Model Summary

	X^2/df	CFI	TLI	AIC	BCC	RMSEA	SRMR	R^2 (%)
Saturated[1]	-	-	-	88	89.067	-	-	13.2
Trimmed[2]	21.45/11	.995	.988	87.45	88.251	.036	.026	13

[1]This is the fully saturated model with all structural paths freed to be estimated.
[2] This is the final model with all non-significant paths removed.

Consistent with the literature, it was also considered online and offline communication behaviors as complementary such that (a) modes of information seeking are positively interrelated with each other, as are modes of citizen communication; (b) online and 2.0 Web-based forms of news consumption can lead to both online messaging and 2.0 Web-based discussion through SNSs; and (c) political talk can foster greater levels of political efficacy. Then, the saturated model was trimmed by removing non-significant paths from news exposure to political talk and collective efficacy to examine indirect effects on civic participation through the mediation process. And lastly, the direct and indirect effects hypothesized in the structural model were tested. To simplify the model and facilitate the presentation of the mechanisms through which news consumption and political talk affect civic participation through collective efficacy, demographic and political dispositions were not included in the structural model depicted in Figure 2. It is also relevant to note that the trimmed model explained almost the same amount of variance in civic engagement than the saturated model as Table 1 shows (13% Vs. 13.2%), while providing the most parsimonious solutions.

Figure 2 O-S-R-O-R Model of communication effects with collective efficacy
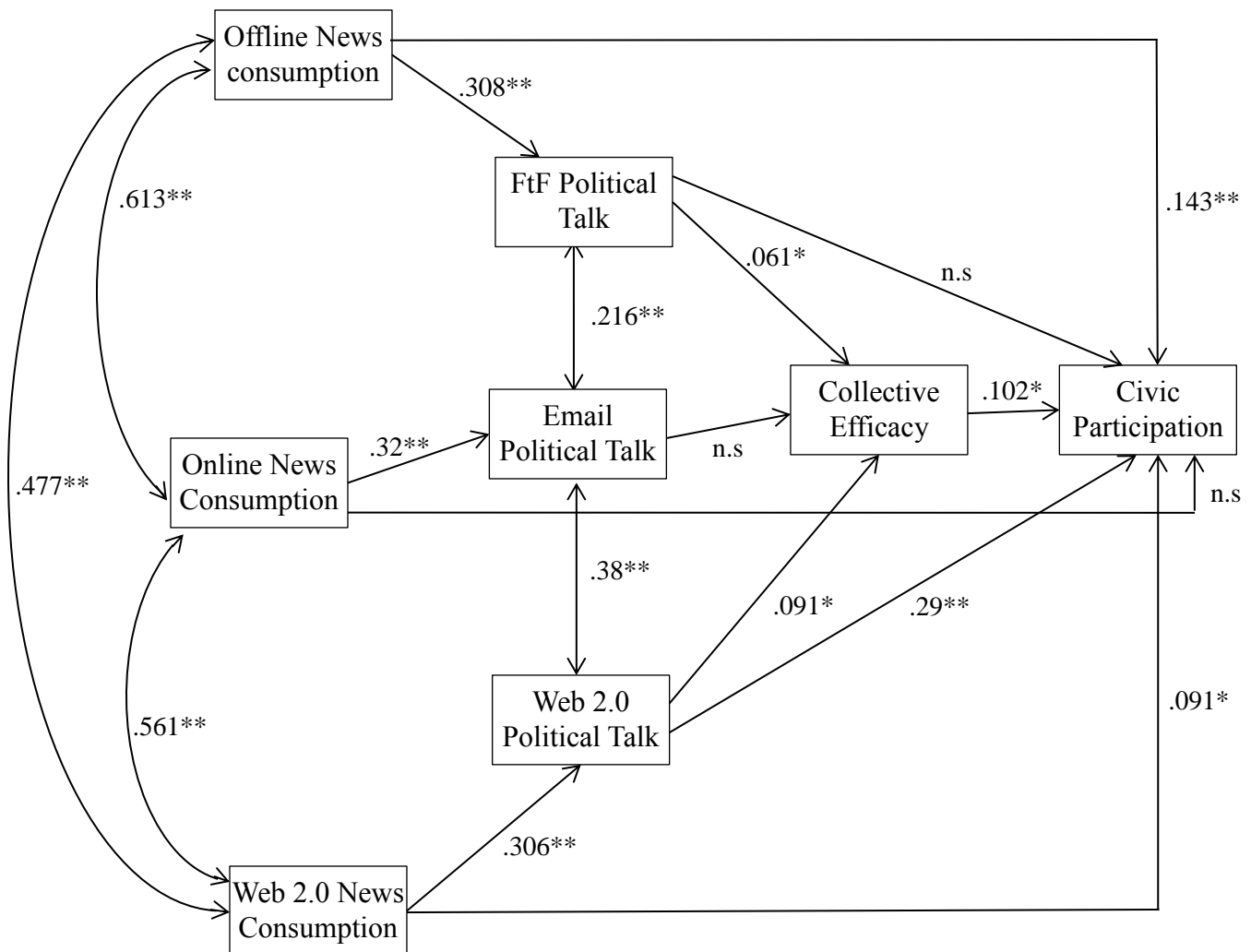
Figure 2 presents the significant relationships between the different variables and the structural model in which news consumption is expected to lead political talk, which in turn will have an effect on collective efficacy, influencing civic participation. Overall, results show an excellent fit for the proposed model (χ^2 = 21.45, df = 11, p = .0256 CFI = .995; TLI = .988; RMSEA = .036; SRMR = .026). Although the model presents a significant p-value at a .05 level, it is relevant to clarify that the chi-square statistic is very sensitive to departures from multivariate normality of the observed variables and increases as a direct function of sample size (Wheaton, 1988). With large sample size, the chi-square values will be inflated (statistically

significant), thus might erroneously implying a poor data-to-model fit (Schumacker & Lomax, 2004). As Bagozzi and Yi (1988) explain, as larger is the sample size, χ^2 test is more likely to reject the model. Given these limitations and the size of the participants in this study (N= 808), Ho (2006) recommends researchers to complement the chi-square measure with other goodness-of-fit measures. The RMSEA is the second most important index to determine the degree to which the proposed model fits the observed covariance matrix. The value is representative of the goodness-of-fit when the proposed model is estimated in the population. RMSEA's values of less than .05 represent good fits, values ranging from 0.05 to 0.08 are deemed acceptable, values ranging from 0.08 to 0.10 indicate mediocre fit, and those greater than 0.10 indicate poor fit (Browne & Cudeck, 1993; MacCallum, Browne, & Sugawara, 1996). As for the TLI and CFI, values higher than .90 represent adequate fit of the model to the data (Hu & Bentler, 1999). Finally, an SRMR index less than .05 is considered as a good fit. The good model fit, supported by seminal work in this area and the solid theoretical basis presented above, confirms the idea that news media consumption leads users to discuss political issues, influencing personal-psychological variables such as collective efficacy, which, in turn, stimulate civic engagement.

Table 3 Direct and indirect effects of news consumption on civic participation ($N = 808$)

	Direct Effect	Indirect Effect	Total Effects
News Consumption in Traditional Media	.16	.004	.164
News Consumption in Online Media	-	.036	.036
News Consumption in SNSs	.091	.093	.184

Notes: Figures are standardized coefficients. All coefficients are statistically significant at the alpha level of .01.

Regarding the influence of news consumption on civic engagement and the relationships between the variables, H1b hypothesized that information consumption in SNSs would have a positive direct effect on civic engagement. As was predicted, a significant direct influence of news exposure in SNS's on participation was detected in the structural model (β = .091, p<.05).

Thus, those who consume more information through social media are also more inclined to engage civically. Although H1c projected that consumption of news in social media applications will be more strongly associated with civic participation than traditional broadcast and online media, the hypothesis was not supported: consumption of news in traditional offline media emerged as a stronger predictor of civic involvement ($\beta = .143$, $p < .001$). However, notably the indirect effects of news consumption in SNSs through political talk and collective efficacy have a higher impact in civic participation than news consumption in traditional media, supporting the idea that mediation is indeed taking place, as is predicted by the next set of hypotheses (see Table 3 for complete direct and indirect effects of news consumption in civic engagement).

Table 4 Indirect Effects of News consumption in SNSs on Civic Engagement

	B
Total Indirect Effects	.093
SNSs News Consumption → SNSs Political Talk → Civic Engagement	.088
SNSs News Consumption → SNSs Pol. Talk → Collective Efficacy→ Civic Engagement	.005

Notes: Figures are standardized coefficients. All coefficients are statistically significant at the alpha level of .01.

In terms of the role that political talk plays in enhancing civic engagement, the results supported H2a. Users who talk about public affairs through social media are also more civically engaged ($\beta = .29$, $p < .001$), and as predicted by H2b, discussion in SNSs is more strongly associated with civic engagement than FtF political talk and discussion via email and/or personal instant messaging. Following the O-S-R-O-R (orientations-stimulus-reasoning-orientations-response) model of communication effects, H2c explores the mediating effects of reasoning behaviors (political discussion) between news media use and political participation. As was hypothesized, political talk partially mediated the influence that consumption of news in SNSs has on civic engagement (see Table 4 for indirect effects), transmitting almost the same portion that the direct influence of news consumption has on civic participation ($\beta = .088$, $p<.001$). That

is, conversing about politics in SNSs is the strongest predictor of civic engagement (β = .29, p <

.001); in turn, consuming information in this channel will lead to greater discussions (β = .306, p

< .001). Therefore, there was evidence that a partial mediation was indeed taking place,

supporting H2c.

Table 5 OLS Regressions for discussion about public affairs ($N = 808$)

	Traditional Media	Online Media	Social Media
Age	.037	.028	-.005
Gender (1 = Female)	-.66	-.088**	-.029
Political Interest	.419***	.253***	.327***
Strength Political Views	.018	.055	.027
Education	.007	.037	.059
Extroversion	.012	.032	.101**
ΔR^2 (%)	20.4	11.8	15.4
News Consumption in traditional media	.106**		
News Consumption in online media		.314***	
News Consumption in social media			.323***
ΔR^2 (%)	.9	9.1	10
Constant	2.95	.123	-9.36
Adjusted R^2 (%)	21.3	20.9	25.4

Notes: Cell entries are final-entry OLS standardized coefficients. R^2 change refers to the unique contribution of each block of variables controlling for the previous variables entered in the regression. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

As discussed in the literature review, the social structure of SNSs enhances not only the

acquisition of information but also the capacity to discuss the information presented by the

media. In order to test whether consumption of news in social media leads users to discuss more

about political news than users who consume news from offline and traditional online media

(H2c), three hierarchical regressions were run with political discussion as the dependent variable

(via FtF; email or personal chat; and through social media), consumption of information in each

channel as the independent variable, and demographics, political interest, strength of political

views and education as control variables. Table 5 shows the relationship between consumption of

information and political discussion in the three channels studied. As was hypothesized, results

show that individuals who consume more news in social media also talk more about politics in this medium (β = .323, p<.001). Further, compared to other channels, the relationship between consumption of news and political is significantly higher than in traditional media (β = .19, p<.001) at a 0.01 alpha level, and in online media (β = .148, p<.001) at a 0.1 alpha level. Additionally, the analysis revealed two other findings that explain how the affordances of SNSs can amplify and spread the effects of news information and political discussion in participatory behaviors. First, the regressions show that the blocks related to news consumption have a higher explanatory power in online and social media (9.1% and 10% respectively) than in traditional media (0.9%). The results are consistent with the idea that higher access to information consumption (e.g. news sharing in online media and contact notification in social media), and lower costs to initiate dialogues in online and social media (e.g. co-presence is not needed and conversations are asynchronous, so networks are potentially "available" to be reached 24/7) facilitate news consumption and political discussion, enhancing its effects on civic participation.

This idea can be reinforced observing the relationship between political interest and conversations about public affairs: this variable is significantly higher in traditional media (β = .419, p<.001) than in online (β = .253, p<.001) and social media (β = .327, p<.001). That is, those who are more politically interested discuss more about public affairs in the three channels studied, however in both online platforms users do not need to be "so interested" in politics as in FtF to discuss with others. A second aspect that should be noted is the significant difference in the role that extroversion has predicting political discussion in social media: whereas this variable is not positively associated with political talk in FtF settings or through email and personal chat, in social media it has a prominent role (β = .101, p<.01), indicating an interesting difference in the type of users who discuss in these channels.

Table 6 OLS Regressions for Civic Participation (*N* = 762) differentiated by users who discuss via FtF, email and SNSs with heterogeneous and homogeneous contacts

	Civic Participation	
	Homogeneity	Heterogeneity
Age	-.147**	-.147**
Gender (1 = Female)	.018	.018
Political Interest	.206***	.206***
Strength Political Views	-.034	-.034
Education	.029	.063
Extroversion	.195***	.195***
ΔR^2 (%)	14.1	14.1
News Consumption in traditional media	.09	.076
News Consumption in online media	.048	.042
News Consumption in social media	.094*	.062
ΔR^2 (%)	7.9	7.9
FtF Discussion	.001	.043
Email/Chat Discussion	.083*	.147***
SNSs Discussion	.23***	.237***
ΔR^2 (%)	5.5	8
Constant	2.25	1.84
Adjusted R^2 (%)	27.5	30

Notes: Cell entries are final-entry OLS standardized coefficients. R^2 change refers to the unique contribution of each block of variables controlling for the previous variables entered in the regression. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

In testing the influence of network composition on civic engagement, and more specifically, whether the relationship between political talk and civic engagement is stronger among social media users who discuss with weak ties and heterogeneous networks (H3a and H3b respectively), hierarchical regressions were run and both hypotheses were partially supported. Table 6 shows the positive effect on civic participation in users who discuss with more heterogeneous contacts. Two main indicators were used to test the hypothesis. First, in a more general level it was found that the third block of variables in the heterogeneous network (discussion about public affairs) could explain a higher variance in civic engagement compared to the homogenous network (8% to 5.5%), confirming the idea that network composition may have a positive impact on civic engagement. However, the results show that most of this difference is because the relationship between discussion and civic engagement is higher for

users who discuss in more heterogeneous networks via email (β = .147, p < .001) compared to those who discuss with more likeminded others (β = .083, p < .05). Regarding discussion in social media, although the standardized beta of discussion in heterogonous networks is higher (β = .237, p < .001) than in homogeneous networks (β = .23, p < .001), this difference is not statistically significant at a 0.05 alpha level, showing partial support for H3a.

Table 7 OLS Regressions for Civic Participation (N = 786) differentiated by users who discuss via FtF, email and SNSs with strong and weak ties

	Civic Participation	
	Strong Ties	Weak Ties
Demographic block ΔR^2 (%)	14.1	14.1
News Consumption block ΔR^2 (%)	7.9	7.9
FtF Discussion	-.05	-.057
Email/Chat Discussion	.115**	.136**
SNSs Discussion	.145**	.209***
ΔR^2 (%)	2.7	5.1
Constant	2.36	2.34
Adjusted R^2 (%)	24.7	27.1

Notes: Cell entries are final-entry OLS standardized coefficients. R^2 change refers to the unique contribution of each block of variables controlling for the previous variables entered in the regression. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Regarding H3b, a similar statistical analysis was employed to compare the effects of weakness of ties on civic engagement. H3b predicted that the relationship between political talk and civic engagement would be stronger in social media users who discuss with weak ties. Consistent with the hypothesis, Table 7 shows that the standardized beta of discussion with weak ties is higher (β = .209, p < .001) than with strong ties (β = .145, p < .001), and this difference is statistically significant at a 0.001 alpha level, supporting the H3b. Indeed, this difference can also be appreciated by the fact that discussion with weak ties can explain a higher variance on civic engagement than discussion with strong ties (2.7% to 5.1%), confirming the idea that network

composition and types of ties may have a positive impact on civic engagement. In order to answer our research question, interaction terms were created between heterogeneity of network and type of ties, but were not found any significant effects for civic participation.

Table 8 OLS Regressions for Homogeneity and Heterogeneity ($N = 762$)

	Homogeneity	Heterogeneity	Homogeneity	Heterogeneity
Age	-.045	-.046	-.01	-.052
Gender (1 = Female)	-.157**	-.188**	-.133	-.215**
Political Interest	.288***	.316***	.283***	.260***
Strength Political Views	-.076	.082*	.044	.082*
Education	.01	-.027	.01	-.021
Extroversion	.088**	.108**	.07	.108**
ΔR^2 (%)	9.7	14.7	9.7	14.7
Time Spent in Social Media	.135**	.21***	.106**	.132***
ΔR^2 (%)	3.5	3.9	3.5	3.9
Serendipitous information			.33***	2.72***
ΔR^2 (%)			9.4	6.3
Constant	3.7	3.9	2.25	2.4
Adjusted R^2 (%)	13.2	18.6	22.6	24.9

Notes: Cell entries are final-entry OLS standardized coefficients. R^2 change refers to the unique contribution of each block of variables controlling for the previous variables entered in the regression. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Although the frequency of discussion in SNSs within homogeneous networks (M= 4.1) was significantly higher than within heterogeneous networks (M=3.1), this disparity was not found when both variables were regressed on time spent in social media. Political interest, extroversion, and demographic variables were controlled for, and the difference between the standardized betas was inversed: whereas time spent on social media was still positively related to discussion with homogeneous contacts (β = .187, p < .001), the relationship was significantly lower at a 0.05 alpha level than discussion with heterogeneous contacts (β = .212, p < .001), supporting H4a as Table 8 shows. That is, time spent on social media is a much stronger predictor of discussion with heterogeneous ties than homogeneous ties. H4b hypothesized that

time spent on social media would be positively related to accidental exposure to information. As Table 9 shows, results demonstrated this positive relationship (β = .275, p < .001), which means that users who spend more time in SNSs are much more likely to be exposure to information accidentally.

Table 9 OLS Regressions for Serendipitous Information and Heterogeneity (N = 674)

	Serendipitous Information	Heterogeneity	Heterogeneity
Age	.019	-.085*	-.059
Gender (1 = Female)	.097*	-.188**	-.214**
Political Interest	.203***	.241***	.246***
Strength Political Views	-.001	.088*	.084*
Education	.01	-.005	-.003
Extroversion	-.003	.110**	.097**
ΔR^2 (%)	5.4	13.2	13.2
Time Spent in Social Media	.275***		.158***
ΔR^2 (%)	7.1		4.6
Serendipitous information		.281***	2.37***
ΔR^2 (%)		7.3	4.8
Constant	3.58	6.02	5.8
Adjusted R^2 (%)	12.5	20.5	22.6

Notes: Cell entries are final-entry OLS standardized coefficients. R^2 change refers to the unique contribution of each block of variables controlling for the previous variables entered in the regression. * $p \leq$ .05, ** $p \leq$ .01, *** $p \leq$ .001.

To test H4c, which states that exposure to accidental information will mediate time spent on SNSs on discussion with heterogeneous contacts and diverse others, I followed the two procedures indicated by the literature (Baron & Kenny, 1986; Hayes, 2009; Preacher & Hayes, 2004). First, I tested the three conditions that a variable has to fulfill in order to be considered a mediator, as Table 9 shows: (a) the significant effect of the independent variable (time spent on SNSs) on the presumed mediator (exposure to information unintentionally, β = .275, p < .001); (b) the significant effect of the mediator on the dependent variable (discussion with heterogeneous contacts and diverse others, β = .310, p < .001); (c) adding exposure to

information unintentionally reduces a previous significant relation between the time spent on

SNSs and discussion with heterogeneous contacts and diverse others (from β = .269, p < .001 to

β = .155, p < .001). Once the three conditions were fulfilled, a bootstrap procedure used to

generate a 95% confidence interval (2,000 samples) was conducted to measure the indirect effect

of time spent on SNSs to discussion with heterogeneous contacts and diverse others via exposure

to accidental information. This approach is recommended for detecting mediation effects in

medium size samples (MacKinnon et al., 2002; Wood et al., 2008). The results were obtained

using the Bias Corrected (BC) percentile method (Mooney & Duval, 1993). It was found that the

95% confidence intervals for the mediation effects of: time spent on SNSs → exposure to

information unintentionally → discussion with heterogeneous contacts and diverse others

(standardized indirect effect = .080; 95% CI: .113 to .51). Note that this confidence interval

excludes zero and therefore supports the conclusion that the indirect effect of time spent on SNSs

on discussion with heterogeneous contacts and diverse others through the mediator of exposure

to information unintentionally is statistically significant (Amos reports p < .001 for the bias-

corrected bootstrap method).

In terms of the role that collective self-efficacy plays in civic engagement, the results

showed in Figure 1 support H5a, confirming the idea that political efficacy is a strong predictor

of civic engagement (β = *.102*, p < .01). That is, users denoting a higher sense of collective

efficacy reported higher levels of civic engagement. To test H5b and see whether the effects of

discussion about public affairs in social media are mediated by collective efficacy, a bootstrap

procedure used to generate a 95% confidence interval (2000 samples) tested the indirect effect of

political talk in SNS on civic engagement. Similar in testing the previous hypothesis, it was

decided to use a bootstrap procedure because the indirect effect of political talk on civic

engagement mediated by collective efficacy was low (β = .013), and at the same time the direct effect of discussion about public affairs in social media was still highly significant (Preacher & Hayes, 2004). However, the results show that the indirect effect (β = .013) was significant at p = .006 (95% CI: .003, .027). Further, the 95% bias-corrected and accelerated confidence interval for the indirect effect was estimated to lie between .003 and .027, and since the interval does not include zero, it is safe to conclude that the indirect effect was significantly different from zero, at p < .05, confirming the partial mediation of collective efficacy (see Preacher & Hayes, 2004, for a detailed explanation of this procedure).

While the use of cross-sectional data helps establish the structure of the relationships, it presents a challenge in making definitive causal claims. In order to be sensitive to this limitation, four alternate models were tested in which causality was reversed in order to examine anticipated trends from that perspective. Table 8 shows the different possibilities tested and how the model presented here has a better fit that any other possibility, as indicated by the different Indices and criteria, offering grounds for hypothesizing that causality flows in the directions indicated by O-S-R-O-R.

Table 10 Model Comparison

	X^2/df	CFI/TLI	SRMR	RMSA
Civic Participation → Collective Efficacy → News Consumption & Political Discussion	131.7***/11	.935/.835	.1072	.131
Collective Efficacy → Civic Participation → News Consumption & Political Discussion	93.7***/10	.962/.863	.074	.106
News Consumption & Political Discussion → Civic Participation → Collective Efficacy	53.7***/11	.98/.95	.052	.72
Civic Participation → News Consumption & Political Discussion → Collective Efficacy	62.9***/10	.976/.932	.056	.084

*Notes: * p ≤ .05, ** p ≤ .01, *** p ≤ .001.*

Discussion

These first chapters aimed to test the validity of the O-S-R-O-R model of communication effects in Web 2.0-based environments and explore whether SNSs can increase the participatory effects of news information and political discussion on civic engagement. This was based on the prediction that the manner in which individuals acquire information from news media, the influence of the content generated from discussion, and the subsequent cognitive processing of the information would empower users to feel capable of acting collectively. Overall, this first part of the dissertation yields four major findings. First, it was found that SNSs increase not only information acquisition, but also the users' capacity to discuss news presented by their contacts: whereas time spent on SNSs was positively related to news consumption, users who consumed information through social media also discussed more about public affairs than users of offline and traditional online media. Secondly, by adding collective efficacy as a potential intermediary process between communication stimulus and subsequent orientations, the results obtained extend current theoretical models that consider political talk as a mediator of information consumption (e.g. Cho et al., 2009; Jun et al., 2011; Kwak et al., 2005; Shah et al., 2005) able to trigger a series of cognitive and expressive processes (e.g. collective efficacy) that activates behavioral outcomes (e.g. civic engagement). Thirdly, it was found that structural features in which political discussion occurs (such as weak ties and network heterogeneity) positively moderate the effects on civic engagement. And fourth, results show that time spent on SNSs may lead to unintentional exposure to information, which in turn may positively affect discussion with heterogeneous contacts and diverse others.

Social media as a catalyst for news consumption and political discussion

The interest in the effects of social media on civic engagement and social capital has gained full attention of scholars from the communication and political area in the last couple of years. Shirky (2011) and many other scholars (e.g. Bimber, 2001, Katz & Rice, 2002), note that as communication technologies become more participatory, the networked population is gaining greater access to information, more opportunities to engage with others in this virtual public realm, and a stronger ability to undertake collective action. Consistent with previous studies that show how the Internet supplements traditional news consumption (Althaus & Tewksbury, 2000) and provides additional outlets for participation (e.g., personal blogs tackling political issues, see Vitak et al. 2011), it has been argued that SNSs not only facilitate news consumption but also enhance discussion among users about the presented information, which all can lead to subsequent civic engagement. Drawing on research that considers information consumption as a primary source of civic engagement able to evolve via mediating constructs, the structural model presented in this study considered hierarchical relationships among variables to identify indirect effects. Specifically, it theorized that a set of preexisting variables (i.e., demographic, extroversion and political interest) are the antecedents of news consumption, whereas reasoning behaviors (i.e., discussion about public affairs) and personal-psychological variables (i.e., collective efficacy) are outcomes of news consumption, which in turn lead to civic engagement. Therefore, only the magnitude of the total indirect effects presented in this long chain of well-connected actions illustrates the significant role of news consumption in the establishment of individuals' participatory behaviors, and not necessarily the direct influence. As expected, it was found that the impact that information consumption had on civic engagement in SNSs was mostly indirect.

Most importantly, as discussed above, the critical mechanism to civically engage individuals is the reasoning process that involves discussion among social media users after being exposed to information consumption. Results of this study suggest that news consumption in social media leads users to discuss political news more than users who consume news from offline and traditional online media. Notably, it was found that the political interest of users who consume and discuss political information in online and social media settings was significantly lower than of that of those who consume information through offline media and FtF settings. This means that users in both online platforms do not need to be "so interested" in politics as in FtF in order to discuss with others. As mentioned above, this may be related to the lower barriers afforded by online media for initiating dialogue: compared to other channels, social media's accessibility for information consumption (e.g. news sharing with only one click or being notified by contacts), and the lower costs for dialogue initiation (e.g. co-presence is not needed and networks are potentially "available" to be reached 24/7), may facilitate news consumption and political discussion.

In other words, the lower barriers make it easier for users to discuss public affairs with others. Whereas users less interested in politics may not visit a friend to discuss public affairs, they may comment on the news shared by their contacts or posted on their SNSs walls. Relevant for the discussion is the fact that political activity on SNSs such as writing a civically themed status update or joining an interest group on the site requires little time or effort from the user; however, offline civic participation (e.g., volunteering for a campaign or finding others to discuss about public affairs) requires a more substantive commitment of resources and consequently, only those who are extremely interested will participate (Vitak et al., 2011). That means that interest in politics is a much better predictor of political discussion in FtF settings

than via online or social media, and consistent with previous literature (e.g., Bimber 2001; Katz & Rice, 2002) this may be related to the lower barriers afforded by online media for initiating dialogues, which makes easier for users to discuss public affairs with others. In this way, not only those users who are highly interested in politics would participate in discussions on digital media, but also those who receive messages and/or see an opportunity to comment on others' status will participate.

Furthermore, by relying on mass information-sharing mechanisms such as status updates, SNSs allow users to share their thoughts with their entire network and learn what their network is thinking or what they commented just by logging onto their own accounts. This non-invasive form of communication reduces many of the social norm "costs" that regulate information transactions through other channels. As discussed above, unlike information-sharing that occurs through mass media, discussants who engage in information-sharing through FtF or email expect that the information being conveyed to them is somehow personally relevant. However, that is not the case of SNSs, where given the low transactional costs and non-invasive forms of communication, users may feel more freedom to comment on diverse topics, regardless of their network's interests.

However, it is important to note that the model of civic participation enhanced by SNSs described above (in which users prefer low time-effort commitment when engaging civically and mass information-sharing employs public discussion with users' networks) may present some limitations that need to be mentioned. First, this low time-effort commitment may be called slacktivism or clicktivsm, terms used to describe actions that require little from the "activists," yet still provide the feeling that they have done something to help a given cause (e.g., Christensen, 2011; Morozov, 2009). The basic concern is that tweeting 140 characters supporting

a breast cancer campaign, or "like"-ing a social cause on Facebook without having to get up

from a chair, does not necessarily mean that users translate their civic engagement activities on

social media as "offline" and "valued" forms of civic participation (Campbell, 2012). It is true

that these activities require less effort and may be done by "lazy" individuals; however, based on

the positive relationship of SNSs' use and civic engagement as well as the indirect and direct

effects of political discussion and collective efficacy, it may be argued that SNS actions can also

facilitate the development of civic skills from information consumption and political discussion.

This may increase civic participation. Vitak et al. (2011) also stressed that one of the advantages

of the more "lightweight" activities enabled via Facebook is the opportunity to ''practice'' civic

skills with a minimal commitment of time and effort.

The second aspect that should be addressed is the role that extroversion plays as a barrier

for political talk in social media. Whereas this variable was positively associated with discussion

about public affairs in SNSs, it was not a significant predictor in FtF settings or email and

personal chat. This shows an interesting contrast among the type of users who discuss "civic"

topics on these channels, because while more extroverted individuals may prefer mass

information-sharing mechanisms to update their SNS networks about their political thoughts,

introverted users may prefer traditional, online interpersonal channels or FtF conversations, in

which just a few people are integrated in a discussion, to address public affairs. Moreover, this

difference may also have some implications for the potential of SNSs to attenuate the effects of

the undesirable social-psychological influences on opinion expression. Traditionally,

communication scholars have been positive about the potential of computer-mediated

communication to become an effective forum for fostering deliberation, gathering information,

and exchanging information among citizens (Cappella, Price, & Nir, 2002; Delli Carpini, 2000; Hardy & Scheufele, 2005; Jennings & Zeitner, 2003).

Given the conditions of anonymity and reduced observable social cues relative to face-to-face interactions, studies have shown that computer-mediated communication can promote the possibility of more egalitarian participation (Siegel, Dubrovsky, Kiesler, & McGuire, 1986), generate more ideas (Gallupe, Bastianutti, & Cooper, 1991), and increase overall participation levels (Kiesler, Siegel, & McGuire, 1984). In light of these findings, scholars tend to agree that computer-mediated communication has the potential to create an environment conducive for public deliberation by attenuating the effects of the undesirable social-psychological influences on opinion expression (Ho & McLeod, 2008). However, results of this study are less optimistic. They show that discussing public affairs in SNSs –contrasted to FtF, private chat, and email-, may be mitigated by levels of extroversion. This implies that the mediated communication setting affects less extraverted individuals in terms of holding discussions about public affairs in SNSs. Moreover, continuing with the networked sphere perspective delineated above, it may be argued that although SNSs facilitate political talk by making the structure of political discussion more transparent and informing collectively users' networks via notifications, this motivation is especially high for extroverted individuals, but not so for more reserved users.

This finding is consistent with recent studies that have examined personality and SNSs uses (Correa et al., 2010; Ross et al., 2009; Zywica & Danowski, 2008). Although early studies of individuals' online activities concluded that extraverted individuals were not as heavy Internet users as those who were more introverted (Ellison et al., 2007), more recent studies have found that extraverted individuals have more connections with others via SNSs (Zywica & Danowski, 2008) and are positively related to belonging to Facebook groups and using SNS (Ross et al.,

2009). In fact, the 'rich-get-richer' hypothesis posits that extraverts gain more from CMC usage as their offline sociability is transferred to CMC platforms (Ong et al., 2011), and in this case ICT such as Facebook may actually disadvantage introverted users because SNSs rely on the types of offline relationships that an extravert is more likely to develop (Ross et al., 2009). Correa et al., (2010) claim that this may be due in part to the restrictions on anonymity in SNSs, since most users interact with individuals they already know on these sites and they are commonly used for communication between single users who are more familiar with each other, therefore limiting their engagement with strangers.

Political Talk and Collective Efficacy in SNSs as Mediators for Civic Engagement

A second major contribution of this study is the confirmation that political talk in social media, in contrast to interpersonal online conversation (email, chat or IM), has a stronger impact on collective efficacy and civic engagement. The model presented in this dissertation follows the cognitive mediation model in political communication research to explain the direct influence on civic engagement (Eveland et al., 2003; Nisbet & Scheufele, 2004; Schefuele, 2000). Based on the uses and gratifications approach in mass communication, it seems that whether individuals have surveillance motivations or not, they may use the media to anticipate an impending conversation. As explained in the review of the literature, people garner information from mass media when they anticipate future communication with others, and this provides media certain awareness or "communicatory utility" about a topic that the individual expects will be mentioned in a later conversation. This anticipation in turn, promotes greater elaboration on news content since users want to be prepared for later discussion. This desire for preparation triggers more information to be carefully processed and strengthens the effects of traditional media use. Since peer-generated comments in SNSs precede the media-broadcasted information, discussions

between participants are more salient and frequent. We theorize that users of social media will be cognizant of possible discussions when they post comments, which will cause users to process the information more carefully. The direct effects of discussing public affairs on civic engagement are consistent with the cognitive mediation model, and they also support the idea that the tagging features embedded in SNSs make the conversation's information more salient. This gives users additional opportunities to be exposed to the information and augment their comprehension of the issue. It should be noted, however, that the direct effect of discussion on political participation is quite strong in this study, which lends support to the idea that interpersonal discussion directly leads to political participation.

Regarding its indirect effect on civic participation through collective efficacy, two main considerations are important in order to understand the positive relationship between discussion and this form of psychological empowerment. First, from a theoretical perspective, it is demonstrated that the communication infrastructure theory is an appropriate framework for understanding how communication technologies can facilitate and reflect community cohesion and enable a sense of collective efficacy that may ultimately contribute to civic engagement. By studying SNSs as a structure that facilitates access to news information and promotes political discussion through the integration of peer-generated content and notifications, it is predicted that SNSs will generate and disseminate stories among contacts. This facilitates the creation and sustenance of an integrated storytelling network. Further, consistent with the idea that a common infrastructure for interchanging stories would help individuals to identify with social issues and learn about opportunities for participation through other comments, it was found that social media use is positively related to information consumption and subsequent forms of discussion. These conversations about public affairs in turn, lead users to believe that it is easier to mobilize

collective efforts for solving community problems, activating their sense of agency and thus augmenting the likelihood of civic participation.

Moreover, the model presented in this research identified specific Web 2.0-based tools that were able to generate this collective belief (Digg, news organizations followed on a SNS, and Blogs) and exhaustively controlled for effects that FtF conversations and other media (e.g., email or chat) may have had in this process. Even so, there was a positive effect between discussion and collective efficacy in SNSs. This finding suggests that political talk in SNSs adds something different to all the positive effects that the other sources of information and channels for discussion may already have in collective efficacy and civic participation. One plausible explanation may be related to the higher opportunities for exposure to "social information" presented in SNSs: social media promotes a participatory dynamic in which discussants can see what their contacts collectively think about public issues and even get collective answers from their networks to personal inquiries. As explained in the literature review, by allowing mass information-sharing mechanisms, users of these social platforms can simultaneously communicate with all their contacts and networks while responding to information or comments posted by users; therefore, is likely that SNS users will find resources in their networks when they ask for help or want to clarify information presented in the media. This augments their exposition to spheres in which reflective storytellers operate and take collective actions to solve problems.

Secondly, the fact that conversations via traditional online media (e.g., email, chat and IM) were not positively associated with collective efficacy, reinforces SNS's potential to organize networks as a collective actor and increases users' shared belief in the ability to act collectively. Although research argues that SNSs motivate collective action by providing simple,

inexpensive ways to organize members, arrange meetings, spread information, and gauge opinion (Ellison, Steinfeld, & Lampe, 2009), results from this study also suggest that collective or social feedback exerted by users in forms of dialogues may impact this form of psychological empowerment. As explained above, the capabilities for interpersonal and mass communication highly embedded in these Web 2.0-based applications enable users to inform their contacts and receive "collective" feedback from them as well. This may increase opportunities for users to see how groups of people respond to individual behaviors. The modus operandi of the social news aggregator Digg reflects this new social environment in which participants can visualize how their actions have an effect on collective decisions. Defined as "a place for people to discover and share content from anywhere on the web" (Digg, 2012), Digg is a simple application through which users submit stories from the Web and other users rate these stories by voting. If the submission receives enough "Diggs" (votes), it is promoted to the front page, ensuring that the promotion mechanism does not depend on the decisions of directors or editors, as traditional mass media do, but rather on users who collectively determine the value of content (Lerman, 2007b). However, the site does not stop there. In addition to promoting news stories, Digg offers two more services: the application ranks users by their success in getting their stories promoted to the front page, and allows users to create social networks by adding friends and promoting conversations around the content. This lets people make comments and discuss how important the news is to them. This reflects Digg's ideal: "We are committed to giving every piece of content on the web an equal shot at being the next big thing" (Digg, 2012).

This use not only shows how users socially process information and collectively respond to external stimulus, but also how different these applications are from the Web 1.0 tools, which were largely organized around content. In the social-media era, everything is organized around

users who are informed by their contacts, and since their actions are visible to the large group of contacts that conform each network, it is expected that individuals feel more collective efficacy. This finding may be consequential for two main reasons: on the one hand, results showed that discussion about public affairs was linked to collective efficacy and participation in civic life. Consequently, if users are sharing news stories and discussing this information in a Web 2.0 environment, political expression is triggered and as our model shows, it may be expected that young people will civically engage through public discussion in social media. Secondly, we noted that not only did a high percentage of our respondents share news and information with their peers, but also many news sites such as Digg are facilitating sharing options, which integrates several social media applications such as Facebook and Twitter within their own channels. Through such practices, these news websites focus not only on delivering information to users, but also on forging connections within communities of users. This in turn may increase participatory effects.

Weak Ties and Network Heterogeneity as Moderators of Civic Engagement

A third contribution of this research is that findings are consistent with the idea that network composition moderates the effects of discussions in SNSs about public affairs. Results show that conversations among weak ties and heterogeneous contacts positively affect civic engagement. Two possible projections regarding the role of SNSs on civic participation should be noted. First, it is possible to anticipate that connections with weak ties may be augmented by SNSs since these platforms allow users to create and maintain larger, diffuse networks of relationships from which they could potentially draw resources (Donath & boyd, 2004; Ellison et al., 2007). Research has consistently found that SNSs reinforce existing ties and communities by constantly updating users about what is going on with their contacts (Park, Kee, & Valenzuela

2009). Furthermore, by increasing the user's knowledge of other members, SNSs can foster norms of reciprocity and trust, ultimately creating new opportunities for civic and political engagement (Gil de Zúñiga, Jun &Valenzuela, 2012). Using the concept of "latent ties" to describe connections that are possible but not yet socially activated, Ellison et. al., (2007) found that SNSs (Facebook in particular) have the potential to easily convert latent ties into weak ties. Facebook's wide range of identification information such as background information (e.g. hometown) encourages users to activate latent ties (e.g., finding classmates from elementary school), which transforms them into weak ties associated with positive bridging social capital outcomes. In other words, social media facilitates communication pathways between individuals who would not usually connect. This can be especially observed when "friends" are recommended based on common friends' shared background.

This idea is supported by previous studies that have associated the existence of bridging social capital with Facebook use (Ellison et al., 2007, Valenzuela et al., 2009), indicating that young adults are using social media to maintain large and heterogeneous networks of friends. However, it is important to be cautious with this interpretation, since an equally plausible possibility is that young adults with a large and heterogeneous network of friends have more motivation to manage this network with a service like Facebook (Steinfield, Ellison, & Lampe, 2008). This option would also generate a significant correlation, and as Steinfield et al. (2008) discerned, cross-sectional studies cannot rule out such an alternative. In any case, based on the results it is possible to argue that social media use is strongly related to conversations with weak ties. This, in turn, positively affects civic engagement.

However, it is possible to argue that these same affordances, which enable inclusion of a wide range of identification information and encourage users to transform latent ties to weak ties,

might lead users to develop more homogeneous networks as well. Social media exploits the use of collaborative filtering systems (user-to-user interactions) in order to increase the amount of social interaction between users (O'Reilly, 2005). Unlike content-based recommendation methods, collaborative recommender systems try to match people with similar interests and then make recommendations on this basis (Herlocker, Konstan, Terveen & Riedl, 2004). Under these collaborative models, the system automatically retrieves and filters data by considering the feedback given by other users to the documents (de Vel & Nesbitt, 1998). These affordances also reflect the central assumption on which most of these applications are based: similar interests and/or past experiences serve as catalysts for extensive conversations with individuals in the form of *ad hoc* social groups. In this way, social media have developed an improved and much richer mechanism of data collection, facilitating the creation of a "profile culture" where millions of users have generated their own persona on the web (Utz, 2010).

Hometown, phone number, email, language, football team, favorite book, best movie, political affiliation, religion, marital status, type and number of friends, job, preferred networks, photos, and videos are only a fraction of the huge amount of data that users may utilize to define themselves. Armed with warehouses of profiles and powered by collaborative systems, social-media applications work today like a real "factory of connections" that can tie millions of geographically dispersed users who have common elements in their profiles. The subsequent problem creating this matching process, in which individuals are grouped based on commonalities, is the formation of more homogeneous groups. This might be supported by the collaborative filtering systems. However, this dissertation showed that time spent on social media was positively related to discussion with heterogeneous contacts and diverse others.

Although following a collaborative filtering approach to this finding is counterintuitive, there are many reasons that explain users' higher preferences for talking with heterogeneous networks. First, research has shown that the two most popular uses of Facebook are related to "social searching" and "surveillance" functions. These functions refer to the use of social media to find out more about people that users have met offline and to maintain or re-connect with longtime acquaintances such as high school friends (Lampe, Ellison, & Steinfield, 2006; Joinson, 2009). Indeed, more than 90% of Facebook users employ Facebook to simply stay in touch with distant friends or stay abreast of their activities (Ellison et al., 2007). These functions can be contrasted with the less popular use of the site: developing connections (social browsing), sometimes with the aim of offline interaction. Consequently, since social media users have people with whom they have been remotely connected (but not necessarily recommended by the system, based on their shared interests), it may be expected that users will maintain heterogeneous networks. Similarly, previous studies have noted that when individuals transition from college to a workplace, they usually keep in contact with their college friends and expand their online social circles to include a broader range of people (DiMicco & Millen, 2007).

Furthermore, Ellison et al. (2009) argue that identification information publicly displayed on social network site profiles lowers the transaction costs for finding and connecting with others who may share one specific interest, but differ on other dimensions. As Ellison et al. explain, potential "mutual" friends do not both need to be vegans, Republicans, or Montessori teachers; but knowing this information can facilitate initial interaction by providing potential topics of conversation. Therefore, according to the results obtained in this research, it is possible to argue that instead of using collaborative filtering for homogeneous-centric purposes, social media users might be employing the information provided by the system as an "ice-breaking" function. When

this function is coupled with the simplicity afforded by social media to establish a link based on similar interests, the way in which people engage in discussions can be enhanced.

In other words, the positive relationship between time spent on social media and discussion with heterogeneous networks can also suggest that social media users are utilizing the information delivered by the system or revealed by other individuals (e.g. partisanship) to initiate conversations and/or develop new arguments based on those details. This in turn, could also lead to a smoother socialization process between individuals who have common elements in their profiles, but do not necessarily share other interests or ideologies. Indeed, research by Lampe, Ellison and Steinfield (2007) found that even after controlling for gender, time on the system, user status in the community, and the recency of updating, populating profile fields on Facebook was positively related to the number of friends that users had listed. Similar to the argument developed above, the authors explain that the amount of information provided by users in their profiles enables the immediate establishment of common referents that can foster interactions. Consistent with this line of research, the results showed a non-causal link between time spent on social media and a higher frequency of discussion with heterogeneous networks, but several questions still remained. Future research should explicate/explain these results by examining which type of information in users' profiles individuals consider before adding friends to their lists, and by clarifying which elements are considered "ice-breakers" for interactions.

Conclusion

This first part of the dissertation theorized about the effect of specific SNSs' affordances to amplify and spread the participatory impact of news information and political discussion in civic engagement: the manner in which individuals acquire information from news media; the social

influence dynamics of content generation that emerge from users' discussions and peer-generated content; and the subsequent, cognitive involvement in processing that information. It discusses several theoretical and methodological contributions to understanding social media's effects on civic participation. First, it corroborates the important role of news consumption via social media in individuals' civic engagement by revealing the relationships with variables that research has traditionally identified as mediators of civic engagement. These first chapters not only integrate and test these key variables simultaneously in a structural model, but also develop a theoretical model explaining how media use influences individuals' civic participation. More specifically, it utilizes the expanded O-S-R-O-R as a framework to test the structure of mediational relationships among information consumption, political discussion, and civic participation in the new social media environment. By studying SNSs as a structure that facilitates simultaneous communication via mass and interpersonal channels and enhances collective efficacy from political talk, this dissertation extends current theoretical models that consider political talk as a mediator of information consumption, able to trigger a series of cognitive and expressive processes that activate participatory behaviors.

Secondly, the model also includes different theoretical dimensions so as to create a more robust framework of analysis. It comprises the resource approach (Verba et al., 1995) by controlling for the role that socioeconomic status (SES) has on users; the priming effects of news presented in the agenda-setting theory, by considering the fact that news exposure prompts further, elaborative thinking on those issues; the cognitive mediation model (Eveland, 2001; 2004) by integrating the impact that elaboration in news media has on political outcomes; and it also followed a network perspective by considering in the analysis the structure in which political discussion occurs and how participants are included in the conversations. Moreover, the

model presented in these first chapters identified specific web 2.0-based tools able to affect civic engagement and exhaustively controlled for the effect that conversations may have in FtF settings and in other media channels (e.g., email or chat). With this, a positive effect between information consumption, discussion, and collective efficacy in SNSs was found. This finding demonstrates that information consumption and discussion of public affairs in SNSs adds something different to all the positive effects that the other sources of information and channels for discussion may already have on collective efficacy and civic participation.

Consequently, the results are also consistent with the idea that social media serves as a catalyst for extensive conversations. Users participating in political discussions augment their civic engagement and reinvigorate their civic lives. Moreover, the stronger association between political discussion and civic engagement in young people who use social network sites to talk about social issues, supports the notion that use of social media facilitates civic discussion. Based on our results, it is possible to suggest that the habit of participation acquired through the course of online political expression may convert these expressive behaviors into other, tangible actions related to participatory activities. This study follows a robust line of empirical research that has corroborated the idea that communication among citizens mediates the effects of news consumption on civic engagement (Kwak et al., 2005; McLeod, Scheufele, &Moy, 1999; Shah et al., 2005; Shah et al., 2007) and that social uses of Web 2.0-based applications are correlated with other participatory behaviors (e.g. Campbell & Kwak, 2010; De Zuniga & Valenzuela, 2011; Rojas & Puig-i-Abril, 2009; Shah et al., 2007). However, this study seems to be among the first that finds a positive relationship in using Web 2.0-based applications and participatory behaviors, even when controlling for other online uses in the same model as independent

variables. We can conclude that both information consumption and political discussion in Web 2.0-based applications appear to affect civic participation through collective efficacy.

Limitations

This first study of the dissertation has several limitations that deserve mention. First, in analyzing only undergraduate students of one university, our sample is not representative of a larger population. Students used in this first part of the dissertation could be more connected and participative than the general public. Hence, generalizations must be limited. Second, the analyses are based on cross-sectional data. Pivotal research in this field takes a similar causality approach (e.g. Shah et al., 2005), and after comparing four alternate models in which causality was reversed, all the cases the model presented had the best fit (news consumption-political talk-self efficacy-civic engagement); however, despite these factors, the study could not be fully confident in causal relationships among variables, and the question of causal direction needs verification through longitudinal and/or experimental approaches. Third, even though it took several variables into account (i.e., demographics, extroversion, news use, partisanship), future studies could explore whether and how other variables related to individuals' activities on the Internet would impact the use of SNSs. Fourth, it is unclear whether participants "friended" their heterogeneous political discussion networks while online or as a consequence of their Internet use. It was only asked how often they discuss with other users, and how often they consume information online. Although several controls were employed, it is likely that there are external variables that may affect online political discussants and news users able to contribute to the formation of heterogeneous discussion networks.

Fifth, the operationalization used to measure the notions of "tie strength", "heterogeneity", and news media consumption in Web 2.0-based environments only responded

to limited dimensions of these concepts. Regarding tie strength, although this dissertation may have used other indicators to measure this concept, such as frequency of contact, duration of the association, intimacy of the tie and provision of reciprocal services, it was decided to follow the work of Kenny (1994) and Gil de Zuñiga and Valenzuela (2011) among others who consider the degree of closeness and intimacy as a relevant indicator to asses tie strength. And since discussion networks of friends and family members are usually characterized by "intimacy, trust, respect, access, and mutual regard" (Kenny, 1994, p. 718), whereas in discussions with coworkers, classmates and/or acquaintances, there is no shared intimacy, it was decided to employ this differentiation. However, it is important to recognize that this vision is limited and relevant aspects such as frequency of contact were not considered. Furthermore, this differentiation may also have some validity issues, since participants may consider coworkers and/or classmates as close friends. Similarly, in operationalizing heterogeneity, this dissertation mostly focused on differences in aspects such as ethnicity and position on political views, instead of other variables –e.g. how different you feel you are from others- that may also represent heterogeneity. Concerning the variable assigned to represent how users consume news media in Web 2.0-based environments, it was decided to create an index of practices that could reflect news consumption in this area by emphasizing specific platforms –e.g. following journalists in Twitter, consuming news on Digg or NewsTrust where users rank stories and blogs. However, a more general question such as how frequently participants use social media to get information about politics and public affairs may have better captured the concept. Finally, this first part of the dissertation used self-reported data and not actual observations of how users discuss politics, and the limitations of this approach are painfully well-known.

Therefore, future studies should address these aspects by employing panel data and/or controlled experiments. An experiment would allow researchers to measure participants' conversations and changes in any other mediator (e.g., political efficacy, cognitive elaboration, engagement), which could be helpful to explain more accurately how the mediation processes happen. To overcome these limitations, an experimental design was considered to test empirically whether participation in SNSs, in the form of discussions about civic-related issues, has an impact on political efficacy and cognitive elaboration, two personal-psychological mediators traditionally associated with democratic indicators.

Chapter 5

Testing empirically the effects of a networked public sphere

Aims of Experiment

The goal of this chapter is threefold. First, it aims to theorize about the different elements that comprise the networked public sphere introduced in the previous chapters, and the implications for the constitution of its users, "the networked public," who are structured by networked technologies. Second, it aims to test in an experimental setting whether participation in SNSs, in the form of discussion about civic-related issues, has an impact on political collective efficacy. Relying on the normative theory of political discussion and the influence that user-generated content has on psychological empowerment factors, a between-participants experiment was designed to test the results obtained in the survey in the previous chapters. And third, this chapter seeks to contribute to a more accurate understanding of SNS and its impact on deliberation by contrasting participation in social media channels that afford different levels of access to information, identifiability and levels of engagement, traditional predictors of online deliberation. More specifically, since Facebook automatically notifies users' networks when content is generated, and discussants present more personal information in their profiles than in the more anonymous YouTube, it is expected that users will process information more carefully and develop a higher sense of connection with others. This in turn, will lead users to get more involved with the discussions in Facebook, which will increase the effects of deliberation on collective efficacy. For that purpose, 151 participants commented during two weeks on the White House's and several other federal agencies' Facebook and YouTube accounts.

Internet and deliberative democracy

The link between the theory of deliberative democracy and the practice of online forums has been the subject of an emerging body of literature during the last decade (Muhlberger & Weber, 2006, Price & Cappella, 2002). Research has presented the Internet as a solution to the impossibility of holding large-scale political discussions in democratic societies. In fact, scholars have seen the Internet as a tool by which the theory of deliberative democracy can be applied through asynchronous discussion forums (Coleman and Gotze, 2001). Supported by its potential to provide a democracy-enriching communication platform unmoored by limitations of time and space (Freelon, 2010), empirical studies have shown that online deliberative activities do bring potential positive effects on democracy (Fishkin 2003; Luskin, Fishkin, & Iyengar, 2004; Price et al., 2002). The virtuous effects on which such studies have focused include increased political knowledge (Min, 2007), higher opinion quality (Price & Cappella, 2002), increased social capital (Shah et al., 2005), and greater trust (Rhee & Kim, 2009). Similarly, scholars have suggested that computer-mediated communication (CMC) may solve some of the dysfunctional social-psychological influences found in face-to-face interactions, and by increasing individuals' willingness to express opinions, may create/creates a forum conducive to public deliberation (Ho & McLeod, 2008).

However, research has also questioned the positive role of the Internet in the democratic process, and suggests that unrestricted, free media and channel choice may lead users to adopt increasingly insular political news exposure practices (Stroud, 2008; Sunstein, 2007). Scholars caution that, as individuals have more options when seeking political content or interacting with others, the more likely they are to exclude opinions with which they disagree (Mutz & Martin, 2001; Stroud, 2008). As a consequence, several studies have suggested that the Internet is promoting an environment in which people tend to expose themselves to like-minded

perspectives, which may lead to the fragmentation of public opinion, and by endorsing an increasingly polarized citizenry, to the detriment of democracy (Sunstein, 2001). Consistent with this view, previous studies have found that users mostly deliberate on Usenet groups that agree with their own views (Davis, 1999), whereas online forums have been used for reinforcing preexisting views as opposed to democratic communities where participants can freely let other users know their opinion (Papparazi, 2002). Additionally, researchers have questioned whether the form of discourse fostered by computer mediated discussions captures the benefits of the face-to-face ideal, rejecting the hypothesis that online deliberation expands the informal zone of the public sphere (Schneider, 1997), and putting in doubt the capacity of these virtual boards to enable deliberation (Wilhelm, 1999).

The emergence of the new generation of Web 2.0-based applications that allow individuals to form networks through system profiles stirs the debate. This chapter explores empirically whether deliberation in SNSs, via the integration of peer generated information to news content, has a positive impact on collective efficacy. The main thesis of this chapter is that not all SNSs allow the same flow of information, and that different affordances presented in these channels contribute to shape discussion networks, which might have a direct effect on deliberation. More specifically, by contrasting the effects of conversations on different SNSs that transpire under the same federal agencies, it is expected to get a more clear understanding of how network features affect discussion when they are formed through different social media settings. This comparative dimension is important in order to generate a framework that is capable of assessing the performance of different online platforms when enabling deliberation.

Deliberation Theory

Since Dewey (1927) identified the lack of interest for civic and social activities as the main cause for the crisis of democracy, several scholars have argued that the political system should not be founded only in aggregative civic behaviors such as voting, the traditional indicator of a healthy democracy, but rather in public life, where citizens can participate actively by increasing their capacity for public deliberation and judgment (Asen, 2003; Delli Carpini, Cook & Jacobst, 2004; Mendelberg, 2002; Putnam, 2000). For participatory democrats, political deliberation can have a transformational influence since citizens discover legitimate solutions to political problems only by engaging in sustained, reflective discourse (Chadwick, 2009). "Deliberative democracy refers to the concept that democratic practice and rule-making should depend on informed discussion of citizens. It is a normative political theory that assumes rational communicative behavior and voluntary participation in public affairs on the part of citizens" (Min, 2009, p.1369).

Although traditionally there have been many differences in the types of benefits that deliberation offers democratically organized societies, there is a consensus among scholars that, through discussions, members of society can clarify their views, understand others' opinions, contribute to improve ideas, and foster civic engagement (Dunkan & Lukes, 1963; Gutmann & Thompson, 2004; Price, Cappella, & Nir, 2002). As Gastil, Deess and Weiser (2002) point out, it is through deliberation processes that political participation is made possible: when citizens engage in political debate, they develop not only more civic attitudes and motivations that enable deeper engagement in political affairs, but they also sort out conflicting preferences for action through discussions, affecting the practices and policies of their leaders, and ultimately ensuring a democratic process of governance (Stromer-Galley & Wichowsky, 2010). Similarly,

Mendelberg (2002) argues that when certain conditions such as an egalitarian and reciprocal process of reasoned argumentation are fulfilled in deliberation, citizens become more engaged and active in civic affairs, show higher levels of tolerance for opposing points of view, and improve their understanding of their own preferences, thereby developing better arguments to justify them.

Proponents of citizen deliberation argue that by taking part in public forums, conventions, and deliberative experiences in general, individuals can change their attitudes and behaviors (Finkel, 1985). Research has shown that interpersonal discussion about public affairs fosters political involvement (McLeod et al., 1999) since discussants get a deeper understanding of political facts, which has a positive impact on individuals' appreciation and desire to participate in the political process (Eveland & Scheufele, 1998). Gastil et al., (2002) argue that political talk also helps people to improve the sorts of abilities, attitudes, and motivations that enable deeper engagement in civic affairs. By promoting basic norms such as social trust and efficacy, political deliberation fosters electoral engagement and engagement in one's community (Price et al., 2002). Warren (1992) also argues that deliberation empowers citizens, which can lead to more political activity.

Empirical research has shown that after being exposed to discussions, there is a substantial acquisition of factual information, as demonstrated by knowledge questions asked before and after deliberation (Iyengar, Luskin, Fishkin, 2003). Using a method called Deliberative Polling, in which citizens were invited to participate in subsequent face-to-face small group discussions and had the opportunity to question competing experts and policy-makers, Fishkin and his colleagues demonstrated that citizen deliberation does have an influence on policy preferences and voting behavior: participants who underwent the most gains in

information changed their attitudes toward others' ideas and could arrive at positions they would

not have reached by other means (Iyengar, Luskin, Fishkin, 2004; Fishkin & Lushkin, 2005;

Luskin, Fishkin & Jowell, 2002). In non-experiment settings, research by Gastil, Deess and

Weiser (2002) showed that conclusive deliberative experiences raise future voting rates above

those expected based on prior voting history. Analyzing deliberative experiences of jurors, Gastil

et al., (2002) concluded that citizens who successfully reach verdicts participating as jurors in

criminal juries, are more likely to vote in future elections than those who did not have the chance

to deliberate, or failed to reach a verdict after deliberating.

Collective efficacy as a result of deliberation

As discussed in the previous chapter, political efficacy is the term used to represent an

individual's perceived ability to influence the political system (McPherson, Miller, Welch, &

Clark, 1977). Abramson and Aldrich (1982) argue that this construct is necessary for political

and civic participation, since without feelings of competency and beliefs that personal actions are

consequential, citizens would have little incentive to participate in politics. Others have

described the term as "the feeling that political and social change is possible, and that the

individual citizen can play a part in bringing about this change" (Campbell et al., 1954, p. 187).

This sense of being capable of acting effectively has been extensively documented by previous

research as one of the key psychological variables able to explain citizens' participation and

political attitudes (Niemi, Craig & Mattei, 1991). Individuals who feel politically efficacious are

more likely to vote and to believe that ordinarily citizens should be active in their communities

(Coleman & Davis, 1976). Although most of the research on efficacy has focused on the

individual level (Mulvey & Klein, 1998), concerted political action may also depend on

perceptions of the group's efficacy (Gecas, 1989). This is because political change cannot be

realized without the shared belief that other community members are also capable in exerting control over political matters (Lee, 2005; Yeich & Levine, 1994).

During the last two decades, the concept of collective or group efficacy (Bandura, 1982) has started to be used as a basis of the efficacy construct, and similar to political efficacy, scholars have emphasized two main dimensions (Van Zomeren, Postmes, & Spears, 2008). From an "internal efficacy" perspective, the notion of group efficacy has been conceptualized as the judgments that members of a group have about their capabilities to engage in successful political action (Gecas, 1989). On the other hand, Yeich and Levine (1994) understand collective efficacy in terms of the perceived responsiveness of governmental authorities and institutions to the collective action that emerges from organized groups. This "represent[s] perceptions of system responsiveness to collective demands for change" (p. 260). The present dissertation considers both perspectives: following Van Zomeren et al. (2008), the conceptualization integrates the beliefs that individual actions have the potential to transform the situation and destiny of their group (Drury & Reicher, 2005) and change the social structure where the person belongs (e.g., Gergen, 1999) with the responsiveness of the political system to the collective demands for change. Therefore, drawing from the internal and external dimensions of the construct, collective efficacy will be conceptualized as a citizen's belief in the public's capabilities, as a collective actor, to organize and execute the courses of action required to achieve social and political outcomes.

Collective efficacy can be expected to operate in relation to civic and political engagement at the group level in a manner similar to self-efficacy at the individual level (Mulvey & Klein, 1998), but extending the concept of individual causality to collective agency exercised through a shared sense of efficacy (Caprara et al., 2009). Bandura (2001) argues that "the more

efficacious groups judge themselves to be, the higher their collective aspirations, the greater their motivational investment in their undertakings, the stronger their staying power in the face of impediments, the more robust their resilience to adversity, and the higher their performance accomplishments" (p. 270).

On the other hand, proponents of citizen deliberation argue that it is through discussion that citizens are reassured and feel more confident in expressing their ideas, increasing their self-efficacy in political issues, and, consequently, tend to feel more capable of dealing with civic affairs (Finkel, 1985; Gastil, Deess & Weiser, 2002). Eliasoph (1998) notes that discussions may enhance feelings of confidence and legitimacy of the constitutional order since people feel they have something to say in that order. Similarly, Gastil (2002) argues that citizens who engage in deliberation get more into the idea of democracy, like a sort of training program. In the same way that practicing an activity develops one's confidence in doing that activity, deliberation increases citizens' confidence that they can understand and participate in the political system, feeling more comfortable to act politically. Likewise, Smith (1999) explains that the more citizens learn, think, and talk about something, the more they tend to feel capable of dealing with it. Luskin, Fishkin and Jowell (2002) support this positive relationship by the fact that, after a political talk, deliberators generally emerge better informed, believing that they are more capable of contributing to collective activities with some chance of affecting policy outputs.

Consequently, it is expected that users who participate by giving their opinions and interacting with others in federal agencies through SNSs will also develop higher levels of collective efficacy.

H1 Deliberation in SNS will cause positive changes in collective efficacy

Deliberation and the Public Sphere

Research identifies Aristotle as the first theorist to accentuate the value added to political processes when citizens organize town hall meetings to discuss laws and new policies (Asen, 2003; Gutmann & Thompson, 2004, Mendelberg, 2002; Price, Nir & Cappella, 2002). However, although deliberation in democracy has a long history, what is absolutely new is the expansion in terms of participation attained during recent decades (Delli Carpini et al., 2004). Even Aristotle only referred to the discussions among a small portion of residents counted as citizens, a concept that today may be contrasted with how political thinkers understand the term "public participation" (Price, 2009). In fact, when the term "deliberative" in civic contexts was first used in 1489 to refer to political discussion, it was mentioned only within an exclusive sector of political leaders (Gutmann & Thompson, 2004). Even John Stuart Mill, who idealized the democratic society as a community of critical and dissatisfied individuals that constantly questioned others in the pursuit of truth and happiness (Dunkan & Lukes, 1963), considered that political discussions should be led only by the better educated. Further, although early political theorists had emphasized how discussion among "all" citizens should be considered as a central requirement for a real democracy and public life (Dewey, 1927; Lindsay, 1967), it was not until the writings of Jürgen Habermas that the concept of public deliberation was accepted and incorporated into the democratic vocabulary (Chadwick, 2008).

Habermas traced the development of modern capitalism and the disintegration of the federal authorities into private and public aspects as the origins of a new domain of social life, the "public sphere," in which public opinion can be formed out of rational public debate and political participation, and enacted through the medium of talk (Habermas, 1989). This conceptual space acquired force in early modern Europe as a counterweight to absolutist states,

specifically after religion became a private matter, and public institutions, along with the bureaucracy and the nobility, became the organs of public authority.

> "In the first modern constitutions, the catalogues of fundamental rights were a perfect image of the liberal model of the public sphere: they guaranteed the society as a sphere of private autonomy and the restriction of public authority to a few functions. Between these two spheres, the constitutions further insured the existence of a realm of private individuals assembled into a public body who as citizens transmit the needs of bourgeois society to the state, in order, ideally, to transform political into "rational" authority within the medium of this public sphere" (Habermas, 2002, p.104).

According to Habermas, the new space originated after the disintegration of the federal authorities into private and public aspects mediated the relationship between the bourgeois society and the state, developing a "sphere" in which citizens deliberated about common affairs. This, instead, was supported by a new culture of enlightened, critical, and reasoned public debate, with an emerging and independent privately-owned press (Fraser, 1992). Thus, these changes produced a new type of discursive interaction among citizens and between the public authority and more critical publics, opening an accessible dialogue to all who wanted to participate in it, specifically in physical spaces such as coffeehouses, salons, and pubs (Fraser, 1992). Relevant for the concept of public sphere is the social space in which citizens' opinions can materialize. Habermas explains that a healthy society yields an extensive variety of demands to the political system, but since the political organism cannot respond to all the inquiries, the public sphere should filter the information generated by civil society so only what is "considered public opinion" becomes the public debate (Friedland et al., 2006). Thus, the core of the public sphere would be the deliberation processes that occur in this mediated spectrum, which informs the political elite of what should be considered public opinion by the media system (Himelboim, 2011). Habermas explains that deliberation can only be reached if the media system keeps open a

two-way communication channel between civil society and the public sphere, so public opinions can be revisited, reconsidered, and included in the political agenda (Dahlberg, 2001).

Internet and Deliberation: Towards a Networked Public Sphere

Since the advent of the Internet, scholars have heralded its potential to democratize communication, enhance civic participation and democratic decision-making (e.g., Macintosh, 2004; Shah 2001). Janssen and Kies (2005) concluded that online spaces enable decentralized communication of many-to-many since each participant is normally equally entitled to comment or raise a new question, and participants are free to express their opinions. Research has found that the written and asynchronous characteristics of the medium may support more reflexive, rational, and argumentative conversations (Stromer-Galley & Wichowski, 2010). Others have recognized in online tools a more appropriate medium for deliberation than synchronous channels (Coleman & Gotze, 2001) because they provide users with more opportunities to compose messages at their own pace, constituting a more favorable channel for a rational–critical form of debate (Dahlberg, 2001). Additionally, given the ability afforded by the Internet to make communication easier, cheaper, faster, and more convenient (Polat, 2005), and the increasing ubiquity of computer networks to develop spaces for public discussion (Sack, 2005), scholars argue that the public sphere of rational–critical discourse has the potential to be extended through cyberspace (Coleman & Gotze, 2001; Dahlberg, 2001).

Interestingly, in contrast to the traditional spaces conceived by Habermas for public discussion (e.g., the agora, plaza, town hall, café and even traditional mass media), the Internet has enabled a new reality in which users can potentially interchange millions of messages across international borders via online spaces, such as SNSs, bulletin board systems, and chat rooms that facilitate meet-ups and gatherings (Soon & Cho, 2011). However, given this large set of

discussion forums in a "many-to-many communication format," it is uncertain that a single public sphere could consist of millions of people and still function, since deliberation would be difficult (Poor, 2006). In fact, research has raised important questions about the view that there is one overarching public sphere, noting that there are other public spheres within it that are organized around its own political structure, media systems, and sets of norms and interests (Calhoum, 1992; Dahlgren, 2001; Erimbayer & Sheller, 1998; Fraser, 1992; Friedland et al., 2006; Garnham, 1992; Papacharissi, 2002; Poor, 2006). Further, scholars have added the notion of multiple publics to the public sphere theory, theorizing a "diverse publics" view in which different publics converge, making it a smaller and, thus, workable, yet still global, public sphere through the Internet.

Inspired by Fraser's (1992) response to Habermas' (1989) conceptualization of a single public sphere, scholars over the last two decades have theorized about the development of a public sphere composed of multiple, coexisting counterpublics (Squires, 2002). Dahlgren (2001), for example, conceptualizes publics as "issue publics" where, comparable to Garnham (1992), publics would be understood as enclaves of people who are organized around various issues. Others have operationalized publics in terms of diversity, such as ethnicity, race, or gender (Calhoum, 1992). Fraser (1992) and Young (2000) also support the idea of an overarching public sphere composed of multiple publics, able to extend its discursive basis to counterpublics, or subordinate social groups that potentially can articulate their particular concerns to an extent equaling what the dominant group already enjoys (Hass, 2004). However, although the work of these scholars critiques the more universal notion of the "public" in favor of "multiple publics," "subaltern" or "counterpublics" for the public sphere, "it remains unclear what the exact causal

mechanisms are by which both the joining together and the `unbundling' of publics occur"

(Sheller, 2004, p. 40).

Relevant for this dissertation is the "network" approach that Friedland et al. (2006)

proposes to address the problem of complexity and formation of multiple publics. They argue

that the understanding of network structures can uncover new perspectives on the formation of

public opinion across spheres that had traditionally been conceived as functionally connected.

The framework suggested by Friedland et al. considers different spheres of society as linked by

flows of information that circulate between the political public sphere and the informal public

sphere, and between the informal public sphere and civil society. They argue that these flows of

communication and relationships in a networked public sphere are self-organized and move from

the bottom up, converging in a new media reality that has become the social space where the

public opinion is formed. This idea is supported by scholars such as Castells (2007), boyd (2011)

Ito (2008) and Sheller (2004), who explain that the development of interactive, horizontal

networks of communication has induced the rise of a new environment that is significantly more

open to challenge systems that have traditionally held a more powerful position. Under these

participative and collaborative conditions, the potential for reflexivity in the system increases

exponentially as active publics converge in groups restructured by networked technologies in

order to read, discuss, and argue about different issues.

Further, Castells (2007) explains that politics is based on the socialized communication

afforded by the media infrastructure since people generally learn about politics through media.

"What does not exist in the media does not exist in the public mind" (p.241); thereby a political

message is necessarily a media message. However, until recently, the media used to constitute an

articulated system, characterized by the mass distribution of a one-way message from one to

many in which the print press produced the original information, TV diffused it to a mass audience, and radio customized the interaction (Castells, 2007). Today the mass-media reality has changed in three different dimensions.

First, in the new informational environment, users have access to media on their computer screens, and increasingly, on portable devices, from where they can participate by generating content and even broadcast their messages alongside the mass media content. So even though mediums such as television or newspapers continue to be a major mass medium, their delivery and format are being transformed as their reception becomes individualized (Castells, 2009). As explained above, the online components of newspapers have also integrated user-generated content, forming alliances and partnerships with blogs and other news and media organizations (Weber, 2012). In this way, mass communication is now also Internet-based communication, not only in its production and delivery, but also in its reception. And since users receive that information through SNSs such as Facebook, where they can generate content that can be published under the same media to massive audiences, in some way SNSs have also become a means of mass communication. Similarly, given that users receive that information through the same media that they use to communicate with their friends and contacts, it may be argued that in the network society, the foundation for communication is a global web of horizontal communication networks that includes the multimodal exchange of interactive messages under the same communicational platform, that combines many-to-many, one to many, and both synchronous and asynchronous communications/messages.

Boyd (2011) explains that whereas mass-media facilitated events to be simultaneously experienced across great distances, augmenting the potential visibility of a given act and reshaping the public sphere (Starr, 2005), the Internet enabled new possibilities for distribution,

allowing the rise of grassroots journalism (Gillmor, 2004) and a space for anyone to broadcast

opinions (Rettberg, 2008). But more important, with the development of Web 2.0-based tools,

the content generated by users started to be embedded in networked forms of communication that

connects diverse social networks through which social relationships are created, extended, and

maintained (Friedland et al., 2006). In other words, this networked public sphere is not only

nourished by content generated by regular people, but it also is formed by horizontal

communication networks that facilitate the transmission and sharing of information among

individuals and organizations who are connected to one another within the same network (Soon

& Cho, 2011). Castells (2009) states that the growing interest of corporate media in these

Internet-based forms of communication recognizes the significance of the rise of a new form of

societal communication, the one that he referrers to as mass self-communication.

> "It is mass communication because it reaches a potentially global audience through p2p networks and Internet connection. It is multimodal, as the digitization of content and advanced social software, often based on open source programs that can be downloaded for free, allows the reformatting of almost any content in almost any form, increasingly distributed via wireless networks. It is also self-generated in content, self-directed in emission, and self-selected in reception by many who communicate with many". (p.71).

The second dimension in which the mass-media reality has changed is that both media

businesses and political actors aim to position themselves using direct links with the horizontal

network of communication and their users, becoming less unidirectional in their communication

flows as they scan the content generated by users in order to select themes and issues of potential

interest for their own audience (Castells, 2007). In fact, Castells (2009) explicates that this new

media dominance is based on their ability to leverage and connect to locally and nationally

focused media organizations, by customizing their content to local cultures and to the diversity

of segmented audiences. Castells argues that the ability to conquer market of these new social

technologies would depend on the adaptation of their content to the taste of local audiences. And

third, given the flexibility and unrestrained capacity that the Internet has to inform any kind of material, this situation has provoked actors motivated for social change to use the Internet as a platform to influence the information agenda of mainstream media. Therefore, in this new networked sphere, the interaction between political actors, regular users, and media business in both the mass media and networked media, as well as in the interconnection between different media, should be considered to be quickly becoming articulated in a reconfigured media system (Castells, 2000).

Networked publics as networked audiences

Based on the networked public sphere delineated before, it is possible to argue that these increasingly integrated forms of personal communication will have significant implications for the constitution of its users, "the networked publics," who are structured by networked technologies. Ito (2008) introduces the term "networked publics" as an alternative to "audiences." He argues that, given the fundamental architectural differences that affect the social interaction in this new environment, it is necessary to conceptualize differently the publics who participate in SNSs from any other mediated publics. Boyd (2011) explains that this notion reflects the linked set of social, cultural, and technological developments that have accompanied the growing engagement with digitally networked media, through which publics can communicate via complex networks that are bottom-up, top-down, as well as side-to-side. Thus, networked publics would be constituted not simply as abstract moments of communication, but also as part of deeply embedded social dynamics that involve the infrastructure of communication technologies in general and Web 2.0-based tools in particular (boyd, 2011).

As practices of social coordination and connectivity shift in favor of relational settings oriented towards the emergence of networked technologies, it is relevant to focus on the ways in

which this use shapes publics, both in terms of space and communities (Sheller, 2004). Given

that publics can traffic in new forms of personal communication that often collide with

commercial and mass media (Ito, 2008), the generation of "networked infrastructures" would be

not only a technical development, but also a social and cultural progression with important

implications for determining how users communicate and participate. In this way, the Internet in

general and SNSs in particular can emulate not only any traditional mode of one-to-many

communication (as with newspapers and television) or one-to-one communications (as with

telephone and telegraph), but also new forms of many-to-many and peer-to-peer communications

in a common space with different types of media converge (Lim & Kann, 2008). Thus, when

communication technologies such as SNSs, designed to connect users in networks, converge

with traditional mass media models, designed to generate content such as newspaper or movie

services such as Netflix, new forms of intermodalities appear, changing: 1) how these networked

publics get information, and, 2) how they integrate various kinds of communicational activities

into their routines, such as commenting or recommending the information.

Based on the previous ideas, it is possible to argue that these integrated forms of personal

communication and the mediated nature of this interaction would structurally affect the types of

publics that gather on SNSs. As boyd (2011) explains,

> "Networked publics are not just publics networked together, but they are publics that
> have been transformed by networked media, its properties, and its potential. The
> properties of bits regulate the structure of networked publics, which, in turn, introduces
> new possible practices and shapes the interactions that take place. These can be seen in
> the architecture of all networked publics, including social network sites." (p. 46).

In other words, networked publics would be the consequence of a structure that: 1)

enables the formation of networks over which a variety of media converges on a common space,

2) permits users to be connected with others through their profiles and contacts, and 3) facilitates

the distribution and flow of content generated by its "users" regardless of its specific quality. Moreover, boyd (2007) recognizes four properties that differentiate other mediated publics from networked publics. First, networked communications are recorded for posterity, which enables not only asynchronous communication, but it also extends the period of existence of any speech act. Second, expressions are recorded and identity is established through text in SNSs, which makes users and content "searchable" with only a few keystrokes. Third, networked public expressions are replicable. That means that content can be copied and transmitted from one place to another such that there is no way to distinguish the "original" from the "copy." And fourth, users in SNSs interact with "invisible audiences" since it is virtually impossible to conceptualize all the users who will overhear the speeches in networked publics. Boyd explains that this last feature is further complicated by the other three properties, since users' expressions may be heard at a different time and place from when and where they originally spoken.

Moreover, the imagined community that emerges in users' minds in order to picture their publics is relevant since people need to have a sense of audience in order to feel confident about their discourse (Marwick & boyd, 2011). In fact, there is a rich literature in impression management about the process by which individuals attempt to control the impressions others form of them, especially in the early stages of relational development (e.g., Goffman, 1959; Rosenfeld, Giacalone, & Riordan, 1995). Since people know that the impressions they make have consequences for how others will perceive and then treat them (Leary & Kowalski, 1990), as well as for their own views of themselves (Schlenker, 1980), people behave in specific ways in order to create particular impressions in others' minds (Rosenfeld et al., 1995). Implicit in the self-presentation theory is the fact that individuals know with whom they are going to interact. Boyd (2011), for example, explains that, in certain professions, especially those jobs which

require producing content for certain audiences, professionals have to prepare by imagining the audience and presenting themselves to that imagined audience. When TV began, for instance, studio audiences were common since they helped content generators to evaluate their messages. And even though that public was not the complete audience, the response was appreciated by the entertainers. Likewise, some journalists first elaborate their message for small groups who provide explicit comments, intentionally avoiding thinking about those who were going to read them but were invisible at that point (boyd, 2011).

Interestingly, research about self-presentation on SNSs has shown that users also focus on their audiences when they generate content and decide their profiles (e.g. boyd, 2006; Ellison et al., 2006). Further, consistent with the literature in impression management, Courtois, Mechant and De Marez (2011), studied whether YouTube uploaders have expectations about their audiences when posting a video. They concluded that, while users upload videos for a limited number of people rather than a global audience, they strongly expect to have viewers that are situated close to them in both geographic and socio-demographic terms, confirming the *imagined audience* thesis. Moreover, Marwick and boyd (2011) found that online audiences are also constructed by social media users in order to present themselves appropriately. Exploring how users navigate *imagined audiences* on Twitter, Marwick and boyd concluded that, whereas users try to visualize real and potential viewers that exist within their larger social graph, they were far more concerned with parents or employers viewing their Twitter stream rather than complete strangers. Interestingly, the study also shows that users mentioned the *networked audience* as potential viewers: they were aware that not only will their direct contacts receive their tweets, but also the followers of their followers may get access to them. In other words, they were cognizant that their tweets may be retweeted and read by the friends of their friends, or

even accessed by their contacts' followers when they tag (mention) the specific contact in their comments.

This last finding is consistent with the *network audience* thesis, in which social media users are connected not only to the person with whom they are communicating directly, but also with his/her contacts. In this way, the networked audience combines a person's direct connections, revealing a personalized *face-to-face* contact, but users can also picture unidentified contacts as their friends' friends. Marwick and boyd (2011) explain that users in this *many-to-many* take turns creating and producing content, and, although the network constantly centers on who is talking, responding, or replying, similar to the broadcast model, it also includes the contacts of each member of the network. More important, these studies demonstrated that these indirect opportunities for feedback that the contact's contacts have are also in users' mind when they generate content, which, in turn, influence how users respond and what content they may create in the future (Marwick & boyd, 2011).

Collective efficacy in a Web 2.0-based environment

Regarding the effects of interactive media on efficacy, Nardi, Schiano, Gumbrecht and Swartz (2004) concluded that participation in blogs enables users to relate their voice to the voices of others, through commenting and feedback functions that increase their sense of community. Likewise, Barak, Boniel-Nissim and Suler (2008) found that participants of online communities not only achieve a high sense of personal empowerment by acquiring relevant information and knowledge about their environment, but also by taking on the role of *helpers*. When providing information to others, they boost their confidence to deal with other issues. Sundar (2008) explains that, with these new personal broadcasting technologies, the traditional sender-receiver model of communication developed for mass media has been altered, allowing

users not only to be considered as audiences, but also to become active *senders* and content-generators, suggesting a much higher empowerment or sense of self efficacy in those users who generate content.

The effect suggested by Sundar may also be understood through the public-commitment explanation. Schlenker, Dlugolecki and Doherty (1994), supported by extensive literature in social psychology (e.g. Fazio, Effrein, & Felander, 1981), argue that individuals often want to create or modify an image that reflects their ideal self; consequently, the process of creating one's self-concept is often based on how people present themselves publicly. In fact, research shows that a significant element in determining self-construction is the public nature of the self-presentation (Gonzales & Hancock, 2008). Literature in social psychology suggests that one's awareness of an audience, or sense of *publicness*, augments the effect of self-presentation on identity (Kelly & Rodriguez, 2006). Kelly and Rodriguez review 13 experiments confirming this notion and demonstrating that when people behave in particular ways, they shift their self-beliefs to correspond to their behaviors (e.g. Jones, Rhodewalt, Berglas, & Skelton, 1981). Interestingly, these alterations in self-beliefs have been shown to extend the changes in behavior in front of audiences, as individuals try to change in order to match their self-presentations. Schlenker found in several studies that a repeated pattern of self-presentations followed by audience feedback and internalization of those self-presentations can lead to a change in self-concept (see Schlenker, 1980).

Further, this internalization process, referred to by the literature as the *public commitment* explanation, states that when individuals have an audience which can identify with them, they feel responsible for their actions. This means that individuals would feel obligated to behave in a manner consistent with their self-presentations, especially if they can receive feedback from the

audience. Schlenker explains that, at the end of the process, individuals would become more similar to the way they present themselves since they want to match the feedback they expect from their audience (see Schlenker 1980; Schlenker et al., 1994). Based on the notion that one's awareness of an audience, or sense of *publicness*, augments the effect of self-presentation on identity, Gonzales and Hancock (2008) tested this effect in online settings and found that when individuals make themselves identifiable on a publicly accessible blog, they feel obligated to behave in a manner consistent with their self-presentations, shifting their identities to become more consistent with the online behavior adopted publicly. In civic participation contexts, Rojas and Puig-i-Abril (2009) found a similar influence in the use of interactive media. Rojas and Puig-i-Abril studied the differences in use of Information Communication Technologies and how they relate to patterns of expressive political participation, mobilization efforts, and traditional civic participation. Interestingly, the authors concluded that those who express commitment and try to mobilize others through social media channels, eventually persuade themselves, becoming a powerful route that converts expressive behaviors into other more tangible ones such as voting, campaigning, or volunteering.

Similarly, it is expected that the experience of holding public and visible discussion about news or political issues originated in SNSs, with the potential for a massive audience, may be particularly salient to one's sense of collective efficacy. That is, discussants may be more likely to internalize this civic attitude when they realize that thousands of users may follow their posts and ideas. However, it is important to note that although all SNSs allow individuals to connect with others through a system profile, they present different affordances in terms of the level of information and network access and the activities that users practice on these SNSs. Facebook users are automatically notified about content updates in their newsfeeds and have immediate

access to information posted or *liked* by their contacts. When users, for instance, comment on news posted by the White House, the message becomes public not only to the users who are participating on the White House's page, but also to their social networks. In contrast, YouTube, a user-generated online video platform through which individuals can upload, download, or share videos, does not inform users' networks about their activities, and when individuals, for instance, comment on a video under the White House's account, their contacts are not automatically notified about this activity. Additionally, Facebook users have more than 320 friends on average (Ellison, Steinfield, & Lampe, 2011), and they use the public space afforded by the platform (Wall) to communicate not only directly with their friends, but also through *updates* to inform their networks about their personal activities and what they are doing online (e.g. the movie they are watching through Netflix). YouTube users instead, maintain a *privately public* behavior and they do not share their activities (Courtois et al., 2011; Lange, 2007). Although users can communicate through textual and video commentaries as well as video rating systems, and, as in Facebook, their networks are visible to other users, YouTube users reveal less information than in Facebook and have only a few *viewers* under their profiles. Further, since YouTube users can become subscribers and manage a channel without giving personal information to the system, the contacts associated with users' networks do not know who the other users are (Courtois et al., 2011; Lange, 2007).

Based on this logic, it is possible to theorize about the distinctive implications of the media affordances for deliberation and, consequently, collective efficacy. First, a user's audience on Facebook is a very tangible list of friends with real profiles, and, since they are notified about network comments, it is expected that this identified public creates stronger expectations than the unidentified online public on YouTube. Drawing on the *public commitment* explanation, it may

be expected that this higher identification and sense of *publicness* will make Facebook users feel responsible for their opinions, thus augmenting the effects of online deliberation on their identity. And second, the anonymity of most YouTube users may present a difficulty for users who need a more specific context and conception of their audience than a mere *anyone* in order to express their opinions. Similarly, given the lack of identifiability that YouTube users present, it is possible to argue that this platform would not support enough relational features to enable discussants to identify correctly the kind of interpersonal situations they find themselves in (Sproull & Kiesler, 1986). This vision, traditionally conceptualized in the CMC literature as the "cues-filtered-out" approach (Short, Williams, & Christie, 1976), states that the sense of connection between users is directly linked to the capabilities and richness of the medium for transmitting social cues: the more information users have about each other, the stronger their feeling is that other users are jointly involved in communicative interaction. Further, since in more identifiable media, such as Facebook, discussants can use the increased personal information that is available (e.g. political interests or partisanship) to expand the discussion or develop new arguments based on those details, it is also expected that Facebook users will engage more in discussion than YouTube users. Consequently, the absence of a clear-cut communication setting that assists users in finding the context of their messages on the more anonymous YouTube, may also result in less deliberative engagement among users. Thus, it is expected that:

H2a: Users who deliberate in social media channels that allow a networked information access (Facebook) will present a higher increase in collective efficacy.

H2b: Users in the more anonymous social media channel (YouTube) will show lower levels of engagement than on Facebook.

Engagement and cognitive involvement as predictors of collective efficacy

Research related to participatory communication in computer-mediated groups offers an applicable framework to study how certain affordances may affect the engagement among participants. Rafaeli and Sudweeks (1997) distinguish the role that interactivity plays in the social dynamics of mediated groups, arguing that the interaction attained is what keeps message threads and their authors together. The authors argue that higher levels of interactivity in online communities can increase the engagement of users, leading to more sociability among them. Wise, Hamman, and Thorson (2006) found that communities featuring interactive comments that related back to earlier messages in discussions elicited greater intent to participate in users than communities featuring non-interactive messages. Based on the finding that higher levels of interactivity in online communities increase user engagement, it is proposed that more interactive conversations will generate higher levels of engagement in users. Likewise, when on-going communication exchanges occur, these exchanges carry a social, binding force (Rafaeli & Sudweeks, 1997) that might be expected to serve as a catalyst for extensive conversations, facilitating political discussion among users. In other words, users who engage in interaction with other users are more likely to engage in discussions than users who merely respond to the initial posts.

Further, a review of the literature in media effects and cognitive involvement shows that individuals' engagement and level of attention to communication messages leads both audiences and communication partners to more carefully process the information presented, which, in turn, affects how the conversation influences participants (Eveland, 2000; Eveland, 2002; Kwak et al., 2005). Similarly, Kwak et al., (2005) supported the notion that attentiveness to conversation has a significant impact in establishing attitudinal and behavioral outcomes that occur within the

group setting (Larger, 1978; Timmerman, 2002), and in facilitating competent interaction between group members (Spitzberg & Cupach, 1984). Moreover, based on previous research about the effects of engagement and discussion attention on group conversation (Timmerman, 2002) and active processing of mediated information (see McLeod et al., 2002), it is expected that cognitive involvement will augment the degree to which the individual interacts psychologically with the medium and discussants' messages, leading to an increase in attitudinal change (e.g. collective efficacy). Thus it is proposed that:

H3a: Users deliberating in less interactive discussions will show lower levels of engagement than more interactive discussions.

H3b: Users that interact with others and reply to posted messages will show higher levels of engagement than users who only comment on the message posted by the federal agency.

H3c: Engagement and cognitive involvement will be positive related to changes in collective efficacy.

Chapter 6

Methodology

Procedure

The research design involves an experiment to measure the effects that deliberation on Facebook and YouTube accounts of the White House and other federal agencies has on social media users. A total of 489 students were recruited from ten communication courses. The researcher visited the classes and personally explained the experiment, and how students had to participate by commenting on different social media accounts for two weeks, excluding the weekends. Additionally, an email was sent to the students promoting the study. In that email, they were instructed to post comments of 30 to 50 words, in which they could include whatever they wanted but they had to make a point that should be related to the message posted by the federal agency. If they decided to participate, students had to email the researcher their Facebook and/or YouTube user name accounts. Students volunteering for the project received two extra credits for their final grade, and the possibility of winning a gift card for $300 on Amazon.com. In addition, students had the opportunity to win $10 per day if their post was selected as the best comment of the day.

Two periods of time were selected to conduct the experiment: the first one was from February 24 to March 9, 2012, and the second was the week after students came back from spring break, from April 1 to April 15. In both periods, the researcher continuously monitored the comments posted by students, and every night, participants received an email announcing the name of the winner with the comment that she/he had posted. When students did not comment for two days in a row, the researcher emailed them asking whether they wanted to continue participating in the experiment. However, despite all these efforts to remind students about the

study and motivate them to continue posting, after a few days, 254 students quit the experiment during the first period, and 135 in the second one. Additionally, 148 students were not considered for the analysis since they posted less than 75% of the comments requested during the two-week period. At the end of the study, only 151 students (and the 38 participants from the control group) satisfactorily completed the experiment.

Five different conditions were designed to test the hypotheses. First, 70 federal agencies were selected with low activities in their social media accounts: 33 in Facebook, and 37 in YouTube. The criteria to be considered in this category were agencies that post at most 5 message threads (or videos) per week, and receive less than 10 comments from their fans/viewers on those threads (see Table 9 for the list of the federal agencies). Two groups of participants were assigned to participate on the Facebook and YouTube accounts of those federal agencies, in which they had to post one comment per day during two weeks (excluding weekends). Of the other two conditions, participants had to post comments on the White House Facebook, and YouTube accounts. In contrast to the low interactivity of the small federal agencies, the average number of comments from the fans/viewers that the White House accounts received during the period of the study was 1,284 posts in Facebook, and 648 in YouTube. Similar to the previous conditions, participants had to post one comment per day on these YouTube and Facebook accounts during the two weeks. Additionally, a fifth condition was designed to test the effects of engagement with other users. For this condition, participants had to comment three times per day on the White House Facebook account, one related to the original message posted by the White House, and two others referring to what other users said.

After receiving the email confirming their participation with their user accounts, and providing informed consent, participants were randomly assigned to one of five conditions:

1) The Facebook account of the White House in which participants posted one message per day (31 participants);

2) The Facebook account of the White House in which participants posted three messages per day (31 participants);

3) The Facebook account of a low interactive federal agency in which participants posted one message per day (29 participants);

4) The YouTube account of the White House in which participants posted one message per day (29 participants);

5) The YouTube account of a low interactive federal agency in which participants posted one message per day (31 participants);

6) Additionally, a control group condition was created to compare the results (38 participants).

Data Analysis

Participants in the treatment groups as well as in the control group took a pre-survey to measure their initial self-efficacy levels. This pre-survey was taken the same day they started to participate in the experiment by posting comments. After 14 days, once they finished deliberating, a post survey was conducted to measure for a second time their self-efficacy levels, the level of engagement they had with other users, and their cognitive involvement. Their pre-self-efficacy levels were compared with their post- self-efficacy levels to identify changes. These measurements were also contrasted between the different conditions and with participants in the control group. To explain the variations between the two periods, the difference in collective efficacy between time 1 and time 2 was established as a dependent variable, and the conditions, engagement with other users, and cognitive involvement as independent variables. Hierarchical

multivariate ordinary least squares (OLS) regressions were run to assess the exact relationship between the independent variables and variation in collective efficacy, and to account for potential rival explanations, the regressions were controlled for age, gender, education, extroversion, political interest, time spent in social media and political talk in SNSs. Additionally, to determine if the interaction between the social media channel used to deliberate and the level of interactivity presented in the federal agency has an impact on collective efficacy, a factorial univariate ANOVA was conducted with the difference in collective efficacy between time 1 and time 2 as the dependent variable.

Measures

Collective efficacy. Three of the six questions employed in the previous chapter were averaged to calculate the shared belief held by individuals about the group's capabilities and skills for performing a collective action. The questions, assessed on the same 7-point scale, were: The collective action of people has a huge influence on public affairs; If enough citizens got organized and demanded change, politicians would take steps to end their problems; The collective action of people can improve society. Both pre-experiment survey (M = 5.01, SD = 1.2, Cronbach's α= .87) and post-experiment survey (M = 5.2, SD = 1.37, Cronbach's α= .86), showed a satisfactory level of internal consistency.

User Engagement. Drawing from previous research (Kwak et al., 2005; O'Brien & Toms, 2009), a user engagement scale was developed to measure how much absorbed participants felt they were interacting with the federal agency and other users. Five statements such as: "I felt I was having conversations with others", and "I felt I was interacting with the White House" were measured on a 7-point scale, ranging from (1) Strongly disagree to (7)

Strongly agree, and then averaged to create a single measure (M = 4.07, SD = 1.15,

Cronbach's α= .754).

Cognitive Involvement. Three items related to individuals' engagement and level of attention to

communication messages selected from Eveland (2001) and Kwak et al. (2005) were

used to measure how individuals more carefully process the information presented and

attend to conversations, such as "Posting about public affairs helped me develop better

arguments" and "Posting messages in the federal agency made me think more about my

own opinions and beliefs". The items, measured on a 7-point scale, ranging from (1)

Strongly disagree to (7) Strongly agree, were also averaged to create a single measure (M

= 4.63, SD = 1.46, Cronbach's α= .87).

Control Variables

Three demographic variables were used in the analysis. Gender (58.6% female), age in

years (M = 20.34, SD = 2.76) and education.

Education. Participants were asked about the highest level of formal education completed by

their mother and father in a 6-point scale ranging from (1) Less than high school to (7)

Graduate degree (Mdn = 2-year college), and indexed in an averaged item (interitem r =

.564, M = 3.7, SD = 1.4).

Political Interest. Respondents were asked separately about their interest in local community

politics and local community affairs, and in national politics and national affairs. The two

items were combined in scale ranging from 1, "actively do not like it", to 5 "very

interested" (interitem r = .49, M = 2.51, SD = .9).

Strength of Political Views. Respondents were asked to indicate their strengths of political views

using a 5-points semantic differential scale, ranging from Very liberal (9.3% of

respondents); Liberal; Moderated; Conservative; to Very conservative (2% of

respondents). This item was folded into a 3-point scale, ranging from weak to strong

political views (M = 1.76, SD = .64).

Extraversion. Respondents rated their level of agreement using a 7-point scale 1 (strongly

disagree) to 7 (strongly agree) for each of the following statements "I am very outgoing

around people I don't know well," and "I tend to be reserved around other people I don't

know well" (reverse coded; interitem r = .645). The two items were combined in scale

ranging from (M = 4.66, SD = 1.69).

Interpersonal discussion on politics. It was asked participants how often they discuss politics and

public affairs on SNSs or sites where other users can follow the discussion (M = 3.33, SD

= 1.6)

Time spent on social media. Users were asked to indicate on the same 7-point scale (from Don't

use it at all to Almost all day) how much time they spent yesterday on SNSs such as

Facebook or Twitter (M = 3.85, SD = 1.3).

<div align="center">Results</div>

In terms of the effects of deliberation on collective efficacy, the results varied according

to the channel in which participants deliberated, as detailed in Table 11. One-tailed t-tests were

conducted on paired samples to evaluate the impact of deliberation on participants' levels of

collective efficacy for each condition. Overall, deliberation in social media presents a marginal

increase in collective efficacy as predicted in H1. Contrasted to Time 1 (M=5.04, SD=1.37), the

comparison with Time 2 (M=5.18, SD=1.2) indicates that there is a difference in the level of

collective efficacy of participants after deliberation, suggesting that deliberation has a positive

effect on students' collective efficacy (t(df = 151) = 1.51, p=.069, $\eta 2$=.02). Further, the 38

participants who took part in the control group did not show any significant difference between

Time 1 (M=5.11, SD=1.36) and Time 2 (M=5.06, SD=1.28), suggesting that it is not the

repetition of the survey that creates a difference in collective efficacy, but rather the exercise of

deliberation. In testing the influence that specific affordances has on users, H2a predicted that

users who deliberate in social media channels that allow a networked information access

(Facebook) would present a higher increase in collective efficacy. Results show that there was a

statistically significant increase in those students who deliberated on the Facebook accounts of

the White House.

Table 11. Differences on collective efficacy after two weeks of deliberation

Condition	Experiment		Significance of difference
	Time 1	Time 2	
Facebook, three comments on White House	4.83	5.24	$t = 1.8, p < .05$
	(1.35)	(1.04)	
Facebook, one comment on White House	5.13	5.48	$t = 2.46, p < .01$
	(1.55)	(1.04)	
Facebook, one comment on Federal Agency	4.84	4.6	*n.s.*
	(1.43)	(1.42)	
YouTube, one comment on White House	4.94	5.15	*n.s.*
	(1.40)	(1.17)	
YouTube, one comment on Federal Agency	5.43	5.4	*n.s.*
	(1.01)	(.93)	
Accumulate six conditions (without control group)	5.04	5.18	$t = 1.55, p = .069$
	(1.37)	(1.2)	
Control Condition	5.11	5.08	*n.s.*
	(1.36)	(1.28)	

Note: Means with standard deviations errors in parentheses are presented. Statistical significance of the difference between conditions was assessed with one-tailed t-tests not assuming equal variances

Participants who posted three messages per day showed a statistically significant increase

from Time 1 (M=4.83, SD=1.35) to Time 2 (M=5.24, SD=1.04, t(30)=1.8, p<.05, η2=.051),

while participants who posted one message also showed a significant increase from Time 1

(M=5.13, SD=1.55) to Time 2 (M=5.48, SD=1.04, t(30)=2.46, p<.01, η2=.091). The mean values

indicate that deliberation in these two conditions produces significantly higher levels of collective efficacy in participants after two weeks. Further, the Eta squared represents the proportion of variance of the dependent variable that is explained by the independent variable (Cohen, 1988), which is significant for the results, since both eta squared statistics indicated a moderate effect size. However, in participants who posted on the Facebook account of a low interactive federal agency, a non-significant diminution of collective efficacy was noted from Time 1 (M=4.84, SD=1.43) to Time 2 (M=4.6, SD=1.42, p =n.s). Concerning the effects of deliberation in YouTube, although participants had an increase in collective efficacy from Time 1 to Time 2, the difference was not significant. To formally test H2a, an independent-sample t-test was conducted to compare changes in collective efficacy among users who deliberated in Facebook and YouTube, but since in one of the conditions Facebook participants did not show an increase in collective efficacy, the total difference was not significant. Consequently, the results only partially support the idea that users who deliberate in social media channels that allow a networked information access (Facebook) would present a higher increase in collective efficacy.

To clarify this relationship and determine if the interaction between the social media channel used to deliberate and the level of interactivity presented in the federal agency has an impact on collective efficacy, a factorial univariate ANOVA was conducted with the difference in collective efficacy between Time 1 and Time 2 as the dependent variable. The results showed that neither of the main effects was significant, but interestingly, the interaction between these two variables was significant $(F(1,7389) = 4.167, p < .05)$. From Figure 3, it can be observed that Facebook users who participated in the White House conditions showed the highest increase in

collective efficacy, while participants who participated in YouTube did not show a relevant

difference between the two conditions.

Figure 3. Interaction effects between social media channel and level of interactivity in federal agencies
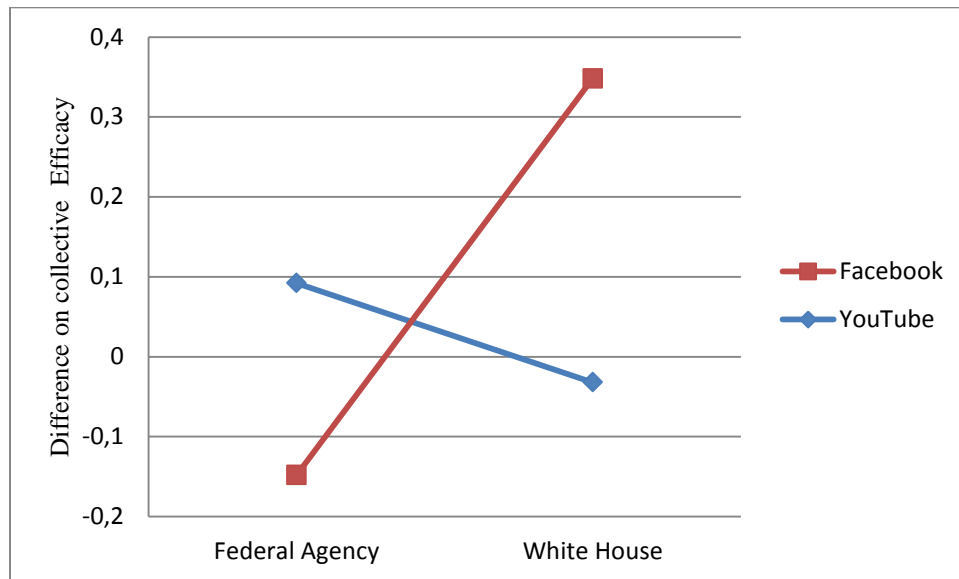
Note. The figure shows the interaction between participants who posted in the Facebook and YouTube accounts of the White House and other federal agencies. The highest difference in collective efficacy is observed among those who participated posting in Facebook, but not in YouTube.

In testing whether users in the more anonymous social media channel (YouTube) would

show lower levels of engagement than on Facebook, an independent-samples one-tailed t-test

was conducted to compare the levels of engagement among users who deliberated in Facebook

and YouTube. The result from the analysis indicates that there is a marginal difference between

the effects of the social media channel in user engagement $t(df = 127) = 1.51$, $p = .065$, $\eta 2 = .02$.

The mean values support H2b and indicate that participants engaged with other users marginally

more in Facebook ($M = 4.1$, SD=1.15) than in YouTube ($M = 3.7$, SD=1.21), although the

magnitude of the differences in the means was small (eta squared=.02). In terms of the role that

interactivity plays in the level of engagement, results also marginally supported H3a. Participants

who deliberated in less interactive social media accounts (M = 3.67, SD=1.19) showed

marginally lower levels of engagement (M = 4.09, SD=1.15) than those who participated in the

social media accounts managed by the White House, regardless of the social media channel

utilized t(df = 126) = 1.54, *p* = .068, η2=.03. To determine whether interaction between users has

a positive effect on the level of engagement as H3b predicted, a comparison was made between

the condition in which participants commented referring to other users' posts under the White

House Facebook account and the other conditions in which participants only commented on the

message posted by the federal agency. Results showed that the interaction between participants

has a significant effect on the level of engagement t(df = 125) = 1.69, p <.05, η2=.03. This means

that participants who referred to others in their posts engaged in significantly more deliberating

than did participants who only interacted with the federal agency.

Table 12 OLS Regressions for difference between Time 1 and Time 2 on collective efficacy (*N* = 148)

	Difference Collective Efficacy	Difference Collective Efficacy
Age	.181**	.184*
Gender (1 = Female)	.088	.089
Political Interest	-.318**	-.306**
Strength Political Views	.098	.043
Education	.113	.045
Extroversion	-.003	.074
Social media Channel (1= Facebook)	.018	.022
Federal Agency (1=White House)	.039	.053
User Engagement	.385***	
Cognitive Involvement		.299***
Constant	-4.55	-3.64
Adjusted R^2 (%)	16.2	10.3

Notes: Cell entries are final-entry OLS standardized coefficients. R^2 change refers to the unique contribution of each block of variables controlling for the previous variables entered in the regression. * *p* ≤ .05, ** *p* ≤ .01, *** *p* ≤ .001.

Finally, it was theorized that user engagement and cognitive involvement will be positive relative to changes in collective efficacy (H3c). To test this possibility, the difference in collective efficacy between Time 1 and Time 2 was established as a dependent variable, and the conditions, user engagement and cognitive involvement, as independent variables. Hierarchical multivariate ordinary least squares (OLS) regressions were run to assess the exact relationship between the independent variables and variation in collective efficacy, and, in order to account for potential rival explanations, the regressions were controlled for age, gender, education, extroversion, political interest, time spent in social media and political talk on SNSs. From table 12 it can be observed that both cognitive involvement ($b = .299$, p < .001) and user engagement ($b = .385$, p < .001) were associated positively with variations in collective efficacy, as predicted by H3c. That means that participants who engaged more with other users and were more cognitively involved in the discussions showed a significant variation in collective efficacy, even when controlled for the social media channel and the level of interaction in which the deliberation occurs. Interestingly, political interest was the only control variable negatively related to changes in collective efficacy ($b = -.208$, p < .01) when cognitive involvement was introduced as predictor, and ($b = -.318$, p < .01) when user engagement was introduced as predictor, which means that for more politically oriented participants, deliberation in social media does not produce a positive change in collective efficacy.

Discussion

The goal of this chapter was threefold. First, it aimed to test in an experimental setting the results obtained in the previous chapters in order to corroborate whether deliberation in SNSs has an impact on collective efficacy. Second, it theorized about the different elements that comprise the networked public sphere and the implications for the constitution of its users, "the networked

public," who are structured by networked technologies. And third, this chapter aimed to contribute a deeper understanding of SNSs, one of these networked technologies, by contrasting the implications of deliberation in social media channels that afford different levels of access to information, identifiability and levels of engagement, which are traditional predictors of online participation. For this purpose, 151 participants commented during two weeks on the White House's and several other federal agencies' Facebook and YouTube accounts. Overall, the study yielded four major findings. First, regarding the effects of online deliberation, the experiment demonstrated that political talk in SNSs has a positive effect on collective efficacy, showing empirical support for the findings presented in the first chapters. Second, the results offered evidence that under the White House conditions, deliberation in the social media channel that allows a networked information access (Facebook) caused the highest increase in collective efficacy, supporting the formation of a networked public sphere which is strongly affected by the access to information that users' audiences (contacts) have in their networks. Third, in explaining the variation of collective efficacy, it was found that, in addition to the social media channel used to deliberate, cognitive involvement and user engagement satisfactorily explain the increase in this variable attained by participants. And fourth, results showed how conversational dynamics between participants play a significant role in the engagement attained by students: participants who deliberated in more interactive conversations (White House accounts instead of small federal agencies), and those who replied to messages posted by other users (and not only to the original thread initiated by the federal agency) showed higher levels of engagement.

Deliberation and collective efficacy in SNSs: Toward a network public sphere

One of the most relevant findings of the experiment was the positive relationship between deliberation in SNSs and changes in collective efficacy. Although previous research has noted

that online deliberative experiments positively affect democratic indicators such as political

knowledge (Min, 2007), higher opinion quality (Price & Cappella, 2002) and greater trust and

social capital (Rhee & Kim), this study seems to be among the first to find a positive relationship

between deliberation in SNSs and one of these indicators (collective efficacy). Thus, it may be

argued that the experience of asking participants to deliberate in SNSs was necessary in order to

provide more convincing evidence of the causal relationship between political talk and collective

efficacy suggested in the previous chapters. This finding is consequential for various reasons.

First, it is consistent with a traditional line of research in political communication that argues that

by taking part in deliberative experiences, individuals can get a deeper understanding of political

facts and civic behaviors, which has a positive impact on individuals' sense of efficacy that

enables deeper engagement in civic affairs (Eveland & Scheufele, 1998; Finkel, 1985; Gastil et

al., 2002; McLeod et al., 1999). Therefore, by promoting basic norms such as efficacy,

deliberation in SNSs also fosters engagement in one's community, as was found in the self-

reported survey in the first chapters. Further, this relationship is especially relevant given the

strong association between perceptions of a group's efficacy and engagement in civic activities.

Research has noted that political involvement cannot be realized without the shared belief that

other community members are also capable of exerting control over political matters (Lee, 2005;

Yeich & Levine, 1994). In fact, collective efficacy has been positively associated with high

neighborhood reliability and reduced levels of violence (Sampson, Raudenbush, & Earls, 1997),

community integration and online participation (Kavanaugh et al., 2005), support for the

democratization process (Lee, 2006), mobilization and protest involvement (Seligson, 1980),

civic engagement (Kim & Ball-Rokeach, 2006), and political participation (Lee, 2010).

Consequently, if deliberation in SNSs positively affects this shared belief about the group's

capabilities to perform a collective action, from a civic lens, this dissertation also has practical implications that should be noted since SNSs may be used by civic-oriented organizations to increase participatory behaviors.

Second, from a theoretical perspective, the positive relationship between deliberation in SNSs and collective efficacy is relevant because it demonstrates that participants of online communities not only achieve a high sense of personal empowerment by acquiring relevant information and knowledge about their environment (Barak et al., 2008; Nardi et al., 2004; Min, 2009; Sundar, 2008), but they also boost their confidence when dealing with other issues as they participate by commenting, suggesting a higher collective empowerment for users who generate content. As discussed above, research has traditionally explained the relationship between deliberation and political efficacy by arguing that individuals, after being exposed to discussions, acquire a substantial amount of factual information, and this increase in information leads individuals to feel more efficacious and to arrive at positions they would not have reached by other means (Iyengar, Luskin, Fishkin, 2004; Fishkin & Lushkin, 2005; Luskin, Fishkin & Jowell, 2002). However, the results of this study went further. Indeed, the analysis showed that this natural bridge between deliberation and political efficacy, although true, was not entirely consistent with findings identified by political research. More specifically, although overall deliberation in SNSs caused an increase in the levels of collective efficacy, there was a significant difference in the channel utilized by participants in order to deliberate. In fact, the highest increase in collective efficacy came from the students who participated by commenting on Facebook and not in YouTube, which supports the notion of a *networked public sphere* that is strongly affected by the type of audiences (contacts) in users' networks and not necessarily for the act of deliberation by itself.

Two complementary theoretical approaches could be used to explain this phenomenon. On the one hand, following the literature in social psychology, it was theorized that the experience of holding public discussions about civic-oriented issues originated in SNSs, with the potential for a massive audience, would cause discussants to internalize this civic attitude when they realized that thousands of users may follow their posts and ideas. Based on the *public-commitment* framework, it was explained that an individual's awareness of an audience, or sense of *publicness*, augments the effect of self-presentation on identity. Interestingly, this internalization process is catalyzed principally when individuals have a recognizable audience that also can identify them when they generate content, making them feel responsible for their actions and behave in a manner consistent with their self-presentation. The literature explains that, at the end of the process, individuals would become more similar to the way they present themselves, since they want to match the feedback they expect from their audience. On the other hand, it was argued that Facebook users have a very tangible list of friends with real profiles, and, since they are notified about network comments, it was theorized that this identified public creates stronger expectations than the unidentified online public on YouTube. The results corroborated the combination of these two approaches, showing that the effects of deliberation on collective efficacy were particularly salient for users in Facebook, who did not only identify themselves with their names to deliberate and assumed as their own the opinions given in the exercise, but they also imagined a much closer audience reading their comments, such as their friends, family and contacts with whom they interact everyday through their accounts.

Moreover, the study showed that these increasingly integrated forms of personal communication have significant implications for the constitution of its users, "the networked publics," as they are restructured by Facebook and other SNSs in order to read, discuss, and

argue about different issues. Consistent with previous research in impression management, it was demonstrated that whereas deliberation with audiences that exist within a larger social graph has a limited effect on efficacy (e.g. YouTube), the impact of the content generated by participants was far more significant when they could visualize an audience that was going to read and learn about their opinions (e.g. Facebook). In fact, the *networked audience* thesis was supported not only by the results, but also in other areas of the study, such as in the desertion rate throughout the experiment. As was noted in the method section, 537 students quit the study. And even though most of them did not explain why they were quitting, 78% of the students who left the study were those assigned to a Facebook condition. Moreover, I received fourteen petitions from participants in Facebook conditions asking to be changed to YouTube since they did not want to be associated with political discussions by their contacts. Similarly, eight students asked if they could open a fictitious Facebook account to participate in the experiment instead of using their personal accounts. Although participants who left the experiment were not considered in the analysis and it is difficult to generalize based on these cases, it is interesting to note that none of the YouTube participants gave similar reasons for leaving the experiment and nobody asked to be transferred from a YouTube account to a Facebook one.

Consequently, as practices of social connectivity shift in favor of relational settings oriented towards the emergence of networked technologies, it is relevant to understand that this new structure of communication uncovers not only how the flow of information may change the formation of a public opinion in this informal public sphere, but also the personal effects that content generation causes in users, such as changes in efficacy. More specifically, given that deliberation on collective efficacy was particularly salient for users of Facebook, the study showed that the development of horizontal networks induces the rise of a new environment

where users empower themselves as they see other users acting civically when they interchange ideas about politics. Therefore, this new networked reality is not only encouraging users to challenge systems that have traditionally held a more powerful position through new generation of content, as previous authors have suggested (Castells, 2007), but at an individual level, it could also be observed that the potential for reflexivity also increases exponentially the effects of the networked community that emerges in users' minds when they generate content.

User engagement and cognitive involvement as predictors

Relevant for our discussion is the fact that participants who commented on federal agencies' Facebook accounts did not show an increase in collective efficacy after two weeks of deliberation. Moreover, participants in this condition were the only ones whose collective efficacy levels diminished –although not significantly- after the experiment. Contrary to what was expected, this group showed lower levels –although not significantly- compared to the same condition on YouTube. One plausible explanation for this difference is that participants did not see any relevant interaction between users in the Facebook account, considering that Facebook users are accustomed to seeing many replies to threads posted by organizations. Generally speaking, Facebook users are active content generators and, in organizations with thousands of *fans* or *likers*, there is interaction between users. On the other hand, the notion of collective efficacy is related to the judgments that members of a group have about their capabilities and skills for engaging in successful collective action. Therefore, since the small federal agencies selected for the experiment post about 5 message threads (or videos) per week, but receive less than 10 comments from their fans/viewers on those threads, it may be argued that, given the lack of interaction at a group level, participants felt discouraged about the impact of the group actions, and instead of motivating themselves by generating content, the lack of responses and

interaction caused the opposite effect. In other words, based on the idea that collective efficacy is the group's shared belief in its joined capabilities to organize and execute the courses of action required to produce given levels of attainment, it is perfectly understandable that this perception diminished in participants after they noted the lack of interaction and collaboration between participants on the federal agencies' sites.

Further, this idea was corroborated with the interaction effect found between the social media channel used to deliberate and the level of interactivity presented in the federal agency. The results showed that Facebook participants in the White House conditions showed the highest increase in collective efficacy, while participants who posted on the White House's YouTube account did not increase their collective efficacy. It is worthy of note that this divergence in collective efficacy was found despite the similarity between messages posted by the White House and the dialogues between users in both conditions, which demonstrates the positive effects that a networked audience may have on users. Similarly, students who posted under the YouTube conditions (White House and federal agencies) did not present any major difference in these two conditions, which can be largely contrasted with the impact that lower levels of interaction had on participants who posted in Facebook. Interestingly, the results are consistent with research in CMC, which has shown that communities featuring interactive comments that related back to earlier messages elicit greater participation in users than communities featuring non-interactive messages. Previous studies have found that the interaction attained among users is what keeps message threads and their authors together, while low levels of interactivity can decrease the engagement of users, leading to less sociability among them (Rafaeli & Sudweeks, 1997; Wise et al., 2006). Consequently, the results of our study are relevant because they show that, although the effects of deliberation may be stronger when users identify themselves and

imagine their closer contacts in Facebook reading their status updates rather than having them read by complete strangers in YouTube, this impact is not strong enough to suppress the impact of lower levels of interaction among the users.

Therefore two main conclusions should be noted. On the one hand, based on the review of the literature, it is possible to conjecture that the higher identification and sense of *publicness* with personal contacts in Facebook made users feel responsible for their opinions, thus augmenting the effects of online deliberation on collective efficacy. On the other hand, the experiment also showed that there are other aspects in the conversational dynamics identified by previous research in CMC, such as low interactivity, that moderate the positive effect on collective efficacy that an *imagined audience* has on users. Consequently, these findings shed light on the complexity that interactions between structural factors and conversational variables with the capacity to affect the social dynamics of mediated groups have in elucidating the changes. In other words, by simply identifying structural and relational predictors in the channels used to deliberate, it is not possible to reveal the underlying mechanisms through which SNSs users feel more efficacious. Further, an explanation of individuals' variations in their perceived ability to collectively influence the political system also requires a more psychologically-oriented model that specifies relationships among the structural variables and conversational factors. In fact, the literature in political and computer-mediated communication has recognized the reasoning process (cognitive involvement) in order to elaborate on the information presented, and the sense of connection and engagement with other users as critical mechanisms to explain how deliberation may influence possible variations in collective efficacy.

Consistent with this line of literature, results showed that both cognitive involvement and user engagement augmented the degree to which participants interacted psychologically with the

medium and other discussants' messages, leading to an increase in collective efficacy. In fact, students who showed higher levels of cognitive involvement in processing the information posted by the federal agencies, and a higher sense of connection in interacting with other users, were also those participants who revealed higher changes in collective efficacy. Consequently, the experiment supported the notion that user engagement and attentiveness to conversation and active processing of mediated information has a significant impact on establishing attitudinal outcomes. Most importantly, based on the results, it is possible to argue that the sense of connection with other users and the reasoning process that involves elaboration of the messages, which subsequently encourages self-reflection and motivates interpersonal discussion, are valid mechanisms which explain the attitudinal effects of deliberation on collective efficacy. Further, in testing H3c, both variables were regressed as independent variables to variation in collective efficacy between Time 1 and Time 2, and in both cases the effect of the social media channel and the level of interactivity disappeared, while the effects of user engagement and cognitive involvement remained high. This suggests that both variables partially mediated the relationship between collective efficacy and the channel used to deliberate, and consequently may be considered as valid mechanisms to explain attitudinal changes.

Indeed, the social media channel used to deliberate showed a positive impact on the levels of user engagement. Following the networked audience thesis, it was posited that the awareness of an identifiable list of friends in Facebook as an audience, contrasted to the anonymity of most YouTube users who do not know with whom they are interacting, would present a difficulty for participants who needed a more specific context and conception of their audience than a mere "anyone" in order to express their opinions and engage with others in a deliberative context. The results confirmed that participants who posted on a Facebook account

engaged more with other users than did YouTube participants. As discussed above, in a computer-mediated environment, the text element is overloaded as a multiple signifier, in which messages convey two types of information: one is the content of the message, and the other is the presence of the participant. Given the lack of identifiability that YouTube users present and the results obtained, it is possible to conclude that this platform does not support enough relational features to enable discussants to identify correctly the kind of interpersonal situations they find themselves in, and consequently, their level of engagement is lower than on Facebook, where users can find a more clear communication setting that assists them in contextualizing their messages.

Moreover, this finding is in line with the literature in CMC in general, and the "cues-filtered-out" approach in particular, which states that the sense of connection between users is directly linked to the capabilities and richness of the medium for transmitting social cues (Short et al., 1976; Sproull & Kiesler, 1986). Consistent with this approach, the results showed that the more information users have about each other, the stronger their feeling is that other users are jointly involved in communicative interaction. Similarly, the experiment confirmed the importance that interactions and conversational dynamics have on user engagement. In the study, participants who replied to messages posted by other users (and not only to the original thread initiated by the federal agency), presented higher levels of engagement than participants who only posted comments on threads initiated by the federal agency. Research in CMC has traditionally found that conversation between participants in online communities can increase not only the engagement of users with the respective discussant, leading to more sociability among them, but also with other users who participate in the community. Rafaeli and Sudweeks (1997) explain that when ongoing communication exchanges occur, these exchanges carry a social,

binding force that serves as a catalyst for extensive conversations, facilitating political discussion among users. To summarize, the results are consistent with conceptual models set forth by research in CMC (e.g., Preece, 2001; Walther & Parks, 2002), which posits that, although structural input factors in online platforms may exert some direct effects on outcomes such as engagement or attitudes (e.g. collective efficacy), these affordances, in the end, are especially likely to influence qualities of the interaction between users, and this, in turn, affects engagement and/or cognitive involvement, which serve to mediate the impact of the platform on final outcomes such as deliberation.

Therefore, based on the results obtained and previous research on CMC, it is possible to conclude that at least in terms of sociability and usability, participants in the study reacted to the SNSs affordances and interacted with other users in these platforms in a similar way to that of users in other computer-mediated settings such as chats, bulletin board discussions or forums. Further, given the high consistency of the findings with previous research in online deliberation, it may be argued that the conclusions obtained validate the structural and interactional aspects explored in this experiment, which can be considered an applicable framework for explaining how certain affordances may affect deliberation, engagement, and subsequent variations in collective efficacy among participants.

Finally, it is interesting to note that within the control variables, political interest was the only one negatively related to changes in collective efficacy. This means that for more politically-oriented participants, deliberation in social media does not produce a positive change in collective efficacy. Although at first glance this result is contradictory, since I was expecting politically-oriented individuals to be much more interested in deliberating and engaging with other users, which in turn would increase their involvement and the effects of deliberation on

collective efficacy, this finding fits within the framework of expectancy-value theory of uses and gratifications. Expectancy theory suggests that previous beliefs or attitudes toward an object, or in the case of this experiment, toward deliberation, will affect perceptions of the gratifications obtained (Palmgreen & Rayburn, 1982). Although approaches under the label of expectancy-value differ somewhat in their emphases (see, for example, how others in social psychology have incorporated the Fishbein & Ajzen 1975 expectancy-value perspective), according to Palmgreen (1984), attitudes are a function of (1) expectancy (or belief) – the perceived probability that an object possesses a particular attribute, or that a behavior will have a particular consequence; and (2) evaluation – the degree of affect, positive or negative, toward an attribute or behavioral outcome.

Consequently, based on the expectancy-value theory of uses and gratifications, it is possible to explain that participants who are more interested in deliberating about political themes probably had higher expectations for a deep and profound discussion than did less interested participants. Therefore, due to the irrelevant nature of most of the comments presented in Facebook and YouTube, it is reasonable to state that those users with higher expectations would be less affected by the deliberation exercise. Further, the lower effect on collective efficacy for more interested individuals in politics may also be related to previous deliberative experiences with which political participants were familiar. SNSs such as Facebook or YouTube may be viewed as too "amateur" a platform for those who actively utilize other outlets for self-expression and discussion, such as political blogs or more restrictive discussion boards that can satisfy these more specific requirements.

Limitations of the experiment

This experiment has several analytical and methodological limitations, especially in terms of the platforms chosen, the selection of participants, and the processes in the data collection that should be mentioned. First, this second study of the dissertation relied on Facebook and YouTube as the only platforms within the wide variety of SNSs that are offered today for the study of online deliberation. Although Facebook has more than 835 million users, and today more than 4 billion videos are viewed per day on YouTube, it is important to note that there are other SNSs such as Twitter that respond to a different logic and present several other types of affordances which may affect how users deliberate online. Despite this limitation, it is anticipated that the popularity and prevalence of both SNSs chosen provided a suitable framework for exploratory investigations about the effects of deliberation on collective efficacy, which was the objective of the experiment. Nevertheless, future efforts would need to expand to Twitter and other SNSs for comparative analysis, supplementing the findings derived from this experiment. Second, comparative analysis of other platforms can also address another set of methodological limitations related to the variations in the format through which information is presented in these two platforms. Participants in the YouTube conditions responded to threads in a video format, whereas, on Facebook, most of the content posted by the agencies was textual (e.g. a message from an authority), visual (e.g. the photo of the day), or derived from a second source, such as newspaper news. These variances in the format could produce different effects on participants that may alter their responses to the initial message posted by the federal agency and subsequent dialogues between them. A better strategy would be to control for audiovisual formats and ask participants to post in Facebook, for example, only on threads initiated by videos.

Third, the experiment did not control for the type of topics discussed in the threads initiated by the federal agencies. Although all the agencies selected have a "civic" approach and potentially may post similar messages about public affairs or political issues, this does not mean that the topics discussed would be equally interesting for participants. It is a completely different experience for users to deliberate about a new policy to measure the U.S. population under the social media account of the census, than to give their opinions about hot topics such as the new legislative proposal presented by the President to control guns, reform taxes, or to accept homosexuals in the army, "hot" topics frequently discussed in any of the White House's social media accounts. And this limitation deserves to be mentioned since the topic of debate is also likely to have an important influence on deliberative outcomes. In a previous study (Halpern & Gibbs, in press), I showed how sensitive issues often provoke references to status inequalities of speakers in ways that destabilize deliberation, and discussions about highly sensitive issues such as gay marriage are more likely to promote deliberation. Consequently, it is possible that the experiment confounded the variable interactivity and the volume of interaction between participants (the White House and the other small federal agencies), with interest in the topics discussed. Future studies should consider this aspect and compare only those agencies that discuss similar topics with equivalent implications.

Additionally, there are other concerns about the recruitment of participants and the high desertion rate (81%). Two aspects should be noted about the recruitment. First, all the participants were recruited from communication classes, so it is difficult to generalize the results based on the participants selected. Additionally, the undergraduates used in this experiment could be more technologically savvy and possess better deliberative ability than the general population, and this might have influenced the outcome of the study. Admittedly, future work

will need to focus on obtaining a sample consisting of more diverse participants, and not

necessarily students. And second, since it was possible that some of them knew each other well,

in order to avoid interaction between friends as they commented on federal agencies, which

would distort the interaction as they would see a classmate posting his/her opinion, two different

measures were considered to avoid this situation. First, participants were divided in two groups

and they posted during two different periods of time. And second, for the small federal agencies

only one participant was assigned per period, and for the group assigned to the White House's

site, only one participant was assigned per thread. Despite these precautions, it is possible that in

the Facebook condition participants saw what their friends posted under their status update bar.

Nevertheless, I believe that the effects of such exposure would not significantly alter the

conversational dynamic. Regarding the desertion rate, at the end of the experiment, less than

20% of the participants successfully concluded the study, which can make the findings even less

generalizable. However, as was discussed above, the desertion rate validated the thesis presented

in the study. Since 78% of the students who left the study were those assigned to a Facebook

condition, and I only received petitions from participants in the Facebook conditions asking to be

changed to YouTube, because they did not want to be associated with political discussions by

their contacts, it shows that they were much more concerned about expressing their opinions on

Facebook than on YouTube. Therefore, despite these limitations, I think the findings are still

noteworthy.

Finally, it was conjectured that the messages posted by the federal agencies would not be

different between the periods. In other words, despite the fact that a group of students

participated between February 24 and March 9, and the second group from April 1 to April 15, it

was assumed that the threads posted by the agencies would be similar. However, it is quite

possible that the federal agencies posted different types of messages during the periods. Similarly, it is important to note that the mood of the students and their willingness to participate probably also changed during the periods, especially considering that the second one started the week after students came back from spring break, and the first one finished the week before finals. Consequently, it is logical to assume that students had more time after spring break to participate in the study, and they were also more relaxed, so they probably took their participation much more seriously and invested more time in reading the comments and posting their ideas. In fact, the desertion rate was much lower in the second period than in the first one, in which participants had their finals and more coursework. Although this situation may be a limitation, since participants were equally distributed in the conditions, I don't think it had a significant impact.

Chapter 7

General Discussion

This dissertation aims to present a theoretical model capable of examining how the affordances of SNSs can amplify the participatory effects of news information and political talk on civic engagement. In this last chapter, I will first summarize the findings of the studies presented and then elaborate on the significance of these findings. Subsequently, I will explain how the idea of the networked public sphere may be expanded and used to address other phenomena of interest for communication scholars, such as the normative goal of plurality embodied in the concept of ''deliberative democracy'' and community-based activities. Special attention will be paid to the discussion of theoretical, practical, and methodological contributions made by this study to the existing research.

Summary of the findings

The findings of this dissertation can be divided into two main areas. On the one hand, the first four chapters aim to advance a theoretical model able to account for the amplifying effects of social media on civic engagement. Through a cross sectional survey, I showed how SNSs can amplify the effects of news information and political discussion on cognitive processes – i.e. an individual sense of collective efficacy- that ultimately will activate behavioral outcomes –i.e. undertake an act of civic engagement. Drawing on the O-S-R-O-R (orientations-stimulus-reasoning-orientations-response) model of communication effects (McLeod et al., 1999) and following a network perspective, I argued that the ways in which SNSs facilitate access to news information and promote political discussion by integrating peer-generated information influences how people engage with others and process information. This ultimately affects the traditional mediation of news consumption and political discussion on participatory outcomes.

More specifically, this first study proposed an integrative model in which: communication behaviors in social media (i.e., news media use and discussion about public affairs) would mediate the effects of socio-demographic variables (i.e., income, education, age, gender, and race) and political dispositions (i.e., political interest, strengths of political views) on participatory behaviors (civic participation).

Overall these first chapters yield four major findings. First, it was found that SNSs increase not only information acquisition, but also users' capacity to discuss news presented by their contacts: whereas time spent on SNSs was positively related to news consumption in social media, users who consume information through Web 2.0-based applications also discussed more about public affairs than users of offline and traditional online media. To explain this positive relationship, I argued that compared to any other channel, the higher accessibility presented in social media for information consumption (e.g. news sharing with only one click or being notified by contacts), combined with lower costs for dialogue initiation (e.g. co-presence is not needed and networks are potentially "available" to be reached 24/7), are facilitating news consumption and political discussion. This notion could be seen more clearly by the fact that in Web 2.0-based environments, news media facilitates content access (news) via invitations made by the audiences. Indeed, users today do not need to visit a news media or a political website to access information, but rather they may also "invited" by their contacts to gain access to that information in their own SNSs. This means that although the interaction between the media and its audiences still has a vertical direction (as a channel of unidirectional mass communication), the capabilities for horizontal communication embedded in these social applications allow users to rebroadcast the content (e.g., news) and "share" the information with others. Therefore, since social media facilitates access to news information by contact notifications and horizontal

communication, the first study corroborated the idea that social media users have higher exposure to news content than they do in offline and traditional online media.

This first finding may be complemented by the fact that users who consume and discuss political information in online and social media showed less political interest than those who consume information through offline media and FtF settings. This means that users in both online platforms do not need to be "so interested" in politics as they do in FtF in order to discuss with others. As mentioned above, this may be related to the lower barriers afforded by online media for initiating dialogue, which makes it easier for online users to discuss public affairs with others: whereas users less interested in politics may not visit a friend to discuss public affairs, they may comment on the news shared by their contacts or posted on their SNSs walls. In this way, not only those users who are interested in politics would participate in discussions in digital media, but also those who receive messages and/or see an opportunity to comment on others' status would participate as well. Further, the study exhaustively controlled for effects that FtF conversations and other media (e.g., email or chat) may have had in this process. Even so, there was a positive effect between discussion and collective efficacy in SNSs. Consequently, this finding suggests that political talk in SNSs adds something different to all the positive effects that the other sources of information and channels for discussion may already have in collective efficacy and civic participation.

Secondly, by studying SNSs as a structure that facilitates simultaneous communication via both mass and interpersonal channels, and enhances collective efficacy as a consequence of political talk, the results obtained corroborate the influence of information consumption on interpersonal discussion, which, in turn, is a possible mediator to trigger a series of cognitive and expressive processes that shape the levels of civic participation through collective efficacy.

Thirdly, the first study showed that structural features in which political discussion occurs, such as weak ties and network heterogeneity, positively moderate the effects on civic engagement. The results demonstrated that the relationship between political talk and civic engagement is stronger among social media users who discuss with weak ties and heterogeneous networks, showing the positive effect on civic participation in users who discuss with more heterogeneous contacts.

And this finding is consequential for two main reasons. First, I argued that connections with weak ties might be augmented by SNSs since these platforms allow users to create and maintain larger, diffuse networks of relationships. Using the concept of "latent ties" to describe connections that are possible but not yet socially activated, Ellison et. al, (2007) found that SNSs (Facebook in particular) have the potential to easily convert latent ties into weak ties. Facebook's wide range of identification information such as background information (e.g. hometown) encourages users to activate latent ties (e.g., finding classmates from elementary school), which transforms them into weak ties associated with positive bridging social capital outcomes. In other words, social media facilitates communication pathways between individuals who would not usually connect. This can be especially observed when "friends" are recommended based on common friends' shared background. Indeed, this idea has been supported by previous studies that have associated the existence of bridging social capital with Facebook use (Ellison et al., 2007, Valenzuela et al., 2009), indicating that young adults are using social media to maintain large and heterogeneous networks of friends. Additionally, research has shown that the two most popular uses of Facebook are related to find out more about people that users have met offline and to maintain or re-connect with longtime acquaintances such as high school friends (Lampe, Ellison, & Steinfield, 2006; Joinson, 2009).

And fourth, results showed that time spent on SNSs lead to unintentional exposure to information, which in turn affects positively discussion with heterogeneous contacts and diverse others. SNSs offer several mechanisms that inadvertently facilitate exposure to political difference. First, these platforms provide opportunities for users to be passively exposed to information and/or conversations transpiring in their networks through observation of their contacts' activity. Since users are notified when their contacts comment on news or "like" information in SNSs such as Facebook, it may be argued that those users will have a higher exposure to information that otherwise would go unnoticed. Second, SNSs enable the co-creation of content by integrating peer-generated information to messages originally broadcasted by the media, and make possible simultaneous communication by juxtaposing both mass and interpersonal channels within the same medium. This capability offered by these platforms greatly blurs the delineation between discussion and news, and since communication occurs on various levels at the same time, these blurred boundaries would tightly connect the content presented by the news and discussion between users, allowing them to discuss with others, and facilitating the sharing of political perspectives through news comments. And, third, research has found that the chances of getting this sort of exposure to differences in political perspectives inadvertently are much higher in apolitical spaces such as the workplace (Mutz & Martin, 2001; Scheufele et al., 2004). Since today Facebook and other SNSs users frequently "befriend" generic "causes" such as a medical institution in order to get more information about a specific treatment, for example, or to know other people with the same illness, it is very likely that under those conversations, users will inadvertently be exposed to political discussion on complementary topics such as the U.S. healthcare system. In sum, given the fact that SNSs facilitate content distribution and discussion through contacts' notifications, blurring the

boundaries between the content presented by news and the comments generated by users, I argued that these affordances create a mechanism that shapes how people engage with others in these environments, facilitating accidental exposure to political differences, heterogeneous contacts and diverse other users.

Regarding the experiment, the second main study of this dissertation, it is important to emphasize four findings. The first one is related to the idea that by corroborating the positive effect of discussion on collective efficacy in SNSs, the experiment showed empirical support for the findings presented in the first chapters. But this finding is also consequential for several reasons. First, it is consistent with a traditional line of research in political communication that argues that by taking part in deliberative experiences, individuals can get a deeper understanding of political facts and civic behaviors, which has a positive impact on individuals' sense of efficacy that enables deeper engagement in civic affairs. Further, the positive relationship between deliberation and collective efficacy is relevant because for the first time an empirical study advanced this notion to social media platforms. And second, this finding demonstrates that participants of online communities not only achieve a high sense of personal empowerment by acquiring relevant information and knowledge about their environment, but they also boost their confidence when dealing with other issues as they participate by commenting, suggesting a higher collective empowerment for users who generate content.

However, the results of this study also showed that this positive relationship between deliberation and political efficacy, although true, was not entirely consistent with findings identified by previous research. By this I mean that even though deliberation in SNSs caused an increase in the levels of collective efficacy, as past studies have shown, there was a significant difference in the channel utilized by participants in order to deliberate. In fact, the highest

increase in collective efficacy came from the students who participated by commenting on Facebook and not on YouTube, which supports the notion of a *networked public sphere* that is strongly affected by the type of audiences (contacts) in users' networks and not necessarily for the act of deliberation by itself. Further, the results showed that deliberation in the social media channel that allows a networked information access (Facebook), caused a higher increase in collective efficacy in the White House condition, supporting the formation of a networked public sphere which is strongly affected by the access to information that users' audiences (contacts) have in their networks. In other words, the experiment showed that the channel in which deliberation takes place is relevant since it may affect the impact on collective efficacy.

Thirdly, in explaining the variation of collective efficacy, it was found that in addition to the social media channel used to deliberate, cognitive involvement and user engagement satisfactorily explained the increase in this variable attained by participants. The results showed that both cognitive involvement and user engagement augmented the degree to which participants interacted psychologically with the medium and other discussants' messages, leading to an increase in collective efficacy. In fact, students who showed higher levels of cognitive involvement in processing the information posted by the federal agencies, and a higher sense of connection in interacting with other users, were also those participants who revealed higher changes in collective efficacy. Consequently, based on the results, it is possible to argue that the sense of connection with other users and the reasoning process that involves elaboration of the messages, which subsequently encourages self-reflection and motivates interpersonal discussion, are valid mechanisms which explain the attitudinal effects of deliberation on collective efficacy.

And lastly, results showed how conversational dynamics between participants play a significant role in the engagement attained by students: participants who deliberated in more interactive conversations (White House accounts instead of those of small federal agencies), and those who replied to messages posted by other users (and not only to the original thread initiated by the federal agency), showed higher levels of engagement. The results are consistent with research in CMC, which has shown that communities featuring interactive comments that related back to earlier messages elicit greater participation in users than communities featuring non-interactive messages.

Theoretical Implications

Towards a 2.0 O-S-R-O-R model of communication effects

By applying the O-S-R-O-R model of communication effects and a network perspective to understand how SNSs amplify the participatory effects of news information and political talk on civic engagement, this study extended the existing research on traditional and online media to Web 2.0-based applications in several ways. First, this dissertation advances a theoretical model that incorporates key predictors of civic engagement which are strongly associated with social media use: the manner of reception by which individuals acquire information from news media; the influence of content generation that emerges from users' discussions and peer-generated content; and the subsequent cognitive involvement in processing that information. Second, following the steps delineated by the O-S-R-O-R model of communication effects, it was corroborated that informational uses of the three media analyzed (offline, online, and Web 2.0) directly influence interpersonal discussion in the different settings (FtF, online via email, and through SNSs) which, in turn, shapes the levels of civic participation through collective efficacy. This logic was based on a sizable body of research that has stressed the importance of (a)

information consumption, (b) political talk and (c) political efficacy for civic engagement (e.g.,

Kwak et al., 2005; Shah et al., 2005). In other words, it was demonstrated that news information

led media consumers to discuss with others about civil society and political issues even in a Web

2.0-based scenario, and these conversations, in turn, had a number of positive consequences for

civic participation, such as exposure to diverse perspectives.

Third, the application of the expanded O-S-R-O-R as a framework to test the structure of

mediational relationships among information consumption, political discussion, and civic

participation in social media, is consistent with a robust line of research in the communication

field that has moved beyond the simple stimulus–response (S–R) perspectives of direct and

universal effects (Lazarsfeld & Katz, 1955) to a more process-oriented perspective (McLeod et

al., 2001) where communication's influence is still strong (Nisbet & Scheufele, 2004), but is

itself indirect (Eveland, 2000), shaping participatory behaviors through its effects on discussion

about public affairs (Shah et al., 2005). Most importantly, as Shah et al. (2007) and Cho et al.

(2009) have shown, the critical mechanism for civically engaging individuals is the reasoning

process that follows the discussion among social media users after being exposed to information

consumption. The additional (R), or reasoning, refers to the role of intra- and interpersonal

sense-making, which takes place through political discussion with others. This study confirmed

the idea that today's new media environment yields heightened opportunities for reasoning with

and through others, boosting the salience of this aspect of media processes and effects. In fact,

the results of this study suggest that news consumption in social media leads users to discuss

political news more than users who consume news from offline and traditional online media.

Consequently, a relevant contribution of this study is the confirmation that political talk in social

media not only mediates the relationship between news consumption and civic engagement (as

suggested by the O-S-R-O-R framework), but it also has a stronger impact on collective efficacy and civic engagement than do FtF and interpersonal online conversation (email, chat or IM).

Further, the O-S-O-R model has been recognized for its compatibility with other frameworks that emphasize the mediating role of communication behaviors in the relationship between structural-objective variables and individuals' civic, political, and cognitive engagement. Echoing this argument, this dissertation used the expanded O-S-R-O-R model as a framework to test the structure of mediational relationships among information consumption, political discussion, and civic participation in the new social media environment, supplemented by a series of theoretical and conceptual approaches that take into account the antecedents and controls of the influence that news consumption and political talk have on civic engagement. Specifically, focusing on: a) the resource approach (Verba et al., 1995) by controlling for the role that socioeconomic status (SES) may have on users; b) the priming effects of news presented in the agenda-setting theory, by considering the fact that news exposure prompts further elaborative thinking on those issues; c) and the cognitive mediation model (Eveland, 2001; 2004), by integrating the impact that elaboration in news media has on political outcomes, findings of this study provided contributions to the expanded O-S-R-O-R model in a new area such as social media.

Moreover, in complementing the expanded O-S-R-O-R framework to explain the mediational relationships among information consumption, political discussion, and civic participation through collective efficacy, the study showed that the communication infrastructure theory (CIT) is an appropriate framework for understanding how communication technologies can facilitate community cohesion and enable a sense of collective efficacy that may ultimately contribute to civic engagement. By studying SNSs as a structure that facilitates access to news

information and promotes political discussion through the integration of peer-generated content and notifications, it was argued that SNSs generate and disseminate stories among contacts with the potential to facilitate the creation and sustenance of an integrated storytelling network. According to the CIT, this common infrastructure for the exchange of stories would help individuals to identify with social issues and learn about opportunities for participation through other comments. In fact, consistent with this line of research, it was found that social media use was positively related to information consumption and subsequent forms of discussion, and the results showed that these conversations about public affairs led users to believe that it is easier to mobilize collective efforts for solving community problems, activating their sense of agency and augmenting in turn the likelihood of civic participation.

Towards a networked theory of SNSs effects

Considering how social media is changing the manner in which individuals acquire and discuss information, and the influence that the juxtaposition of institutional and peer information sources may have in the dynamics among these sources, studying new paradigmatic frameworks able to integrate mass and interpersonal communication approaches has significance and merit. As discussed, scholars have argued that new analytics are needed to understand how the interposition of traditional media with content generated by peers may affect the quality and quantity of information exchanged and influence personal behaviors and attitudes (Caplan, 2001; Price & Cappella, 2002; Walther et al., 2011). Boyd (2011) and others (Castells, 2007; Friedland, Hoves, & Rojas, 2006) have suggested new conceptualizations to consider the individuals' networks as a type of public or audiences (boyd, 2011), and based on the influence that the visibility of these connections may have on users, analyze how they affect perception and interpretation of political messages.

By examining the dynamics of content generation that emerges from users' discussions and the subsequent cognitive involvement in processing that information, this dissertation proposes a theoretical model based on three characteristics highly embedded in SNSs that are able to affect the traditional mediation of news consumption and political discussion on participatory outcomes. The first one is related to the form by which individuals acquire information from news media: users today are "network-informed" by their lists of contacts and acquire most of the information from news media through these networks. Secondly, consistent with the literature in impression management and self-presentation, research has shown that users in SNSs focus on their audiences and have expectations about them when they generate and receive content. In fact, Marwick and boyd (2011) found that online audiences are also constructed by social media users in order to present themselves appropriately. And third, based on the *public-commitment* framework, the idea was incorporated that an individual's awareness of an audience, or sense of *publicness*, augments the effect of self-presentation on identity.

In this way, it was theorized that the development of interactive, horizontal networks of communication has spurred the rise of a new environment represented by the idea of a networked public sphere, which has become the social space where an active public converges in groups restructured by networked technologies in order to read, discuss, and argue about different issues. Following this framework and by contrasting participation in social media channels that afford different levels of access to information, identifiability, and levels of engagement, which are traditional predictors of online deliberation, this second part of the dissertation contributed to a more accurate understanding of SNSs and their impact on deliberation. More specifically, it was theorized that since Facebook automatically notifies users' networks when content is generated, and discussants present more personal information in their profiles than in the more

anonymous YouTube, users would process information more carefully and develop a higher sense of connection with others. This in turn, would lead users to get more involved with the discussions in Facebook, which would increase the effects of deliberation on collective efficacy. The corroboration of this logic was consequential for various theoretical reasons.

First, the experiment showed that the networked audience thesis is an appropriate framework for understanding how deliberation in SNSs can help users to increase their sense of collective efficacy that may ultimately contribute to civic engagement. The positive relationship between deliberation and changes in collective efficacy found in SNSs does not only support deliberative theories of democracy in a new environment. The results also demonstrate that the effects of an individual's awareness of an audience are catalyzed principally when individuals have a recognizable public that also can identify them, making them feel responsible for their actions and behave in a manner consistent with their self-presentation. The study corroborated the combination of these two approaches, showing that the effects of deliberation on collective efficacy were particularly salient for users in Facebook, who identify themselves with their names to deliberate, assumed as their own the opinions given in the exercise and also imagined a much closer audience reading their comments, such as their friends, family, and contacts with whom they interact every day through their accounts.

Second, the experiment showed that there are other aspects in the conversational dynamics identified by previous research in CMC, such as low interactivity, that moderate the positive effect on collective efficacy that an *imagined audience* has on users. In fact, an interaction effect was found between the social media channel used to deliberate and the level of interactivity presented in the federal agency. The results indicated that Facebook participants in the White House conditions had the highest increase in collective efficacy, while participants

who posted on the White House's YouTube account did not increase their collective efficacy. Similarly, students who posted under the YouTube conditions (White House and federal agencies) did not present any major difference in these two conditions, which can be largely contrasted with the impact that lower levels of interaction had on participants who posted in Facebook. Interestingly, the results are consistent with research in CMC, which has shown that communities featuring interactive comments that related back to earlier messages elicit greater participation in users than communities featuring non-interactive messages. Previous studies have found that the interaction attained among users is what keeps message threads and their authors together, while low levels of interactivity can decrease the engagement of users, leading to less sociability among them (Rafaeli & Sudweeks, 1997; Wise et al., 2006). Consequently, the results of our study are relevant because they show that, although the effects of deliberation may be stronger when users identify themselves and imagine their closer contacts in Facebook reading their status updates rather than having them read by complete strangers in YouTube, this impact is not strong enough to suppress the impact of lower levels of interaction among the users.

To summarize, the results of the experiment were consistent with theoretical frameworks developed by research in CMC (e.g., Preece, 2001; Walther & Parks, 2002), which hold that, even though structural factors may influence some variables such as engagement or attitudes (e.g. collective efficacy), these affordances, in the end, are especially likely to influence qualities of the interaction between users, and this, in turn, affects engagement and/or cognitive involvement, which serve to mediate the impact of the platform on final outcomes such as deliberation. Consequently, these findings shed light on the complexity that interactions between structural factors and conversational variables with the capacity to affect the social dynamics of

mediated groups have in elucidating the changes. Finally, it is relevant to clarify that given the high consistency of the findings with previous research in online deliberation, it may be argued that the conclusions obtained validate the structural and interactional aspects explored in this experiment, which can be considered an applicable framework for explaining how certain affordances may affect deliberation, engagement, and subsequent variations in collective efficacy among participants.

<div align="center">Methodological Implications</div>

Given the complex nature of the research topic, this dissertation combined two complementary methodologies to elucidate the relationships between media consumption in Web 2.0-based applications and civic engagement. With the expanded O-S-R-O-R model of communication effects and the networked audience thesis guiding the inquiries throughout the study, a cross-sectional survey was selected to advance a theoretical model that highlights the effects of 2.0 Web-based uses on civic participation. This first part of the dissertation allowed me to integrate and understand in a main model the role of variables such as: media uses, communication behaviors and different factors (i.e., demographics, extroversion, news use, partisanship). Through this first study it was corroborated that informational uses of the Web 2.0 influence interpersonal discussion in SNSs, which, in turn, shape the levels of civic participation through collective efficacy. It is important to note that similar research in this field has taken a similar approach to explore the relationship between media use and civic participation (e.g. Gil de Zúñiga et al., 2009; Jun et al., 2011; Shah et al., 2005; Valenzuela et al., 2009). However, despite comparing four alternate models in which causality was reversed, and in all the cases the model presented had the best fit (news consumption-political talk-self efficacy-civic engagement), the study could not be fully confident in causal relationships among variables, and

the question of causal direction needed verification through an experimental approach. Additionally the first study used self-reported data and not actual observations of how users discuss politics in this Web 2.0-based environment, which has several limitations.

Therefore, it was decided to complement the results of this first study through an experiment in order to test empirically whether participation in SNSs, in the form of discussions about civic-related issues, has an impact on collective efficacy. In this second study, I was able to measure participants' uses of social media differentiating by channel (Facebook vs. YouTube), and federal agencies (White House vs. small agencies). Additionally, students' participation was controlled for frequency of use and direction of messages, and it also measured changes in collective efficacy, and possible mediators (e.g. cognitive elaboration and user engagement). This method was helpful for explaining more accurately how the mediation processes happened and the effects of each condition. By combining these two approaches, this sequential design could provide an expanded understanding of the phenomenon of interest. In this way, the present dissertation makes methodological contributions on different fronts, including a combined approach to observing how the different affordances presented in social media channels contribute to shaping discussion networks, the effect that deliberation has on collective efficacy, and the role that traditional predictors of online deliberation such as access to information, identifiability and levels of engagement have in the relationship between these variables.

Consequently, it could be concluded that this second study, employing an experimental approach, found it useful to study the causal relationship between deliberation and collective efficacy, controlled for the channel and the level of interactivity under the different conditions. Additionally, given that most of the political opinions that young users hold today are through SNSs such as Facebook and YouTube, it could be argued that since the current experiment used

these channels to deliberate, it has a high ecological validity. More specifically, by contrasting the effects of conversations on different SNSs that transpire under the same federal agencies, a more clear understanding was presented of how network features affect discussion when they are formed through different social media settings. This comparative dimension was important in order to generate a framework that is capable of assessing the performance of different online platforms when enabling deliberation.

<div align="center">Practical Implications</div>

As discussed above, a deeper understanding of how the young population is consuming and discussing political information with their networks in social media is justified on both theoretical and practical grounds. From a communication perspective this is important since the growing number of services whose content is primarily user-driven (e.g. blogs, social network sites, micro-blogs and digital media sharing formats) is changing the manner of reception by which individuals acquire and discuss information. Although social media users may not be interested in following news, they may "encounter" political information through comments made by their friends or simple invitations to read an article. In this manner, by studying how users share information and discuss specific topics may help news sites to forge connections with communities of users instead of focusing on particular individuals to promote their content, highlighting different useful strategies that these organizations can use depending on the type of audiences and networks they manage. Similarly, in Web 2.0-based environments, journalists may prefer to target more informed groups or opinion leaders in order to get comments from them and add value to the original information. As follows, the original news may gain not only quality but also reputation and significance, since comments by opinion leaders may also be used as endorsement or to gain insights.

Further, one of the most relevant findings of this dissertation is the positive relationship between deliberation in SNSs and changes in collective efficacy. This relationship is especially relevant given the strong association between perceptions of a group's efficacy and engagement in civic activities. Research has noted that political involvement cannot be realized without the shared belief that other community members are also capable of exerting control over political matters (Lee, 2005; Yeich & Levine, 1994). Consequently, if deliberation in SNSs positively affects this shared belief about the group's capabilities to perform a collective action, from a civic lens, this dissertation also has practical implications since SNSs may be used by civic-oriented organizations to increase participatory behaviors. Similarly, politically-oriented groups that are using social media as deliberative spaces for discussing and encouraging civic participation could motivate users to participate more through these channels. This is turn, could also help organizations to foster norms of reciprocity and trust with their audiences, creating more opportunities for civic engagement (Gil de Zuniga et al., 2012). Further, the use of these social media applications by federal agencies has become a growing phenomenon (Norton & Citron, 2010). Therefore, for government agencies that rely on networked technologies to communicate and engage with the public, conversations among audiences may contribute to a better understanding of the information broadcast by them and help their audiences to make sense of what they are informed about.

For the young segment of the population this dissertation is also relevant. Young adults have traditionally been more disengaged from politics than adults, and they also have lagged behind older Americans in terms of registration, voting, and most other forms of political involvement (Keeter et al., 2002; Pasek et al., 2006). Their media habits are also different: adults are much more likely to read a newspaper, tune in to traditional evening television news, or listen

to news on the radio than are younger adults. This reality contrasts with the fact that the vast majority of American youth are relying less on traditional news media and more on online media for political information (Kohut, 2008). After the 2008 election, political actors consolidated the use of SNSs for their campaigns: all major party candidates used social media during the 2008 campaign (Hayes, 2008), while some began their use even in the 2006 midterm election (Gueorguieva, 2008), redefining how young adults are learning about civic participation and politics (Hargittai & Hinnant, 2008; Smith & Rainie, 2008). Although much of their involvement is entertainment-oriented, Smith and Rainie (2008) found that these younger citizens were significantly more likely than their elders to watch political video clips online, use SNSs for political purposes, and express opinions in online forums. Therefore, given that deliberation in SNSs positively affects the shared belief about the group's capabilities to perform a collective action, which in turn is strongly associated with civic engagement, these tools may also be used by civic-oriented organizations to increase participatory behaviors for this specific segment of the population.

Moreover, one of the main debates among scholars about the role of the Internet is whether it contributes to or harms the normative goals of plurality and diversity embodied in the concept of ''deliberative democracy'' (Brundidge, 2010; Mutz, 2002; Sustein, 2001; Wojcieszak & Mutz, 2009). Researchers have debated whether the new online opportunities afforded by the Internet are facilitating higher exposure to diverse viewpoints and "cross-cutting" political views, or exposure to more homogeneous contacts. This dissertation extended the debate to SNSs, exploring whether the affordances these tools provide give users more opportunities to be exposed to a greater variety of political viewpoints. Notably, it was found that time spent on

social media was positively related to accidental exposure to information, which in turn, mediates the influence of SNS use on discussion with heterogeneous contacts and diverse others.

Consequently, although it is possible to argue that social media attracts only those who are already politically active, this study showed that even though users may not be interested in politics, they may be exposed to news shared by their contacts, or tempted to reply to comments posted by them, getting political information through their online network of friends and acquaintances, which, in turn, may amplify the participatory effects of political talk on civic engagement. In other words, given the fact that SNSs facilitate content distribution and discussion through contacts' notifications, blurring the boundaries between the content presented by news and the comments generated by users, these affordances are creating a mechanism that shapes how people engage with others in these environments, facilitating accidental exposure to political differences, heterogeneous contacts and diverse others users. Therefore, contrary to researchers who have argued that the increasing fragmentation of the media environment has contributed to a higher degree of polarization, and those who accuse the Internet of making users less likely to be tolerant of challenging viewpoints, this dissertation shows that the structure offered by SNSs enables exposure to diverse discussion networks and facilitates a broader exposure to a variety of political viewpoints, challenging the selective exposure thesis.

However, it is also important to note that the theoretical and practical implications discussed above should be put into a context in which only a minority of messages generated by users in social media are truly elaborated and considered "deliberative." This means that although deliberation in social media may have a positive impact on collective efficacy, as this dissertation demonstrated, the number of users who truly deliberate on this medium is relatively low. In a previous research I examined whether the types of discussions that citizens maintain in

two of the most used social media channels managed by the White House -Facebook and YouTube- meet the necessary conditions for deliberative democracy (Halpern & Gibbs, 2013). Not surprisingly, I found that although most of the messages in both social media channels were polite (72%) and the majority of discussants did not stereotype others (only 32% were considered uncivil), users do not seem to elaborate very complex arguments to deliberate in social media. The analysis showed that only 8% of the messages analyzed were arguments based on external sources such as quotes, data or websites, which may imply that although discussants are not using social media to "attack" other citizens, most of them are not debating rationally or deeply in this media. This suggests that political exchanges in social media may be more superficial in nature, rather than being characterized by in-depth debate or deliberation, and calls into question their efficacy. In fact, our analysis showed that most posters did not carefully weigh the reasons for or against the propositions presented by others; they only stated their beliefs, without justifying them. In fact, 64.9% of posts in Facebook employed unfounded arguments or claims without any kind of validation, whereas 71.1% of YouTube posts were not justified. Nevertheless, even if only 8% of the messages generated by users are truly deliberative – although low- it is important to note that for these users deliberation in social media empower them to increase their collective efficacy which may have a positive impact on their civic engagement.

Finally, it is also important to mention that this dissertation treated social media in general and Facebook and YouTube in particular as a sort of "black box." Although this dissertation defined and explained the main capabilities afforded by these channels, it also took for granted that once the system was in place, the technology itself would not matter anymore, and it would work in a certain way (as the affordance indicates). In fact, once the main

affordances were identified, the analysis only focused on how individuals would react to a particular stimulus (e.g. receiving automatic notifications) and by communicating between them, how they would engage through use of the network. However, the way these technologies are particularly assembled also has an impact on how we use them. Even though Facebook and YouTube are built around many of the same affordances, such as content generator fields, user profiles, and hyperlinks, there are several aspects that are obscure. When considering Facebook specifically, it is not clear, for example, why users sometimes do not receive news feeds from certain contacts.

Following the same argument, although I used the affordance of News Feed as one of the main capabilities to explain the effects that this social media may have on users, I assumed that users would automatically receive the information posted by their contacts. However, this assumption it is not necessarily true, since it is almost impossible to systematize how this algorithm works and how users really get the information from their contacts. Bosworth (2007) explains that the News Feed first gets a list of all the friends and acquaintances that users have on Facebook and considers how often they interact. Then, with full respect for all privacy settings, it gets a list of all the things the friends have done on the site since they last checked. The algorithm also looks up all the stories it could have published the previous week, in case one of the users needs to be updated. After looking at all that information and considering their News Feed Preferences, it picks just the few stories that are good enough for publication and puts the rest in a safe place until it gets back to the users again (Bosworth, 2007). Consequently, although interactions between two users help train the Facebook algorithm, potentially increasing the visibility of each in one another's News Feed (Stutzman et al., 2012), it is not clear whether users will receive all the information from their contacts, which was a basic assumption of this

dissertation. This means that users do not necessarily receive information from certain contacts and topics, and consequently users may not get the opportunity to participate. And second, to develop the argument this dissertation also assumed, that users would equally read the information posted by others (without discriminating based on where it comes from), but in practice, it is quite possible to find that at the end of the day users may not be even aware of the information posted by all their contacts, and consequently, the effect would not be necessarily true under all conditions.

Conclusion

This dissertation aimed to present a theoretical model capable of examining how the affordances of SNSs can amplify the participatory effects of news information and political talk on civic engagement. I argue that the development of interactive and horizontal networks of communication has sparked the rise of a new environment represented by the idea of a networked public sphere, which has become the social space where an active public converges in groups restructured by networked technologies in order to read, discuss, and argue about different issues. Additionally, in an experimental setting, tests were performed to determine whether discussion about civic-related issues in SNSs has an impact on political collective efficacy, a personal-psychological mediator traditionally associated with civic engagement. To test the relationships between the variables identified in the proposed model, the dissertation relied on data collected from a survey ($N = 808$) and on an experiment in which 151 students participated, commenting on the Facebook and YouTube accounts of the White House and other federal agencies during two weeks. Three main results from the survey should be emphasized. First, it was concluded that, whereas political discussion originated in SNSs has a stronger effect on civic participation as compared to face-to-face and email conversations, collective efficacy

partially mediates the association between interpersonal discussion and civic engagement. Second, concerning structural features in which political discussion occurs, it was found that network heterogeneity and discussion among weak ties positively moderate the effects on civic engagement. And third, consistent with the idea that being exposed to political opinions and beliefs of peers may stimulate interest and knowledge, results showed that the positive effect of news consumption and political discussion on civic engagement was found even in non-active information seekers and those exposed serendipitously to information.

Regarding the experiment, overall it yielded four major findings. First, concerning the effects of online deliberation, the experiment demonstrated that participation in SNSs has a positive effect on collective efficacy, showing empirical support for the findings presented in the first chapters. Second, results revealed that deliberation in the social media channel that allows a networked information access (Facebook), causes a higher increase in collective efficacy in the White House condition, supporting the formation of a networked public sphere which is strongly affected by the access to information that users' audiences (contacts) have in their networks. Third, in explaining the variation of collective efficacy, it was found that in addition to the social media channel used to deliberate, cognitive involvement and user engagement satisfactorily explain the increase in this variable attained by participants. And fourth, results showed how conversational dynamics between participants play a significant role in the engagement attained by students: participants who deliberated in more interactive conversations (White House accounts instead of small federal agencies), and those who replied to messages posted by other users (and not only to the original thread initiated by the federal agency), showed higher levels of engagement.

Consequently, the structural framework elaborated under the O-S-R-O-R model to understand the communicational process through which political discussion originated in SNSs may affect positively collective efficacy, and the comparative dimension explored in the experiment to demonstrate how certain SNSs affordances can amplify the participatory effects of deliberation, are particularly relevant in evaluating how Web 2.0-based technologies can be used for civic participation purposes. By understanding how these technologies contribute to shaping discussion networks, this dissertation illustrated the different mechanisms through which SNSs can facilitate certain interactions among users in this new "networked architecture" to increase the impact of many-to-many exchanges. One of the main contributions of this dissertation, in that sense, was to show that the conditions under which users deliberate in two different networked technologies can give relevant information about the underlying dynamics and the effects that specific affordances have on deliberation. As Preece (2001) explains: "designing for usability is not enough; we need to understand how technology can support social interaction and design for sociability" (p. 349). More importantly, this dissertation contributed to an understanding of the link between technology and how the discourse between users is structured in a networked sphere. By demonstrating that the networked technology in one the main factors that finally provided the architecture for discourse, it is possible to conclude that the democratic effects of online deliberation can be technically improved by certain affordances. In other words, this dissertation suggests that the technical characteristics of SNSs, combined with the democratic benefits of online deliberation, have led to the creation of a networked public sphere which has the potential to fulfill the conditions for a deliberative democracy, in which these Web 2.0-based platforms can shape political discussion on the Internet.

Appendix A

Civic Participation (Cronbach's Alpha .792)	Mean	Std. Dev	N
Worked with others to solve a problem in your community	3.05	1.361	810
Worked with others to solve a problem in your school	3.12	1.350	810
Been a member of any group that tries to influence public policy or government, not including a political party	2.20	1.401	810
Participated in activities run by sororities or fraternities	2.78	1.863	810
Participated in activities run by social and/or service clubs	3.45	1.560	810
Ran, walked, biked or seat in a table to raise money for a cause	2.71	1.308	810

Collective Efficacy (Cronbach's Alpha .89) for survey	Mean	Std. Dev	N
The collective action of people has a huge influence on public affairs	4.82	1.761	810
The collective action of people can improve society	5.08	1.684	810
The way people vote decides how things are run in my city	3.96	1.550	810
Politicians would respond to the needs of citizens if enough people demand change	4.46	1.625	810
Organized groups of citizens can have enough impact on the political policies of this country	4.48	1.578	810
If enough citizens got organized and demanded change, politicians would take steps to end their problems	4.50	1.584	810

Collective Efficacy (Cronbach's Alpha .87) for experiment Time 1	Mean	Std. Dev	N
The collective action of people has a huge influence on public affairs	5.08	1.36	151
The collective action of people can improve society	5.16	1.22	151
If enough citizens got organized and demanded change, politicians would take steps to end their problems	4.80	1.49	151

Collective Efficacy (Cronbach's Alpha .86) for experiment Time 2	Mean	Std. Dev	N
The collective action of people has a huge influence on public affairs	5.20	1.16	810
The collective action of people can improve society	5.34	1.48	810
If enough citizens got organized and demanded change, politicians would take steps to end their problems	4.95	1.14	810

User Engagement (Cronbach's Alpha .754)	Mean	Std. Dev	N
I could exchange ideas with others	3.31	1.552	151
I was interested in the topics discussed by others	4.94	1.480	151
I felt I was having conversations with others	4.35	1.593	151
I felt I was interacting with the White House	4.47	1.600	151
I enjoyed giving my opinion in threads initiated by the White House	3.46	1.682	151
I could exchange ideas with others	4.13	1.760	151

Cognitive Involvement (Cronbach's Alpha .87)	Mean	Std. Dev	N
Posting messages in the agency made me think more about my own opinions and beliefs	5.04	1.563	148
After my postings I continued thinking about the topic	4.53	1.747	148
Posting about public affairs helped me develop better arguments	4.34	1.656	148

Appendix B

List of Federal Agencies

Department of the Treasury	Department of the Interior
Southern Command	Federal Trade Comission
Trade and Development Agency	Agency for International Development
Small Business Administration	General Services Administration(GSA)
National Labor Relations Board	Commodity Futures Trading Commission
Corporation for National and Community Service	Northwest Power and Conservation Council
European Command	Kennedy Center for the Performing Arts
Health Resources and Services Administration	Institute of Peace
Pacific Command	Department of Labor (DOL)
Department of Agriculture (USDA)	Weather Service, National
National Capital Planning Commission	Bureau of the Census
Department of Housing and Urban Development	TRICARE Management
Fulbright Foreign Scholarship Board	Department of Commerce
Library of Congress	Northern Command
Holocaust Memorial Museum	Central Command (CENTCOM)
Geological Survey (USGS)	National Science Foundation
Defense Commissary Agency	Joint Chiefs of Staff
U.S. Army Corps of Engineers, Headquarters	National Constitution Center
Medicare & Medicaid Services (CMS)	Department of Defense
Public health emergency	Census
Medicare & Medicaid Services (CMS)	Centers for Disease Control and Prevention
EPA	Veteran Health Administration
Department of State	NOAA
Department of Veterans Affairs	Social Security
Department of Transportation	Department of Education
National Park Service	Department of Justice
Department of the Interior	National Capital Planning Commission
U.S. Agency for International Development	U.S. Government Printing Office
Northwest Power and Conservation Council	Appalachian Regional Commission
FCC	Office on Women's Health
FEMA	National Science Foundation

National Archives and Records Administration (NARA)
Defense Advanced Research Projects Agency (DARPA)

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