POLITICAL INFORMATION 2.0:

A STUDY IN POLITICAL LEARNING VIA SOCIAL MEDIA

by

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ABSTRACT

This project seeks to understand the role of social media in the modern political information environment. It considers three main questions. First, how are users exposed to political information within social media? How often is the typical user exposed to political information? What types of users are exposed to political information?

Second, I consider whether exposure to political information within social media results in increases in political knowledge. Are social media users more politically knowledgeable than non-users, all other things being equal?

Finally, I consider what outcomes take place as a result of exposure to political information within social media. Do users engage in information seeking? Do they engage in political behaviors? Do they change attitudes or opinions on issues to which they are exposed via social media?

I find that users of social media are regularly exposed to political information. They may learn from it under appropriate conditions, and the information to which they are exposed tends to be politically heterogeneous. Exposure to such information results in additional information seeking and sharing, as well as some attitudinal change and increases in traditional political behaviors. Implications of these findings are discussed.

Chapter 1

Political Information 2.0:
A study in political learning via social media

"I actually think people are more passive now about how they receive the news. With Twitter and

Facebook and everything, you don't have to look for news. Other people give it to you."

- A recent undergraduate student at a large Midwestern research university

Introduction

Social media has the ability to change the way people are exposed to political information. The Internet is part of the everyday lives of millions of Americans. With the advent of smartphones, people can now quite literally keep the Internet in their pockets, providing access to information and communication at the touch of a button.

Moreover, the Internet itself is changing as quickly as it is being adopted by users worldwide. Perhaps most important is the networked nature of the Web 2.0, which encourages the sharing of information with others. In this realm of new media, people opt in and out of information flows with ease. As a result of these recent changes to the media environment, what we know about how people are exposed to political information has also potentially changed. This study is an important step in defining and understanding the nature of political information in the new media environment.

Negative Impact on Democracy?

With growing use of the Internet come concerns from scholars about such use. Although many of the early studies that suggested Internet use might have negative implications on sociability and

social capital have mostly been dismissed (see, for example, Kraut, Kiesler, Boneva, Cummings, Helgeson, and Crawford 2002), they have been replaced by new fears. As the nature of the Internet itself changes, and as people expand their Internet use to include new activities, scholars' concerns now reflect more specific worries related to such use. Chief among these is a concern about how Internet use might negatively impact democracy in America. One of the issues most prominent within this community of scholars is that the customizability of the Internet will allow people to insulate themselves from information to which they would otherwise be exposed, thus jeopardizing the ability of citizens to engage with one another in a meaningful way. Cass Sunstein has written extensively about this harmful potential of the Internet, most recently and extensively in his book, Republic.com 2.0 (2007). In it he describes a world in which the information to which citizens are exposed is entirely of their choosing, a situation which he calls "The Daily Me." Rather than gain information from a shared news source such as a newspaper or television broadcast, The Daily Me would allow citizens to choose what information they received each day, thus insulating them from all other information.

According to Sunstein, this hypothetical but approaching world of "perfect filtering" would necessarily harm democracy. As he puts it, "A well-functioning system of free expression must meet two distinctive requirements. First, people should be exposed to materials that they would not have chosen in advance.... Second, many or most citizens should have a range of common experiences" (5-6). The former requirement ensures exposure to the Other - opinions and ideas contrary to one's own - necessary to classic ideas about democratic deliberation (See for example, Habermas 1962, Gastil 2008). The modern media environment potentially removes this exposure to different ideas, by offering consumers their own niches in which to cocoon themselves. "Increased options are certainly good, and the rise of countless 'niches' has many advantages. But unanticipated, unchosen exposures and shared experiences are important too" (Sunstein 2007, 7).

The latter requirement allows people who are very different from one another to have a shared pool of information. This has been a classic argument for the democratic benefit of media in general (see for example Gripsrud 1999), creating a social binding between disparate citizens which

allows them to engage with one another more effectively and see things from a common perspective. By allowing such efficient filtering, the modern media environment might remove any sense of a shared experience between citizens. Because we do not all watch the evening news together anymore, but rather can choose between the evening news and cable news and sitcoms and bad reality shows, we may find it more difficult to talk to one another on a shared plane of experience, again undermining the shared consideration of issues to which the Framers aspired for their democratic society (Breyer, 2005).

Sunstein's overwhelming concern, then, is that the remarkable customizability of the Internet, which allows users to opt in and out of information to a greater extent than ever before, will compromise both of these requirements of free expression, thus undermining our system of democracy. "In a democracy, people do not live in echo chambers or information cocoons. They see and hear a wide range of topics and ideas. They do so even if they did not, and would not, choose to see and to hear those topics and those ideas in advance. These claims raise serious questions about certain uses of new technologies, above all the Internet, and about the astonishing growth in the power to choose - to screen in and screen out" (xi).

Marcus Prior continues this line of argument in his work on media choice. Prior focuses on the media choice environment presented by cable television, and concludes that this environment allows users to customize their media exposure to a much greater extent than ever before. This allows news junkies to watch news 24 hours a day, and those totally uninterested in news and politics to opt out of that portion of the media almost entirely. As Prior puts it, "Choosing one's preferred content was much less efficient in 1970 than it is today. Different media environments therefore offer different opportunities to obtain free information as a by-product. As it becomes easier to find the ideal content at the ideal time, the chances that viewers encounter political information as an unintended consequence of watching a less-than-ideal program, perhaps even a news program, dwindle. Changes in the set of available media thus affect who follows the news, who learns about politics, and who votes - in short, they affect "the distribution of political power in a democracy" (2007, 6).

Prior refers to this phenomenon as "Conditional Political Learning" (15). In order to access, recall, learn from, and respond to political information, two things are required. A citizen needs both motivation – the desire to gain and learn from information – and ability – the capacity or set of skills which actually facilitates such learning. Both of these requirements are affected by changes in the media environment. Even if there is more political content available (greater ability), people are able to ignore it more than they were able to in previous media environments (greater exercise of motivation). "Even a signal that is arguably stronger than ever does not necessarily get through the noise of everyday distractions. The noise has also grown louder and more distracting in recent decades" (8).

While Prior focuses on cable television, he acknowledges that this likely applies to the online world as well: "The Internet makes this choice easier still. Therefore the political implications of gaining Internet access - at least in this one regard - might resemble the implications of cable access" (13). Although preliminary evidence from Spain suggests the concerns related to media choice may be unfounded, scholars continue to debate the issue (Gallego and Jorba, 2009).

Positive Impact on Democracy?

On the other hand, it is not entirely clear that it is as easy to opt out of political information online as Sunstein and Prior would have us believe. Similar concerns surfaced following the dawn of television, and research at that time determined that more learning occurred as a result of exposure to television than was originally predicted. Scholars refer to such learning as "passive learning," as a result of incidental exposure to any information, but including political information.

Previous work on incidental learning while watching television suggests that incidental learning is not reserved to any particular time or medium. A series of work in the 1960's and 1970's acknowledged the potential for incidental learning to take place while people watched television, and attempted to describe when such learning was most likely to take place (see, for example, Blumler and McQuail, 1969). Authors Krugman and Hartley determined that passive learning – learning without motivation – is "typically effortless, responsive to animated stimuli, amenable to artificial aid to relaxation, and characterized by an absence of resistance to what is learned" (1970,

184). The Internet, and social media in particular, much like television, provides "animated stimuli" and a relaxing environment, in which political information is interspersed with updates about pets and babies. It is quite possible that users might similarly respond to social media, and the political information contained therein, with passive learning styles similar to that of early television use. This may result in what Krugman refers to as "learning without involvement," or what Hartley calls "un-anchored learning" (1965, 352). Notable is the "absence of resistance to what is learned" – that is, users are actually less likely to put up barriers to absorbing the information to which they are exposed in these environments.

This concept of learning without involvement has been extended in various ways, including to political advertising and so-called "soft news" content. After decades of research into the effects of political advertising, we know that people experience learning as a result of exposure to political ads (Atkin and Heald 1976, Brians and Wattenburg 1996, Brader 2005). Political knowledge is correlated with exposure to political advertising in basically every study which has ever tested the relationship. Although some of this exposure may be intentional, much of it occurs only incidentally, while viewers are watching the evening news or a daytime talk show. Most viewers, we can safely say, do not turn on the television in order to watch political advertisements.

Baum and Jamison's work on political learning through soft news again corroborates the potential for such learning online. They found that people were able to receive and accept political information when watching their favorite non-news or current events television shows such as Oprah, even if they tended to avoid such information in more traditional realms (2006). Soft news provides the necessary stimuli to facilitate incidental learning even among those who are intentionally inattentive to politics. The effect is to increase interest, attention, and consistent voting patterns among inattentive citizens, which are generally considered to be normatively positive in a democratic society. Social media have the potential to operate in a similar way.

In the online world in general, there is mixed evidence as to whether incidental exposure to information occurs, and in what way. On the one hand, selective exposure is clearly facilitated by the nature of the Internet. Studies have consistently found that users customize their online experience

in relation to their personal uses and gratifications, and may even do so to avoid particular types of information (Stroud 2008, Garrett 2009, Knobloch-Westerwick and Meng 2009).

On the other hand, there is growing evidence that people may encounter information they do not explicitly seek online, just as they do from watching television, and that learning may result from such exposure.

A key step in understanding how people encounter information online was taking a step back from their intention to do so. Tewksbury, Weaver, and Maddex took this important step in their seminal work on incidental learning online in 2001. They found that people frequently encounter news and current events on search engines and web portals when they are not specifically looking for such information. Moreover, such incidental encounters lead to greater knowledge of current events, even after controlling for a variety of other factors. Unfortunately, little work has been done with respect to incidental learning online since this important piece in 2001. Although new studies have expanded the idea of incidental learning and applied it to health communication, the question remains as to whether such incidental learning may take place in other areas of the Internet, and whether the tendencies and implications described by Tewksbury et al endure (Lee 2009). Moreover, as the Internet and the general media environment continue to change, we must update our understanding of the division between selective and incidental exposure.

Additionally, we still have only very limited knowledge of incidental exposure to political information online. After the election in 2004, Pew found that quite a number of people self-reported such exposure. 51% of Internet users, and 59% of online political news consumers reported encountering news or information about the 2004 elections when going online for other purposes (Pew 2004). Despite the fact that more than half of Internet users are aware of their exposure to political information online when not seeking it out, we have little idea of what such exposure looks like, where and how it takes place, and what effects it might have.

As Krugman said almost five decades ago, "What has been left out, unfortunately, is the development of a low-involvement model.... The further development of this model is an important next step, not only for the perhaps trivial world of television advertising but for the better understanding

of all those areas of public opinion and education which, socially important as they may be, may simply not be very involving to significant segments of the audience." (1965, 356).

Expanding What We Study Online

The vast majority of literature which currently seeks to explain how politics happens online deals only with purposive information seeking on the part of Internet users. That is, surveys generally ask people how often they look for or find information online about political candidates, or the everyday workings of the government. As a result, we know a great deal about who goes online and what motivates them to do so.

For instance, we know that most people (59%) combine online and offline sources to obtain information, and many (46%) rely on multiple news sources on a daily basis (Pew Internet and American Life Project, March 2010). We know which segments of the broader population are most likely to go online to find news and political information, and which stick to more traditional formats of news. And more than ever before, people are going online to gain information. 72% of internet users (and 57% of the general population) report using the Internet to find information, and 38% of Internet users do so in a typical day (Pew 2009). Online news recently passed newspapers to become the second-most used source of news and information in America (television news is still the primary source upon which people rely for "most national and international news," Pew 2008).

This tendency applies to the realm of political information as well. 60% of Internet users reported going online to find news and information about the presidential campaign in 2008, almost double the number who did so in 2000 (Pew 2008). Such activities continue to occur outside the context of a highly salient campaign, as 25% of internet users look for news or information about politics in a typical day (Pew 2009).

While scholars should be applauded for extending this line of questioning into more nuanced inquiries about where, when, and how such information is obtained online, it must be noted that this still fails to see the entire scope of political information online. Purposive information seeking is the low-hanging fruit – it is straightforward to measure and resembles other media environments

with which we are more familiar, allowing for ease of theoretical application. However, it is not likely reflective of the political experience that most Americans have when they go online. 25% of Internet users seek political information each day, which means a vast majority – 75% – do not look for political information in a typical day (a situation highlighted in Matthew Hindman's 2008 work on the lack of politics or democracy online). As Robert Dahl put it half a century ago, "At the focus of most men's lives are primary activities involving food, sex, love family, play, shelter, comfort, friendship, social esteem, and the like. Activities like these – not politics – are the primary concerns of most men and women" (Dahl 1961, pg 224). This majority of people, unconcerned with politics, are the very people about whom Sunstein and Prior are concerned, and, according to John Zaller, those most likely to be affected by exposure to new information, yet we know the least about them (Zaller 1992). What does their online political experience look like? Is it non-existent? Are they successfully opting out of political information entirely? Or do they receive political information without attempting to do so?

As in other media environments (and drawing particularly from the literature regarding incidental learning via television watching), incidental exposure to information is likely to occur via various mechanisms, including advertising and soft news. For instance, an Internet user might be reading an news article and see a banner advertisement for a political candidate. Or a user might be browsing ESPN.com and read a story chronicling the history of presidents throwing out the first pitch. These mechanisms, while important, are quite similar to those already described and explored by other scholars in an offline environment. It is likely they function in similar ways whether encountered by watching television or by surfing the web.

The Uniqueness of Social Media

One aspect of the Internet, however, is less comparable to other media environments. Web 2.0 has resulted in the development of a much more integrated and networked online experience. The vast majority of the Internet is now set up in such a way that encourages users to share information with certain others of their choosing.

In some circumstances, this means sharing information or opinions with the entire world. Sites that depend on large numbers of people to generate ratings and reviews of products, services, or ideas encourage users to share such information with anyone who might view the website. Thus Yelp.com has ratings and reviews of thousands of restaurants the world over, and Amazon.com can provide you with a wealth of feedback on products they offer, from bestselling books to niche products like camera lenses or crafting materials.

Other online venues encourage sharing information with a network defined by the user herself. Next to virtually every article, story, or blog post, there now are a series of icons that allow a user to instantly share, with or without comment, the information from the article or post with a defined set of other people. This may mean recommending it to the community within which it was found (such as the New York Times website) or to an external public community (such as Digg), emailing it to friends or family, or posting it in a pseudo-public forum such as Twitter, Facebook, or Google+. In the latter cases, the user has total control over who sees the content he or she is sharing, as each of these communities is "opt in" – users have complete discretion over who they want to be a part of their network.

Moreover, social media sites allow users to generate their own content as well. Updating a status, tweeting, writing a note, uploading pictures and video, or linking to a user's personal blog allows the immediate dispersion of information across a user's network. The corollary of sharing information via these networks is receiving information. Here it is important to remember that the primary reason for joining these communities and forming networks with others is not likely to be at all political in nature. People likely join Facebook to connect or reconnect with friends and family, LinkedIn to network with colleagues and potential colleagues, and Twitter to keep up with friends, celebrities, and others. Thus these communities are likely to include even that 75% of people who do not seek political information online in any given day. As a result, even the politically uninterested may still receive political information through their use of social media. Moreover, because this subpopulation is less interested in politics, they also tend to be less politically sophisticated, and have less relevant information from which to draw on when making decisions. Thus they are more likely than their more politically sophisticated peers to update

political preferences, attitudes, and behaviors when confronted with new political information, as they might in a social media environment (Zaller 1992, Lau and Redlawsk 2006).

Due to the still-emerging nature of social media, no single definition has yet to be agreed upon, and scholars argue about which factors are required for a medium to fall under the admittedly broad umbrella of social media. In the Social Media Bible, the definition is broken down simply into its two component parts. "The first part of the terminology, *social*, refers to the instinctual needs we humans have to connect with other humans....We have a need to be around and included in groups of similar like-minded people with whom we can feel at home and comfortable sharing our thoughts, ideas, and experiences. The second part of that term refers to the *media* we use with which we make those connections with other humans" (Safko 2010, emphasis in original). While certainly true, this definition is somewhat unsatisfying, and says little about the technology involved. Public relations practitioners define social media as "websites and online tools which allow users to interact with each other in some way – by sharing information, opinions, knowledge and interests" (Chartered Institute of Public Relations 2007). boyd and Ellison have set out three requirements of social network sites (sometimes, but not always used interchangeably with the term, "social media"): "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 and traverse their list of connections and those made by others within the system" (2007, pg 211).

While these definitions vary considerably, there are notable parallels in each. First, it is worth noting that social media are housed within the online world - without the Internet, social media simply cannot exist as they do. Additionally, of primary importance is the networked structure of social media. While the network itself varies within the realm of social media, there is at least some degree of connection with others experienced when using social media. This may be a small list of friends over which the user has a great deal of control, or a broad network of individuals who are crowd-sourcing a particular problem (like reviewing restaurants or products on yelp, or articles and ideas on reddit), but within the entire spectrum, the network is still inherently important to how social media function. Related to the networked nature of social media is the ability to share

information. While no user is required to share information, each has the ability to do so, and this ability is amplified by the network. The reverse of this is that users are also exposed to information shared by others in their network.

Thus, for the purposes of my study social media will be defined as an online environment in which users generate and share content with a networked group of chosen others. Generally speaking, the opt-in networked nature of social media is referred to as "Web 2.0" technology. The two main cases of social media I examine are Facebook and Twitter.

Facebook is a social networking site, originally intended for college students but now boasting half a billion users of all sorts worldwide. Users choose what to display on their profile and what information to share with a network of their choosing, which may include friends, family, acquaintances, colleagues, and institutions. Privacy settings are such that very little information may be publicly available to those outside of a user's network.

Twitter is described as a "micro-blogging" site, in which users share content 140 characters at a time, in short messages called "tweets." Again, the network is of the user's choosing, and may include friends, family, acquaintances, colleagues, and institutions. Tweets, however, are most often publicly available. Following early success of celebrity Tweeters, Twitter has been heavily adopted by institutions, corporations, and politicians for marketing purposes.

Trusted Sources

In addition to facilitating exposure to new information, social media also have the potential to lower information costs for those more motivated to seek information. First, the level of intimacy shared by those in the network affects the degree of influence exerted. As one study explains, "intimacy becomes a precondition for influence. In other words, I am more likely to trust your opinion and the information it conveys if I hold you in high personal esteem, both as a friend and as a knowledgeable informant" (Huckfeldt, Beck, Dalton and Levine 1995, 1027, see also Huckfeldt 2001). This concept of "intimacy" is also captured by Klofstad, who emphasizes the influence of peers on "individual civic behavior" (2007). That is, the opt-in nature of social media means that a user is likely to feel closer to, and thus place more trust in, those in her network than

the average citizen, or even the mainstream media. Thus the information obtained via social media might have a greater impact than do traditional sources of information, such as the mainstream media.

Although the Internet itself lowers the cost of finding information in general, "as the amount of information, particularly faulty information, proliferates on the Internet, the attention costs of identifying useful and trustworthy information grow, as does the expertise needed to evaluate it" (Muhlberger 2005a, 167). Social media, rather, allow for a natural filter for information. Rather than the overwhelming flow of newspapers, 24-hour-a-day cable news, political blogs, news aggregators, and political websites, social media restricts information flow to a very manageable level, and gives users a helpful cue in knowing whether a particular piece of information is important. After all, what is likely to be of greater use to you than that which is of interest to your chosen network of friends? Remembering that intimacy promotes trust, and trust is needed for one to believe information is reliable, social media combine these two elements (intimacy/trust and information) to effectively reduce the cost of obtaining valuable and trustworthy information online (Huckfeldt, et al, 1995). This should be true whether a user is politically sophisticated or not, and for users who are interested or uninterested in politics.

Networks

Social media, and especially online social networks, mimic person-to-person social networks in many ways. At their heart, each is simply about communication between people. While that communication may take different forms and may convey different types of information, the fundamental exchange is the same, whether it occurs online or offline. Accounting for differences in presence or absence of body language or facial expressions, we can apply much of what we know about person-to-person social networks to those we find online in social media.

Scholarship has reason to believe that networks matter quite a bit when it comes to the spread of information (Burt 1999, Watts 2004). Beginning with Granovetter's analysis of the so-called

"strength of weak ties" in the 1970's and 1980's, there has been a steady stream of research suggesting that network ties (even weak ones) facilitate the flow of information between people (Granovetter 1973, 1983). Social media offer the opportunity to combine strong and weak ties in one place, and allow users to keep ties they might otherwise lose. Importantly, dissemination of political information has been shown to flow through networks as well (Huckfeldt and Sprague 1987). Thus political information shared by a single user is likely to flow through his or her network.

As evidence of this, scholars have found that social capital is formed as a result of engaging in social networking sites like Facebook. In addition to bonding and bridging social capital that result from relatively strong ties, Ellison et al conclude that a third type of social capital results from weaker ties that would not be maintained but for the low costs provided by Facebook (Ellison, Steinfield, and Lampe 2007; see also Valenzuela, Park, and Kee 2009).High school social capital allows users to stay in touch with old acquaintances, increasing the size of the network and the number of weak ties, and thus easing the flow of information, political or otherwise, between people. There is no reason to believe that online networks should function any differently than their real life counterparts, and in fact they may facilitate information transmission beyond that of traditional social networks.

Moreover, social media may also act as a new media version of the two-step flow. In classic two-step flow theory, the information conveyed by the mass media is channeled to the bulk of the population via opinion leaders – those with greatest access to, interest in, and ability to digest the information put forth by the media (Lazersfeld, Berelson, and Gaudet 1944, Katz and Lazersfeld 1955). Much in the same way, modern opinion leaders may distribute information of various sources – the mainstream media, alternative media, and new media – to "progressively inform" their network of others who may have less access to or interest in such information (Pasek, more, and Romer 2009). For example, even without ever visiting YouTube, one may encounter a new YouTube video via the stream of information provided by those with whom one is connected on Facebook or Twitter. Because research has shown that opinion leaders garner influence by means of *relative* informational advantages, any individual user must not be a political expert to exert influence over his or her network of friends or followers (Roch 2005).

This also allows for the dissemination of cross-cutting messages. Even if a user is of a conservative political persuasion, her network is likely to be at least somewhat politically heterogeneous, particularly when compared to other networks (close friends and family are much more likely to be of the same political persuasion than are more disperse acquaintances; see Mutz 2006). While Gaines and Mondak have found evidence for some ideological clustering on Facebook, the magnitude of the social media experience (an average user has hundreds of friends) suggests that at least some friends or followers will be of different political ideology (Gaines and Mondak 2009). Exposure to divergent viewpoints has been shown to promote tolerance and "enhance the capacity of citizens to provide reasons" for political attitudes (Mutz 2006; Huckfeldt, Morehouse Mendez, and Osborn 2004).

Finally, the implications of social media use are increasingly important as more and more people choose to engage in social media use. As Prior has said, "To understand changes in the media environment, we need to examine both the new opportunities and how people use those opportunities" (2007, 24). People are using social media in large numbers – Facebook has over half a billion users and Twitter now has well over 100 million. As a result, about half of Americans now have a social networking profile, and the numbers are much larger in younger populations, suggesting social media use will only grow over time (Edison Research, 2010). Understanding how this enormous and continuous transmission of information is affecting the way people share, receive, and process information, and particularly political information, is essential in this new media environment.

Theory

At its heart, the theory proposed in this dissertation consists of a simple model of media choice and media effects, applied now to a new media environment. It is based loosely on McGuire's six steps of Information Processing (McGuire 1972).

In our basic understanding of media effects, various elements, including motivations related to uses and gratifications, habits, and predispositions lead a particular user to choose a particular type of media. Related to that choice is the amount of control such a user will have over the content she

sees from that medium. By control, I mean here the extent to which a user consciously exposes herself to a particular medium and its content. That is, imagine a spectrum of control in which one pole is incidental exposure - a user comes across content without intending to at all. The other pole would be conscious exposure, in which a user both knows the type of content present in a particular medium and consciously chooses to expose herself to that content. Some media, like RSS readers, are almost entirely customizable, and thus considered a high control environment. Others, such as television in its early days, allow users very little control once they decide to partake in using the medium, and are thus a very low control environment. The amount of control available to a user in a particular medium is extremely important, because it affects everything that comes afterward, including whether and how learning takes place and to what effect. First, though, and most fundamentally, user control directly affects the *content* to which a user is exposed. McGuire refers to this step as the "presentation" of information. In a high control environment, this is likely to very closely resemble the ideal content of the user, since she may customize it as much as she likes. In a low control environment, on the other hand, content may be wide-ranging in subject and scope and may veer far from the user's personal preferences for content. [1]

Obviously, the content to which one is exposed has the potential to result in attention or inattention to the information. Attention paired with understanding or comprehension of the information in a context in which the recipient of the information is inclined to yield to that information can result in learning – retaining in some meaningful way information to which one is exposed via a media environment. In a high control environment, this is likely to be an active process. A user seeks out exactly the content she prefers, is exposed to that content, and actively learns from it. In a low control environment, on the other hand, a user is exposed to a great deal of information only incidentally – not information she purposively sought. In the case of incidental exposure to information, learning is passive, but does still take place (Zukin and Snyder 1984).

Finally there are the behavioral results of exposure and learning. In a high control environment, where a user has basically hand-selected his content, he is most likely to be exposed to

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[1]It is worth noting that political campaigns tend to think in terms of this type of control as well. Higher control media are targeted for mobilization of supporters (campaign websites, social media, etc), whereas lower control media are used to persuade swing voters (particularly television ads, but also yard signs, billboards, etc).

content which agrees with his prior beliefs – the classic idea of selective exposure. In the case of political content, this generally means information that is ideologically consistent with his own political alignment. This can result in what scholars have referred to as the "echo chamber" - an environment in which users are only exposed to repetitions or echoes of their own thoughts. While this can be mobilizing, it also may result in strong polarization and decreased tolerance (Gil de Zuniga, Veenstra, Vraga, and Shah 2010, Stroud 2006, 2007). In a low choice environment, on the other hand, where content is likely to be much more diverse and incidentally obtained, users are much more likely to be exposed to cross-cutting viewpoints (Mutz 2002). Exposure to cross-cutting viewpoints tend to increase tolerance and understanding (Mutz 2006; Huckfeldt, Morehouse Mendez, and Osborn 2004), but may actually be demobilizing when people find themselves in a minority position, resulting in a "Spiral of Silence" (Noelle-Neuman 1974).

As can be seen in Figure 2, there are clear pathways in this theoretical model for both high control and low control environments. The question still remains, however, as to what the pathway looks like for a media environment in which a user has only *partial control*. Social media is one of various environments in which control is only partial. In social media, users often choose to use to participate in the media itself for non-political (usually social but also informational) purposes. However, once they have opted into a particular medium and its corresponding network, they may be exposed to information they did not seek out or care to see (potentially including political information). In this way, social media resembles a low control environment. However, social media allows greater customizability than do most low control environments. For instance, on a social network site, if another user is exposing you to information you do not care to see, you can simply remove that user from your network (generally referred to as "unfriending"). Moreover, the very act of building one's network represents quite a bit more control than a low control environment. Having said that, there are often reasons why social media users would refrain from customizing incoming content to this extent. Friends and family you might choose to connect with for non-informational reasons, for instance, may occasionally post information you would rather not see. Even though your underlying preference may be against exposure to such information, you may

feel compelled for social reasons to retain these people within your opt-in social media network, thus continuing your exposure to information you would never seek out yourself.

Again, social media are not the only example of a partial control media environment. To some extent, most media environments fall between the two extremes of absolute control and absent control. Reading a newspaper on- or offline, for instance, represents a partial control environment, in that you are partially exposed to unintended content, but may choose to browse headlines, skim articles, or read pieces of interest to you more carefully. Social media is somewhat unique, though, in that the motivations that prompt someone to use social media may result in them engaging in less than optimal control of their social media environment. Moreover, the enormous and growing use of social media creates a greater need to understand the exchanges going on via this environment, and the implications of those exchanges.

Thus, this study seeks to fill in some of the question marks with regard to this particular exemplar of a partial control media environment, social media, by answering these main questions: To what extent do users customize their content despite other motivations? To what extent are they exposed to political content? How often is that content in line with their political ideology? Do they and in what way do they learn from this content? And what are the behavioral or attitudinal effects of exposure in this media environment?

Important Implications

Political learning is an often-studied idea, and one that is essential to our understanding of America as a democratic society. Although some would protest (Lau and Redlawsk 1997, 2006), it is generally believed that knowledge is essential to contributing to democracy in a meaningful way. In order to make appropriate decisions about in whom we should invest the power associated with representative democracy, voters should have some understanding of what those individuals stand for, believe in, and how they would act once in office.

Moreover, political learning results in political knowledge, which is one of the most consistent predictors of political participation we have found (Palfrey and Poole 1987), and the cost of obtaining information may actually depress voter turnout (Texeira 1987). Thus, activities that encourage

the accrual of political knowledge also have the potential to bolster political participation, an activity much lauded by political theorists (Breyer 2006). Some scholars even go so far as to argue that political knowledge should be considered participation in its own right, given its importance in a democratic system (Lambert, Curtis, Kay, and Brown 1988).

Alternatively, the low cost of information available via social media may actually demobilize its users. Some have argued that social media makes "participation" too easy, contributing to a culture of "slacktivism," in which people engage in satisficing participatory behaviors, such as sending mass emails or signing online petitions, such that they no longer feel compelled to participate in more active ways (Shulman 2009, Morozov 2009, Gladwell 2010, but see Karpf 2010). Moreover, the passivity encouraged by "easy" media such as television (and arguably social media) may be demobilizing in and of itself: "television makes it so easy to follow politics that viewers respond by watching the political system rather than working for it" (Hart 1996).

Either way, the flows of information in our society have measurable impacts, both for individual voters and broader outcomes including elections and social movements. Low information voters, or politically unsophisticated citizens are likely to see the greatest influence as a result of exposure to political information they may not have sought out, as in the realm of social media. Those with the least information are more likely to be persuaded when confronted with new information (Zaller 1992), and may even change their party allegiance as a result (Dreyer 1972). Changes in information flows affecting partisan leanings among individuals may even impact electoral outcomes when generalized to the population (Bartels 1996). Information flows further influence outcomes by affecting not only how people vote, but who votes. Studies have shown that information flows affect both who votes and who mobilizes others to vote: "low-information citizens enter and exit the electorate, while high-information citizens enter and exit the activist pool" (Classen 2007, 124).

Moreover, we know that online news use is positively associated with normatively desirable democratic behaviors and attributes, including civic engagement, volunteerism, political knowledge, efficacy, and participation (Shah, Schmierbach, Hawkins, Espino, and Donavan 2002; Jennings and Zeitner 2003; Weber, Loumakis, and Bergman 2003; Kenski and Stroud, 2006). Such effects are certainly important and can be quite dramatic as well. For instance, Internet use during

elections can increase the probability of voting by as much as 12% (Tolbert and McNeal, 2003). The understanding that certain types of Internet use and engagement have positive outcomes for a democratic society only serves to underline the importance of a full and complete comprehension of what kind of political exchanges are happening online. Until we begin to consider the potential for incidental exposure to political information and the possible passive learning that may accompany it, we fail to see the entire realm of political learning that may be occurring online.

In the earliest days of modern political science, Downs acknowledged, "accidental data are by-products of the non-political activities of a citizen; they accrue to him without any special effort on his part to find them" (1957, 223). We have known that political information can be obtained and absorbed without intentional or purposive information-seeking, and we have evidence that this occurs in watching television and in general Internet use. Social media is the next likely setting in which partial control may lead to incidental exposure to political information. This study takes one of Prior's main research questions - "But now that new media users can efficiently click from one entertainment program to the next, do they still encounter political cues by accident?" - and updates it for the current media environment (2007, 15). As he has said, "If changes in communications technology are consequential, neglecting them in our theories of the political process is a consequential mistake" (2007, 3). Changes in technology as a result of the dawn of social media are both consequential in type and increasingly in number. Facebook now has an astounding 750 million users, and a majority adult users are now over 35 years old (Mashable 2011). Twitter continues to grow as well, now boasting over 200 million users, and 13% of American Internet users (Pew Internet and American Life 2011). The rapid adoption of social media, in addition to the unique type of media experience it offers represents exactly the "consequential change" in communications technology of which Prior speaks, and ignoring it would be as consequential as ignoring the dawn of cable news or any other groundbreaking change in the way people gain information from their environment.

Testable Implications

As can be seen from Figure 2, there are various pieces of the theoretical puzzle which are missing. Because social media offer a new type of media environment, in which control is present but limited, we do not necessarily know how people are exposed to information (and particularly political information) in this new environment, or what effect such exposure might have. It is the aim of this dissertation to fill in some of the theoretical holes which now exist as a result of this new, partial-control environment.

Before doing so, however, it is first necessary to determine that social media are, in fact, perceived as a partial control media environment. In Chapter 2, I demonstrate that social media are perceived as and function as partial control media environments, by employing survey data related to the motivations for social media use, perceptions of control over social media as compared to other media, and actual exercised control in terms of opting in and out of social media streams.

The first question presented by the theoretical model articulated above relates to what sort of content users are exposed to in the partial control environment of social media. In a high control environment, users have almost total command over the content to which they are exposed, and thus it tends to be in line with their beliefs and preferences, creating an "echo chamber" in which users only rarely see content they do not care to see. In a low control environment, on the other hand, users are incidentally exposed to a great deal of content they would not necessarily choose for themselves. Thus the content is much wider in topic and viewpoint than that in a high control environment. In the partial control environment of social media, users are able to opt into and out of information flows at their leisure, but may not always choose to do so. Thus it is likely that social media will perfectly resemble neither high control nor low control information environments, but rather fall somewhere in between. I hypothesize that incidental exposure to political content will occur in social media, despite users' great ability to tailor information flows than those of a low control media environment. That is, social media users will not successfully opt out of all political information, whether or not they are interested in it.

Chapter 3 first tests this notion by considering aggregate flows of information in both high control and partial control environments. Using aggregate data from Google News (to represent purposive information seeking - a high control environment), Twitter, and Facebook (representing partial control environments) I consider the amount and type of political information available, and compare between the different types of media environments.

Chapter 4 expands on the question of content and exposure. Specifically, I employ survey data to determine whether the amount of political information to which a user is exposed via social media is contingent upon his or her interest in politics. A positive relationship would suggest that social media use is more purposive than incidental. Additionally I consider to what extent political information to which social media users are exposed is heterogeneous, as compared to that obtained via traditional person-to-person networks, and from the mass media.

The second break in the theoretical model that requires further inquiry is the step of learning from the content to which users are exposed. In high control environments, users engage in active learning when exposed to information, whereas in low control environments, users engage in passive learning in response to incidental exposure to information. Notably, users are more accepting of information in low control environments, where exposure is incidental and learning tends to be passive (Krugman and Hartley, 1970). It is unclear whether users in a partial control media environment like social media will engage in active or passive learning. Moreover, it is likely contingent on the degree of control they have exerted and the interest they have in politics.

Chapter 5 tests this question by using survey and experimental data to establish whether users of social media are not only exposed to political information, but also *accept* it. That is, it tests whether users of social media engage in learning as a result of exposure to political information. Learning is further considered in relation to the amount of control users have exerted over their social media information flows, and their interest in politics.

The third and final piece of the theoretical puzzle to be explored is that of potential outcomes as a result of social media use. Because users in a high control environment can tailor information almost entirely to their own preferences, they tend to be mobilized as a result of that information. However, such users also tend to be more polarized than users of other types of media. Low control

media users may also be mobilized and engage in information seeking (Cox 1967), but are much less likely to exhibit polarization. The partial control media environment may be tailored enough that polarization takes place, and is also likely to result in mobilization, as in the other media environments.

Chapter 6 utilizes survey and experimental data to examine whether mobilization, in the form of political participation, and polarization take place as a result of exposure to political information within social media. It further examines how users take action as a result of the political information they encounter within social media, and what predicts behaviors associated with exposure to such information.

Finally Chapter 7 will sum up the results from the whole of the project, discuss the implications of its conclusions, and explore potential areas for future research.

| Presentation | ⇨ | Attention | ⇨ | Comprehension | ⇨ | Yielding | ⇨ | Retention | ⇨ | Behavior |
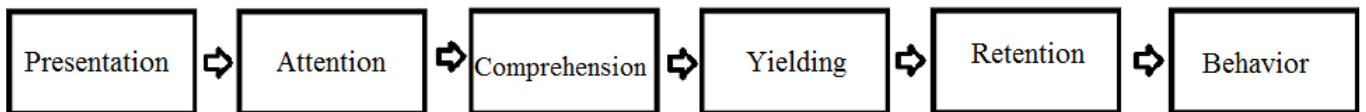
Figure 1.1 McGuire's Six Steps of Information Processing
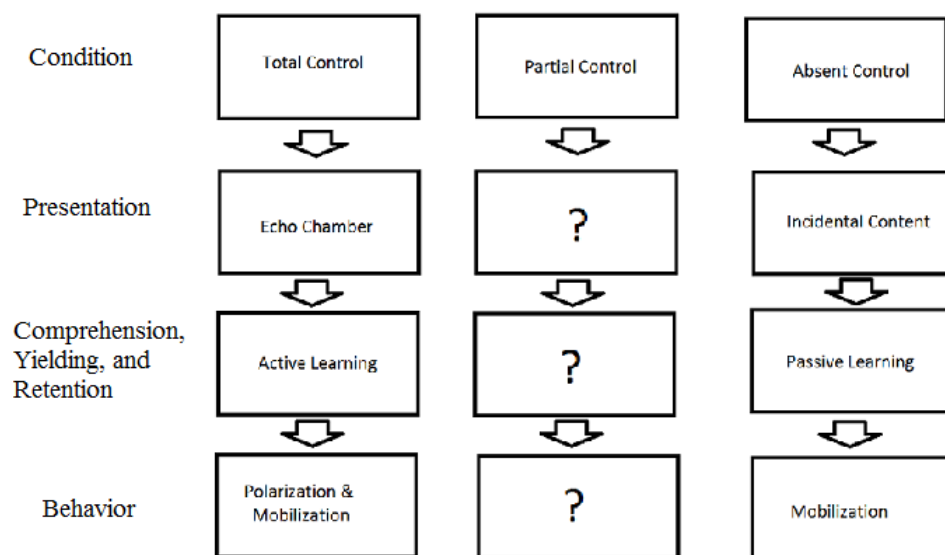
Figure 1.2 User Control Determines Content, Learning, and Effects

Chapter 2

Social Media as a Partial Control Media Environment

Introduction

As discussed in the introduction, the argument forwarded by this project hinges on the fact that social media are an instance of a partial control media environment. This is not to say that they are the only such example, but given their increased use by average citizens in recent years, they have become an increasingly important example of partial control, and one that deserves scholarly attention.

Strongly selective environments, exemplified by much of the Internet, which has focused on customizability and personalization in recent years, allow users to control their media environment to such an extreme that the vast majority of the information to which they are exposed is of their own choosing, and in line with their interests and attitudes. On the other side of the spectrum, some media environments present users with incidental contact with information. Even if they may select the majority of the content to which they are exposed (i.e. a television channel or program), they are often exposed to incidental information within that context (i.e. a commercial within the program they have chosen). Partial control media environments fall between these two extremes, representing instead an arena in which users have only limited control over the information to which they are exposed. In social media, this is manifested by the opt in/opt out nature of networked streams of information. Social media users have a large degree of control over the structure of their networks, but may feel bound by those networks once established, and are then subject to the information streaming from the users they have allowed into their networks

(indicating lower exercise of control). The first step in this project is to demonstrate this partial control descriptively and empirically.

It is equally important to consider not only whether scholars would objectively classify social media as a potential partial control media environment, but also to demonstrate that they, in fact, function in such a way for the average user. Moreover, I will further consider to what extent users are aware of this partial control which they may exert to varying degrees, and to what extent they actually exercise such control.

Facebook and Twitter: Different Types of Partial Control Media Environments

A brief description of the way in which social media works, particularly in terms of channeling information, is helpful to understand why it is appropriate to classify social media as partial control media environments. Recall that the generally accepted definition of social media suggests an opt-in network structure in which users generate and share information with chosen others. Note that the very definition of social media suggests partial control of information - users sharing with a network of others create a flow of information, but because the network is generally flexible, users may still exert some degree of control over that flow.

Three aspects of social media use are worth exploring further in understanding the way in which they create mechanisms for partial control by users. First, social media facilitate the sharing of information amongst a large number of people. The entire point of most social media environments is to allow for the sharing of information between networks of users. While the information may vary by social media platform (yelp! focuses on sharing information about goods and services, whereas LinkedIn is focused on people of similar occupational background being able to find one another) and by user (some users share nothing, others share personal information, others share news and current events, etc), there is at least a flow of user-generated, shared information in each social media platform.

Second, the networks created by social media are "opt-in" networks - that is, users have at least some degree of choice in becoming part of a network. Again, this varies to some extent by social media platform. At one extreme, some social media have a default opt in to the network (in

the case of yelp!, users may see information contributed by any other member of the community). At the other extreme, some social media require dual agreement for networking to take place. That is, if I want to connect with someone in these social media, I must request to do so and the other person must grant permission. In this way the network is more limited than in other social media (an example of this would be Facebook). There are also a variety of social media that fall somewhere in between these two extremes, in which "following" another user is allowed - that is, I may subscribe to or opt into another person or organization's flow of information in these social media without their permission (an example of this is Twitter). Despite this variety, though, all social media contain at least some degree of opting into networks, which is particularly important for understanding them as partial control media environments.

Finally, there are various constraints affecting the exercise of the control available to users. First, there may be structural constraints affecting the control users may exert over their networks. Some social media make it more difficult or complicated to opt out of a network than to opt in, creating a stickiness in these media. Additionally, there are both direct and indirect social constraints encouraging users to resist "unfriending," opting out of a network, or removing someone from their network. Directly, there may be an expectation of retaining someone in your network, particularly if they are close friends, colleagues, or relatives. Even if a crazy uncle annoys you with his Facebook posts, you may not feel like you can remove him from your network without offending him and/or violating social norms. Indirectly, there is the social constraint of staying apprised of the actions of others. A distant friend or acquaintance might be easy enough to remove from a network, but shared friends create an expectation that you know what's going on among a general group (people you knew from college, old roommates, etc). Not knowing important news in others' lives may indirectly harm your relationship with closer friends. All of these constraints work to produce a stickier network than would otherwise be expected. That is, people should be less likely to opt out of networks or information flows within social media as a result of these constraints, thus exerting less control over their social media environment.

Before addressing the expectations implied by these three aspects of social media, I describe in further detail each of my cases of social media - Twitter and Facebook - to assist the reader

contextually, but also to motivate any differences we might expect to see between control exerted over each case of social media.

Facebook

Facebook is a social network site launched in 2004 on the Harvard University campus by then-student, Mark Zuckerburg. Originally it was limited to the Harvard University community. Later that year it was extended to the other Ivy League campuses, and then to other colleges beginning in the Northeast of the United States. The following year the network was opened to high school users as well as employees of a limited number of large corporations, including Apple and Microsoft. Beginning in 2006, the network opened to anyone over the age of 13 with a valid email address, but the original feeling of exclusivity has been somewhat retained through the network structure, described below. Usership has grown at an astronomical rate, and Facebook now boasts over 800 million users worldwide (Olivarez-Giles 2011).

Facebook is based on the creation of profiles for each user. After joining, each user is asked to provide a variety of information about herself, including education, work, interests, and hobbies. This information is displayed on each user's "wall," but access to the content is limited to only those within each individual's network. In addition to displaying simple information on the profile, users are in control of their own walls, and may post a variety of information there. The most common posts include status updates, in which users describe to their network what they are doing or thinking about, pictures, in which users may upload and display photographs, and links, in which users may attach information from outside of Facebook onto their wall or another user's wall. These links can be anything, but are most often news stories from outside of Facebook.

The network itself is based on "friending" - generally people who know one another in real life find one another on Facebook, and place a "friend request." After one person requests the friendship, the other person must approve it in order to allow mutual access to one another's profiles. In this way, networking on Facebook is somewhat more selective than that found in other social media. "Unfriending," or removing someone from your network, is relatively easy on Facebook. Until the most recent update, a button was located on the profile page of each of your Facebook friends,

which allowed a user to "remove this person from my friends." As of this writing, the current mechanism is slightly different but still relatively easy from a structural standpoint. On a friend's page is a pull-down menu entitled "Friends," and underneath that is an option to "Unfriend."

Although structurally it is relatively easy to friend and unfriend on Facebook, the social constraints are likely to be higher than in other social media. Facebook is primarily considered to be a network of friends, and thus its entire purpose is one of social connection. For that reason, removing someone from one's Facebook friends is potentially violating a norm of friendship implied by Facebook use. Of course, this is to some extent an empirical question that will be investigated in this chapter.

Twitter

Twitter is a slightly different type of social media. It is referred to as a "microblogging" platform, in which messages are constrained to being quite short and users connect with people and institutions with ease.

Twitter was founded in 2006, and now has over 300 million users worldwide. The platform is based on "tweets" - very short messages of 140 characters or less, which are generally publicly disseminated to the broader Twitter network. Although it is possible to hide tweets or protect them from public viewing, the default option used by the vast majority of Twitter users is to have public tweets.

The network comes into play in a different way on Twitter, in what is referred to as "following." Rather than the mutuality required on Facebook, Twitter allows users to opt into information flows from other users without their permission (again, this is true for the vast majority of users, though some very small minority do protect tweets and must authorize other users to see them). For this reason, networks on Twitter are likely much more free-flowing than those on Facebook. While users get a notification when another user begins following them, they are not notified when someone "unfollows" them, making it relatively low cost to do so. Moreover, because early adopters of Twitter included celebrities and journalists, the network tends to be much less explicitly social than Facebook, and more about transmitting less personal information (Schofield 2009).

Expectations

There are four major tests to determine the extent to which users perceive and exercise control over social media. First, we must establish that the primary purpose for using social media is not political in nature. If people were joining social media specifically to obtain political information, that would suggest a much higher level of control than I have theorized. Rather, people must use social media primarily for other purposes and only encounter political information in those venues somewhat incidentally. Related to this, I expect users join social media for reasons other than maintaining political content (H2.1). Moreover, I further expect that primary motivations for joining social media are explicitly social in nature (H2.2). This is important with regard to the type of information to which users are likely exposed, and the nature of the relationships from those in their network, both of which will be explored further in later chapters.

Secondly, it is important to investigate the extent to which users agree that social media are a partial control media environment. Generally, I expect people to be aware of the partial control nature of social media, as compared to traditional media which generally fall on the less control side of the control spectrum. Specifically, this suggests that users should rate social media more favorably in terms of the amount of control they may exert over the information to which they are exposed as compared to more traditional media (H2.3).

Third, users must actually engage in partial control behaviors. The extent to which they do so will empirically place the realm of social media on the spectrum of control exerted over media. Because I have theorized that social media gives slightly more control than traditional media such as newspapers (and slightly less than newer media such as cable news), I expect users to engage occasionally in behaviors related to control exerted over their social media networks, but not frequently. Specifically, this suggests that users should engage in "unfriending" or "unfollowing" fellow users on social media, but this shouldn't be a dominant behavior shaping their networks (H2.4).

Finally, these behaviors must be extended to the political realm. Because I expect users to use social media for reasons other than the political, I think users are likely to make decisions related

to control exerted over their social media networks for political reasons only occasionally (H2.5). That is, I do not expect political reasons to be a major driving factor in shaping users' networks.

Motivations for Social Media Use

The first step is to understand why people generally choose to engage in social media use. If the purpose is primarily political, even for a subset of the population, that would significantly undermine my theory which suggests exposure to political information via social media is unintentional for the average user. In order to determine to what extent social media members engage in social media use for political reasons, I turn to survey data. These data were collected in the Spring of 2010, from a sample of undergraduates at a large Midwestern research university. Students were contacted by their instructors and invited to participate in a survey for a small amount of extra credit.[1] 676 responses were collected. Undergraduate students were chosen so as to maximize saturation of social media use - as of 2009, 74% of Americans aged 18-34 used Facebook as compared to only 57% of the next closest cohort, aged 35-44 (Harris 2009). This allowed a deeper understanding not only of whether citizens are using social media, but in what ways and to what end. Normatively, it is also of importance to study this age group, as the newly suffraged are historically low in levels of participation (see, for example, Dalton 2009). For that reason, any effects we see on participation within this age range are of increased importance. Respondents were asked a variety of questions including social media use and behaviors, political attitudes and behaviors, general predispositions and demographics.

Four measures indicate the motivations of respondents for using social media. For this particular issue I am considering both of my two major cases: Facebook and Twitter. First, respondents were asked, "What is your primary motivation for using Facebook?" They were asked to choose from a list of options which included, "Meeting new people," "Keeping up with old friends," "Keeping up with events in your current community," "Getting information from/about

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[1] Although respondents were recruited primarily from Political Science classes, they were only recruited from large introductory classes. These classes are required for a number of majors on campus, and thus the diversity of students within them is impressive. Only 8% of students enrolled in the classes from which I recruited were Political Science majors at the time of the survey.

Table 2.1 Primary and Secondary Motivations For Using Facebook

	Primary	Secondary
Meeting New People	1.2	22
Keeping Up with Old Friends	35.1	51.3
Keeping up with Events in your Current Community	7.2	45.1
Getting Information from/about your Friends	42.3	45.8
Playing Games	0.1	4.1
Other	3.1	3.1
N = 679		
Percentages Reported		

your friends," or "Playing games." Respondents could also offer their own motivation, though a very small minority (3.1%) did so. Response frequencies may be found in Table 2.1 below.

As indicated in Table 2.1, the overwhelming majority of social media users in my sample report that the major driving motivations behind their social media use are explicitly social in nature. Together, "Keeping up with old friends" and "Getting information from/about your friends" comprise over three fourths of the primary motivations indicated (77.4%). This is not surprising, given the nature of social media and particularly the mutuality encouraged by Facebook, but provides a baseline understanding of why people are primarily choosing to use Facebook.

As an additional measure, I asked respondents to indicate any additional motivations for using Facebook, choosing again from the same list or providing their own. Respondents could choose as many motivations as they wished. Results are displayed in the second column of Table 2.1.

Again, the results indicate a primarily social function of using Facebook, confirming H2.2. The most frequent motivations cited are keeping up with old friends, getting information from/about your friends, and keeping up with events in your current community.

Importantly, though, these motivations do not include the issue of gaining political information. To determine to what extent users of social media join their respective networks with the

Table 2.2 Using Facebook and Twitter for Political Purposes

	Facebook	Twitter
Join Primarily for Political Information	0.8	7.8
N	604	90
Percentages Reported		

specific intent of being exposed to political information, two additional measures were included. Respondents were asked, "Did you join Facebook primarily to receive political information?" and "Did you join Twitter primarily to receive political information?" As shown in table 2.3, very few respondents (less than 1% for Facebook users and about 8% for Twitter users) suggested political information was a major motivating factor in joining social media, confirming H2.1. Interestingly, Twitter users were more likely to say that political information played a role in their decision to join. This tendency towards news and information on Twitter has already been highlighted, and will be investigated further in later chapters.

Finally, an additional measure captured a similar dynamic using a second dataset. For these data, users were asked to select any motivations for using Facebook from a list, which included the following: "Meeting new people," "Keeping up with old friends," "Keeping up with events in your current community," "Getting information about news and current events," "Getting information from/about your friends," "Sharing information about yourself with others," "Playing games," or "Sharing and receiving political information."[2] Users could choose as many motivations as they felt applied to their use of Facebook. As can be seen in Table 2.2, only 14.7% of users reported explicitly political motivations in their use of Facebook. This number is slightly higher than that reflecting the *primary* motivation of receiving political information, but still suggests that for a vast majority of users, the decision to join and even to continue to use social media is not related to an explicit preference for political information.

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[2]For information on this dataset, see the description provided in Chapter 5.

Overall, we can conclude that social media users are not primarily engaging in social media use for the explicit purpose of gaining political information. Again, this suggests that my theorizing of where social media lies on the spectrum of control over political information is roughly accurate - users are primarily incidentally exposed to political information while engaging in social media for mostly social purposes.

Perceptions of Control in Social Media Use

The extent to which users perceive they have control over social media is also integral to the theory put forth in the previous chapter. If users are either (1) unaware that they have some control over their social media networks or (2) in the habit of regularly exercising that control *specifically* with regard to politics, the theory may not hold. In order for the theory of partial control media environments exemplified by social media, users must be able to exert control over their networks, but unlikely to do so for the purpose of opting out of politics. Namely, there must be some other compelling reason preventing users from exerting full control over their social media networks. In the case of social media, as we have just seen, this reason is likely to be social. Even if other users are sharing uncomfortable or disagreeable political information, there is still the compelling reason to retain them in one's network, given that they were brought into the network for social, and not political reasons.

In order to determine the extent to which users are aware of the control they are able to exert, we must examine their perceptions of such control, paired with their actual behaviors in exercising such control.

Perceptions of social media control were determined by asking users to rank a variety of media from which they might obtain political information. Respondents were asked to rank them on a number of dimensions, including the amount of "control over the information to which you are exposed." A variety of traditional media were included, as well as three instances of social media: Facebook, Twitter, and YouTube. Again, these are rated only with respect to the political information found within them (users who reported never using a particular medium are removed from the analysis, as reflected in the N's reported in the last column of Table 2.3).

Table 2.3 Perceptions of Control

	Mean	Standard Deviation	N
Newspaper	6.70	2.57	618
News website	6.67	2.17	617
Political blog	5.05	2.37	561
Television news	6.06	2.35	613
Talk Radio	5.12	2.07	581
Comedic news show	4.60	2.07	598
YouTube	4.36	2.22	555
Facebook	4.24	2.47	556
Twitter	3.19	2.72	535

Inverse Rankings Reported

As can be seen in Table 2.3, perceptions of control over political information in social media are somewhat low when compared to more traditional media. Newspapers actually top the list - somewhat surprisingly, as traditional print newspapers are not customizable, suggesting that the only real control users may exercise is over which newspaper they choose to read. News websites and television news are also ranked highly, and intuitively it does seem consumers should have greater control over THIS type of medium - choosing amongst many websites or channels providing news, and sometimes customizing beyond that (many news websites allow a fair amount of user customizability after logging in in some way, and consumers can choose individual programs within the medium of television). Blogs and radio also fare well in perceptions of control, and again, there are a wealth of options within both media. Comedic talk shows rank behind all traditional media, which makes sense - this is a popular new medium, but still a very rare one. Most consumers have access to only a handful of such shows, decreasing the control they have over such content.

Finally, all three social media come in dead last, with YouTube slightly edging out Facebook, both of which are ranked quite a bit higher than Twitter. It is worth noting that respondents could indicate if they never receive political information from any of these media, and social media were more likely to be unused for political information than other media. Together these results disconfirm H2.3. Users are less likely rather than more likely to perceive social media as high in control when compared to traditional media.[3] However, standard deviations tend to be slightly higher for the social media outlets - suggesting that while the average user finds them to be less control-friendly, some users find them to be more so. This again captures the nature of partial media control - it is, to at least some extent, more to do with the individual user than it is to do with the infrastructure associated with any individual medium.

To further investigate why users might feel they are less able to control the political information to which they are exposed in social media, I posed additional questions to the respondents. These

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[3]It is worth noting that these findings may be contingent on my sample. Given that undergraduates are less likely to be engaged in politics at all, it is possible that the patterns of their perceptions of different political information sources may vary from those of the broader adult population. However, they are also most primed to be amenable to social media in general, so the fact that they are not lends credence to the disconfirmation of H2.3.

Table 2.4 Feelings Toward Unfriending and Unfollowing

	No Pressure	Some Pressure	A Great Deal of Pressure
Facebook	76.2	23.0	0.8
Twitter	95.7	3.3	1.1
Percentages Reported			

measures reflect the extent to which users feel pressure to engage in particular types of networking through social media. Specifically, they ask, "To what extent do you feel pressure to be friends with people on Facebook?" and, "To what extent do you feel pressure to follow particular accounts on Twitter?" Answer choices varied from, "I don't feel any pressure to (be friends with people on Facebook/follow accounts on Twitter.) I have total control over my network," to, "I feel some pressure to (be friends with people on Facebook/follow accounts on Twitter.) I feel bad when I turn down a (friend/follow) request or (unfriend someone/unfollow an account)," to, "I feel a great deal of pressure to (be friends with people on Facebook/follow accounts on Facebook.) I find it very hard to turn down a (friend/follow) request or (unfriend/unfollow) someone, no matter what."

As expected, users seem to find it much easier to exert control over Twitter networks than over Facebook networks (though it should be noted that a much smaller percentage of my sample - and the American public - were users of Twitter than of Facebook). Facebook, again, requires mutuality for networks to form. It was founded on the basis of connecting individuals who know each other socially in real life, to facilitate greater interaction. Facebook facilitates sharing information in the form of text, photos, videos, and links which often include details about personal lives. Twitter, on the other hand, with its strict 140 character limitation, tends to only allow snippets of information, less conducive to intimate sharing. Moreover, following on Twitter is a one-way endeavor, not requiring assent of the person you choose to follow. Indeed, many users follow only the rich and famous - Lady Gaga (24,000,000+ followers), Justin Bieber (21,000,000+ followers), Oprah Winfrey (11,000,000+ followers), and President Obama (15,000,000+ followers) have some of the highest follow counts on Twitter.

However, it is worth noting that, particularly on Facebook, there is at least some degree of social pressure to maintain networks with known others. This social pressure may result in lessening the degree of control users feel capable of exerting, and thus increasing the likelihood they are exposed to political information in general, and heterogeneous political information specifically. These possibilities will be explored in Chapters 4 and 5. Moreover, it highlights the partial control nature of social media.

Exercised Control of Social Media

However, perceptions of control with regard to social media are only part of the issue. Additionally, it is worth considering the extent to which users actually exert control. To what extent do users cull their social media networks in any meaningful way?

Dave Cieslewicz is a local political figure in Madison, Wisconsin, where I live. He was the city's mayor for eight years, but in 2011 lost a reelection campaign (to a former mayor of Madison, Paul Soglin). Overnight, "Mayor Dave," as the city knew him, was transformed to "Citizen Dave." He still retained an influential presence in the city, as indicated by his presence on Facebook. While many politicians create official pages, separate from their personal profiles, Citizen Dave chose to use his personal account for both reasons. As a result, he would friend basically any citizen of Madison, and quickly reached the 5000 friend limit imposed by Facebook. When confronted with how to deal with this issue, he told his followers that he wanted to make room for new friends but admitted, "I can't bear to do the defriending from my end" (Cieslewicz 2012). He was, in essence, suggesting that unfriending was an uncomfortable act for him to engage in, even when dealing with actual strangers - and 5000 of them, at that.[4] If unfriending is uncomfortable, and many users have

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[4]Instead, he asked his Facebook friends to engage in self-regulation, and to unfriend him to make room for others. To encourage such behaviors he included a "Top 10" list of reasons to defriend him. The highlight was number 9: "Pick one: You didn't like the Edgewater, you thought streetcars were stupid, your street didn't get plowed but the bike paths did, inclusionary zoning didn't work like I said it would, you're still sore over the smoking ban and having to shiver on the sidewalk in front of the bar, you actually liked bundling newspapers under the old recycling system, you liked the bite of pepper spray on a crisp Halloween night, you wanted the original Central Library plan, you think "bike boxes" are a communist plot, you wanted the train to stop at Yahara Station instead of Monona Terrace, you liked it when the leaves got picked up on a regular schedule, you couldn't find a parking spot downtown, you cant figure out how to use the damn new parking meters to save your life, you got a parking ticket in 2005, you liked David Blaska better, or you are Steve Nass, Glenn Grothman or Will Sandstrom."

Table 2.5 Unfriending and Unfollowing

	Frequently	Rarely	Never
Facebook	60.8	36.8	2.5
Twitter	16.3	30.4	53.3
Percentages Reported			

already stated they feel certain types of pressure to maintain extant networks, the degree to which unfriending and/or unfollowing actually occurs may be less than we might otherwise expect, given the two-click ease with which it may be done on both Facebook and Twitter (one click to choose to unfriend/unfollow, and another to confirm).

To ascertain the extent to which people engage in adding to or culling their social media networks, I asked, "Have you ever friended or unfriended someone on Facebook?" It was important to include both friending and unfriending for Facebook, because both are active choices to alter networks of friends. That is, as a Facebook user I may initiate a friend request, or simply wait for others to initiate one and then confirm it. Similarly, the choice to remove a friend from one's Facebook network is also an active decision. On Twitter, on the other hand, following is essentially required. Except for rare exceptions (generally celebrities who have been encouraged to tweet by a public relations manager but who have no interest in gaining information via the medium), Twitter users follow many other accounts, so as to feed information into their own Twitter network. Because Twitter relationships are not mutual, there is less inherent meaning in choosing to follow an account than there is in initiating a Facebook friend request. Thus, in establishing to what extent Twitter users exert control over their networks, I asked only, "Have you ever unfollowed an account on Twitter?"

Results may be found in Table 2.5. Generally speaking, the vast majority of users of Facebook (96.8%) feel comfortable initiating friend requests or sometimes unfriending others in their network as well, and over half report doing so frequently. On Twitter, people report the specific act of unfollowing much less frequently. Only 46.7% report ever unfollowing an account on Twitter

(though again, the number of Twitter users is much less than those who use Facebook, reducing our confidence in these numbers slightly). This is interesting considering there are fewer social norms on Twitter but the high number of Facebook users engaging in this type of behavior may be due to including both friending and unfriending in the question wording. At the very least, though, we can say with confidence that users of social media do generally feel comfortable exercising their ability to adjust their online networks as needed.

Exercised Control of Social Media with Regard to Politics

However, that is not the full story. Of importance is not only the extent to which users feel able to or actually engage in controlling their social media network flows of information, but also the extent to which they do so *explicitly for political purposes.* If users are engaging in significant adjustments to networks for political purposes, this decreases the likelihood they will be exposed to political information within social media. Essentially, this would have the effect of shifting social media to the right on the spectrum of control - making it more resemble fully customizable media, rather than media which create conditions for incidental exposure to information.

To ascertain the extent to which users adjust their social media networks for political purposes, I posed a series of questions, reflecting both medium and motivation. There are two main politically-oriented reasons one might opt in or out of a network relationship: first, because of the *volume* of political information, and second, because of the *content* of information. In terms of volume, those who are not interested in politics may not care to see political information at all. They may tolerate the occasional political link or status update, but past a certain threshold it becomes annoying or boring to the politically apathetic. On the other hand, there is also the question of the content of political information to which one is exposed. It might be disagreeable information - generally, information from an ideologically divergent perspective.

Thus two measures each for Twitter and Facebook capture these two motivations which might encourage users to adjust social media networks for political reasons. First, reflecting volume: "Have you ever friended or unfriended someone on Facebook based on their tendency to post

Table 2.6 Unfriending and Unfollowing for Political Reasons

	Frequently	Rarely	Never
Facebook			
Political Affiliation	0.7	3.3	96.0
Political Content	0.5	6.1	93.4
Twitter			
Political Affiliation	0	1.1	98.9
Political Content	0	2.2	97.8
Facebook N: 604			
Twitter N: 92			
Percentages Reported			

political stories?" and "Have you ever unfollowed an account on Twitter because of a user's tendency to post political information?" And second, reflecting content, "Have you ever friended or unfriended someone on Facebook based on their political affiliation?" and "Have you ever unfollowed an account on Twitter because of the user's political affiliation?"

Table 2.6 suggests that adjusting social media networks explicitly for *political* reasons is much rarer than general network adjustments as indicated in Table 2.5. At most, these numbers reach a high of only 6.6% of users, among those who friend or unfriend based on a user's tendency to post political stories. This suggests that the average user of social media is not actively adjusting his or her network explicitly to adjust the flow of political information to which he or she might be exposed. As a result, the vast majority of political information to which users are exposed must be considered more or less incidental - users are not explicitly seeking it out in any meaningful way. Again, this confirms the placement of social media within the spectrum of control - a partial control media environment tending toward the extreme of absent control more than it does to the opposite extreme of full control. As a result, we should expect exposure to political information within

Table 2.7 Hiding Other Users for Political Reasons

	Not at all	Rarely	Sometimes	Often	Very frequently
Facebook	65.7	13.2	14.3	4.4	2.4

N: 729

Percentages Reported

these environments to more closely resemble incidental exposure, and learning and behaviors to more closely resemble those associated with incidental exposure.

In 2011, Facebook updated its interface to allow an additional type of user control. Users were offered a "hide" option, in which they could remain friends with a person but no longer view their content regularly in the newsfeed. This might be a potential way of avoiding the awkwardness of unfriending while still allowing users to opt out of undesirable political information. As a result, in the Spring of 2011 I included a question on a survey experiment pretest (see Chapter 5 for methodology details) asking users how often they had "used the "hide" function when a Facebook friend posts disagreeable political content." Answers ranged from "not at all" to "very frequently." Overall, a strong majority (65.7%) of users report never having used the hide function to rid their newsfeed of political content they would like to avoid (See Table 2.7). An additional 27.5% report doing so rarely or sometimes, leaving only 6.8% who engage in hiding other users' content for political reasons on a regular basis. Again, this suggests that a vast majority of users are not opting out of the political information to which they are exposed in social media.

Conclusions

Overall we can verify that social media act as theorized - as a partial control media environment tending towards absent control, particularly when considering the flow of political information. Users recognize that the major reason they use social media is for social purposes - gaining information about friends, learning about current events, and the like. They do not join or use social media primarily for political purposes, at least in any significant numbers. Moreover, although

they feel somewhat comfortable adjusting their social media networks, as the infrastructure allows them to do, they are very unlikely to do so for political reasons.

Future research should delve into these findings more deeply. Of particular interest is the phenomenon of "unfriending." Although I find only a very small minority of users engage in unfriending or unfollowing for political reasons, two things are worth noting. First, a small subpopulation does admit engaging in politically-oriented unfriending behaviors, and it is certainly worth considering under what circumstances such behaviors take place. What actions of the former friend prompts the decision to cut them out of a network? How does the unfriending user justify the decision? For what types of friends is this considered appropriate behavior? Can refriending occur following a political unfriending? Second, my data come from a non-election period of non-contentious political activity. One might imagine that under different circumstances, political unfriending might be more common. With increasing political polarization generally acknowledged in the United States (see for instance, Baldassarri and Gelman 2008), perhaps political unfriending will increase in the future.

Likewise, under circumstances of particularly heated or engaged politics (the Occupy movement, the contentious politics recently in Wisconsin and Ohio, etc), political unfriending might be more frequent. In a recent Marquette Poll, for instance, 34% of surveyed Wisconsin residents reported that they had "stopped talking about politics" with some people because of disagreements over the recall of the governor there (Marquette University Law School Poll, May 2012). One can easily imagine how such antipathy and avoidance might translate into the social media world as well. It might also be more or less common depending on whether one is in the majority or minority, either in a geographic sense (a Republican in a blue county, for instance) or in a social media network (a liberal in a circle of relatively conservative friends). Moreover, strategies employed for *avoiding* unfriending - ceasing to talk with specific people being primary among them - are also worth future consideration.

As a result, users are more likely to be incidentally exposed to political information within the realm of social media, and in their everyday use of the mediums to which they belong. This suggests implications to be tested in the remainder of the project. In a low control environment a user is

exposed to a great deal of information only incidentally – not information she purposively sought. As a result, learning is passive, but does still take place (Zukin and Snyder 1984). Incidental exposure to political information results in learning without motivation, which is "typically effortless, responsive to animated stimuli, amenable to artificial aid to relaxation, and characterized by an absence of resistance to what is learned" (1970, 184). Notable is the "absence of resistance to what is learned" – that is, users are actually less likely to put up barriers to absorbing the information to which they are exposed in these environments (Krugman 1965).

Finally there are the behavioral results of exposure and learning. In a low choice environment, where content is likely to be much more diverse and incidentally obtained, users are much more likely to be exposed to cross-cutting viewpoints (Mutz 2002). Exposure to cross-cutting viewpoints tend to increase tolerance and understanding (Mutz 2006; Huckfeldt, Morehouse Mendez, and Osborn 2004), but may actually be demobilizing when people find themselves in a minority position, resulting in a "Spiral of Silence" (Noelle-Neuman 1974).

This suggests the expectations for future chapters as laid out more fundamentally in the previous chapter. First, in Chapter 3, I will consider the types of information to which social media users tend to be exposed, and what those flows of information look like.

Chapter 3

Political Information Flows in Different Media Environments

Introduction

This chapter will focus on two of the most important social media applications at the moment: Facebook and Twitter. Facebook, recall, is a social network site, which allows people to connect with one another by "friending" each other, and then to share information about their lives and daily happenings. Twitter, alternatively, is described as a social networking and microblogging site, where users connect to one another by "following" one another's tweets - updates consisting of fewer than 140 characters, which are posted to one's network. The opt-in networked structure of each of these environments suggests that people are connecting with trusted others and then receiving information from them. While the majority of such information is likely to be of little political consequence, apportion of it is certainly politically relevant. Because of the enormous volume of content produced in social media, even a small percentage of political content has the potential to reach a large number of people. Users of these social media who may be otherwise unengaged and uninterested in politics are thus potentially exposed incidentally to political information they would not otherwise encounter.

If users are incidentally obtaining information, and especially political information, in these alternative online environments, it suggests that the negative implications of the Internet put forward by Prior, Sunstein, and others, are somewhat unfounded. Moreover it becomes important to understand whether the two information flows - that of purposive information seeking and that of incidental exposure to information - represent similar content, or disparate content. It is possible

that incidental exposure to information simply offers an alternative means of gaining similar information as that of purposive information seeking or news gathering. Alternatively, the content of information gained via incidental exposure may be substantively different than that obtained in traditional ways. If the two information flows are sufficiently different in content, the concerns of Prior and Sunstein may still be valid.

While the effects of incidental exposure to political information (especially as compared to the effects of information obtained via purposive information seeking) are necessarily important, they cannot be investigated until we have established whether or not the two streams of information differ at all, and if so, in what ways. This project seeks to do just that, exploring to what extent there is overlap between information obtained purposively and that obtained incidentally.

This chapter is a first step in understanding the process and consequences of incidental exposure to political information online. By establishing what stream of information purposive information seeking yields, and comparing those data with a second stream of information obtained via incidental exposure on social media, we can begin to understand the extent of exposure to incidental political exposure in that outlet, and what implications it might have.

For the purposes of this study, purposive information seeking is represented by content from Google News searches. While there are certainly other sources of information available online, Google is the most-used website in the world, and thus the largest source of seeking information online by far. 620 million people per day visit Google's home page, resulting in 7.2 billion page views each day (Royal Pingdom 2010). Google truly dominates the search market, serving 65.2% of all search traffic online (Nielsen 2010). While Google does not release usage data relating specifically to Google News, it is widely acknowledged that Google News is one of the most used online news sites available, with a reported 100 million unique visitors per month (TechCrunch.com 2009). Again, this does not represent the only means of intentionally acquiring political information online, but it is a strong case of purposive information seeking, and one which is not likely to show any particular bias.

Incidental exposure to information, on the other hand, is represented in this paper by content produced on both Twitter and Facebook. While only 3% of internet users report Tweeting about

the news, 19% of internet users use Twitter in general (Pew 2009, Pew 2010). This reflects the fact that most Twitter users are receiving more information than they are sending out. The typical user, for instance, updates only rarely, but has an average of 27 followers (RJ Metrics 2009). Moreover, heavy Tweeters tend to be heavy news users as well, and more and more of them are synching their Twitter updates with Facebook and other platforms, reaching an entirely different audience and one that is likely to be less heavily using traditional media (Pew 2009). This makes Twitter ripe for the transmission of information from the politically engaged to the politically unengaged. Facebook, on the other hand, has 500 million active users, 60 million of which are in the United States (71% of Americans who are online have a Facebook profile). Collectively these users spend 700 billion minutes on the site each month, suggesting there is enough engagement going on in this realm that some of it is likely to be political in nature. This study is a first step in understanding the amount, nature, and timing of political information in online social media.

Expectations

While Google News and Twitter are certainly important cases to consider, the question remains as to what differences we might expect between the two information flows. While the primary research question of this paper is to determine if the political information being obtained through Google News and through Twitter is similar in volume and content (RQ1), the data give us the opportunity to explore secondary research questions as well.

Google News is one of the most widely used news sources in the world. It is used by a wide variety of people, including 100 million visitors per month. Twitter, on the other hand, has only 75 million accounts, and only 15 million highly active users (RJMetrics, 2009). Thus, to some extent, Twitter is likely to be more prone to "noise" in the data we retrieve from it, simply due to the restricted volume it has in comparison to Google News searches. Moreover, Twitter is a platform primarily devoted to people expressing themselves and sharing their personal lives, so we are likely to see fewer explicit references to news and political news than we might see on Google News (H3.1).

Similarly, we may see content appear more quickly on social media than it does via Google News searches. Twitter and Facebook give users the ability to post in real time, instantaneously sharing information with their network. Searches on Google News generally reflect a user hearing something and searching on Google News to learn more. Such searches, therefore, are likely to be somewhat time-delayed. Thus we would expect content to appear on social media before it appears Google News searches (H3.2).

Along the same lines, we might expect Twitter users to have a shorter attention span than Google News users. If Twitter is about sharing information as it happens, the attention given to a subject after the fact should be somewhat reduced, compared to the more traditional Google News. Thus we might expect the half-life or duration of a particular event to be shorter on Twitter than on Google News (H3.3).

Data

The data used in this study come from three sources. The first set of data comes from a Google tool called Google Insights for Search (Google.com/Insights/Search). This tool allows users to specify specific search terms and see how they trend on Google over time. Additionally, users can search for the top search trends by Google application (searches on the web, on Google News, searches for images, and searches for products) over several distinct periods of time. The data for this study were produced by searching for the top 10 Google News searches in the United States over the last 7 days and the last 30 days. Each of these searches was performed and the resulting data collected on a daily basis. For more detailed analysis, similar searches were performed daily for each of the five largest cities in the United States. Data for individual words was obtained by searching for a particular word over designated time period, and will be discussed further in later sections.

The Twitter data most comparable to the national Google News searches come from a website which tracks Twitter trends over time, called "WhatTheTrend?" (www.whatthetrend.com). WhatTheTrend? provides the top 20 Twitter trends over the last 7 days and the last 30 days, which

were collected by the author on a daily basis. Trends over the last 7 days were also collected for each of the cities mentioned above.

For the purposes of this paper, each of these sources is combined to create a unique dataset which allows for exploration into the various information flows online for a period of about 3 months during the summer of 2010.

Additional data is combined by word over the period of June 2008 to December 2009. These data come from Facebook, rather than Twitter, and feature the words, "Obama," "Biden," "McCain," and "Palin" (each of the candidates for president and vice-president in the 2008 election). Facebook made data available to me reflecting the daily postings in status updates or wall posts of any of these four words, over the period in question. I then paired these data with Google Insights for Search trend data for each of the words.

Analysis

Examining the Universe of Political Information

The first step in determining the flow of political information on both Google News and Twitter is to determine what is, in fact, political. I define political information as any data, fact, idea, or statement that deals in any way with political actors, political institutions, or political processes. This could include anything from public opinion poll results to what President Obama wore on vacation. For the purposes of this study it tends to include one or two word mentions of political candidates and office-holders (Obama, Kagan, McChrystal, etc) and political events (CPAC, Primary, Nuclear Security Summit).

I hand-coded each of the 830 data points (the top 10 daily hits i

n the United States for the 83 days) for both Twitter and Google News for political content. The overall prevalence of political information is quite low for both sources, but the difference is striking. Over the 83-day period, there were 48 instances of political information on Google News (equaling approximately 6% of overall content), and 32 on Twitter (equaling approximately 4% of overall content; See Table 3.1). Although this difference is significant, it suggests that some political information is being transmitted via Twitter. Moreover, the difference in the amount

Table 3.1 Comparison of Political and Pseudo-Political Content on Google News and
Twitter

	Political Content	Pseudo-Political Content
Google News	48 (0.06)	129 (0.16)
Twitter	32 (0.04)	101 (0.12)
t-test statistic	-4.04**	-5.38**

Note: Numbers in each cell are counts
followed parenthetically by percentage
of content which was political.
* p<0.01

of political information being shared on Twitter and the amount of political information being
searched for via Google News is not drastically different.

Perhaps, though, Twitter is the type of venue which encourages the transmission of more pe-
ripheral information. If that were the case, we should look not only for explicitly political infor-
mation, but also for pseudo-political information, including events and people which are not inher-
ently political, but which are related to political actors, events, and processes. For the time period
considered in this study, this includes events like the oil spill in the Gulf of Mexico, and various
social movements. Again, the data were hand coded for each pseudo-political reference (Results
in Table 1). Again, there is a strongly significant difference between the amount of political in-
formation found via Google News and that found via Twitter. 15.5% (129 individual instances)
of Google News content was pseudo-political in nature, whereas only 12.2% (101 instances) of
Twitter content referred to some pseudo-political event or actor. It is important to note that during
this period of time, the pseudo-political content is dominated by words referring to the oil spill in
the Gulf of Mexico, which will be examined in greater detail below. Still, this tells a fairly similar
story to the purely political content. While more political and pseudo-political content is being
searched for on Google News than is being tweeted about, the levels of each are surprisingly close.

Examining the Life of a Trend: A Case Study

The aggregate analysis provides a wide angle look at the scope of political information on Google News and Twitter, but a more focused understanding of that content is important as well. With that in mind, I chose two case studies in which I consider a single trend that occurred in Google News searches as well as on Twitter, to see whether and how the trend would play out differently between the two online arenas. The first sampled trend is that of the nomination of Elena Kagan to the Supreme Court of the United States, which occurred on May 10, 2010. The nomination clearly fits under my definition of political information - in this case an event directly involving the goings-on of the federal government.

Kagan was referred to in two ways in the two online venues I consider - as "Kagan" and with her full name, "Elena Kagan." Mentions of Kagan trended in Google News searches a total of 12 times, from May 13th until May 18th. Attention was evenly divided between "Kagan" and "Elena Kagan" references, and trended as high as 3rd, on May 16th. On Twitter, mentions of Kagan trended a total of 12 times, from May 11th until May 18th, 2 days longer than on Google News searches. Attention was again evenly divided between references to "Kagan" and "Elena Kagan," and mentions trended as high as 4th, on May 15th. Obviously, given that they trended the same number of times, this is not statistically different.

As can be seen in Figure 1, there is not an overwhelmingly clear pattern to the Kagan trends in either venue. However there is, overall, a slight trend up for Twitter, and a slight trend down for Google News searches. Keeping in mind that these numbers are rankings (and thus 10 is lower than 1), this is somewhat surprising. While we would expect a particular trend to lose attention over time, in the case of Kagan in Google News searches, attention actually increases before falling off. While this may be an artifact of the manner in which Google calculates search patterns (which is, unfortunately, unreleased proprietary information), it is an interesting pattern to consider in the future.

Again, because information which is not explicitly political may still be important for exposure to politics, especially for the less politically interested, it is important to consider pseudo-political information as well. For this second case study, I chose to examine the oil spill in the Gulf of

Mexico. Following an explosion on April 20, 2010, the Deepwater Horizon oil sank and began leaking oil into the Gulf of Mexico. In the time since, a number of efforts were made to stem the flood of oil, and various governmental actions were taken (most notably, President Obama ordered a moratorium on offshore drilling until investigations could be completed). While the oil spill itself is not a political event, it was potentially the consequence of, and certainly the stimulus for various government policies, thus classifying it as a pseudo-political event.

The Gulf oil spill was referred to in various ways in the two online venues I consider, including "oil," "oil spill," "Gulf Oil Spill," "Gulf," "BP," and "top kill." Mentions of the oil spill trended in Google News searches a total of 123 times, beginning on May 2nd and continuing until July 6th. On Twitter, mentions of the oil spill trended a total of 88 times, from May 2nd until July 2nd. The difference in attention given (in terms of counts) is statistically significant (t = 6.041). It is interesting to note that in this particular case, Google News searches actually indicate greater attention to the peripherally political information, whereas we might expect that Twitter would do so, since it is not an online venue specifically dedicated to sharing news and information. However, this story was so pervasive that even if it was only moderately political in nature, it was still big news in legacy media. Moreover, it is further worth noting that Google News continued to register mentions of the oil spill in its top 10 trends beyond the time at which oil spill mentions no longer breached the top 10 trends on Twitter. This is as expected by H3.3 - events should not persist as long on Twitter as they do in the traditional media. There have been ebbs and flows in the trending for both Google News and for Twitter, as can be seen in Figure 2, but generally attention has decreased over time, and fell off more quickly on Twitter.

Interestingly, there are substantial differences in the language used to refer to the oil spill in the different venues. While Google News searches heavily referred to "oil" and "oil spill," they also included references to the major company involved, British Petroleum, and to a particular technique attempted to stop the leak, the so-called "top kill." Twitter referred to neither of these more specific issues, but did refer quite a bit to the gulf oil spill, which did not trend on Google News searches. These differences in language suggest different treatment of or consideration to the issue in the different online venues (see Figure 3).

Table 3.2 Comparison of Oil Spill Attention on Google News and Twitter in Philadelphia and Houston

	Houston	Philadelphia	t-test Statistic
Google News	68 (0.06)	45 (0.16)	-4.968**
Twitter	100 (0.04)	5 (0.12)	-10.351**
t-test Statistic	5.766**	-6.393**	

Note: Numbers in each cell are counts

followed parenthetically by percentage

of content which was political.

* p<0.01

Because of the richness of the data, we can also consider how these trends play out in specific geographic areas. In the case of the oil spill, for instance, we might expect that a city on the Gulf of Mexico might be more concerned about the event and therefore engage in more searching for it (in the case of Google News) or sharing of information about it (in the case of Twitter). To test this, we may compare between a city thusly situated - Houston - and one less directly involved with the event - Philadelphia.[1] As can be seen in Table 2, this seems to be the case, but to varying degrees. In terms of Google News searches, Houstonians are statistically significantly more likely to search for oil spill-related terms than are Philadelphians (68 trend appearances in Houston vs 45 in Philadelphia). This difference, while substantial, pales in comparison to the difference seen on Twitter. In that venue, references to the oil spill trend in the top ten only five times in Philadelphia, whereas in Houston, they do so an astounding 100 times. This indicates the diversity of information sharing which goes on around the country, particularly depending on to what extent the community is invested in a particular event.

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[1]Houston and Philadelphia are otherwise rather similar cities, with roughly comparable populations (2.3 million verus 1.5 million), large minority populations (Houston is 47.2% white, Philadelphia is 41.6% white), and similar median age (33.5 compared to 35.6).

Timing of a trend

As a second effort to determine how the timing of trends occurs in traditional versus social media, I employed an alternative technique. Using the word-based data from Facebook status updates and wall posts, and Google web and Google News searches, I created a database in which numbers reflected normalized counts of the frequency with which people were posting about, or searching for, the four candidates for president and vice-president in the 2008 election. These data were compiled between June 2008 and December 2009.

I used these data to perform a Vector AutoRegression (VAR) time series analysis. VAR models allow modeling of endogenous variables over time. For each variable, an equation is created making the variable a function of its past values and the values (both present and past) of all other modeled variables. After estimating the VAR and testing for the appropriate number of lags, I then perform a series of Granger causality tests, which allow speculation into which trend follows which. This is particularly useful for this study, in that it would be helpful to have more information as to whether political information is picked up first. I specify separate models for each of the four candidates, with variables reflecting weekly Facebook wall posts, status updates, Google web searches, and Google news searches.

Figure 4 demonstrates the general trends of social media (exemplified by Facebook wall posts) and traditional media (exemplified by Google news searches) with regards to Obama over the period in question. Table 3 shows the Granger causality tests associated with the same data. Generally speaking, there is no clear trend in terms of Obama "catching on" in one medium or the other, as web searches predict wall posts and status updates, but status updates predict news and web searches. This suggests that neither social media nor traditional media has dominance over "getting there first" when it comes to political information. Stories may surface in either place, and catch on from there. Similar analyses were performed for Biden and McCain, with almost identical results.

However, the same analysis for occurrences of Palin was quite a different story. As can be seen in Table 4, wall postings regarding Palin significantly predict future Google web and Google news searches, but the reverse is not true. For the case of Palin, it seems that information surfaced in

Table 3.3 Granger Causality Test for Mentions of "Obama"

Equation	Excluded	Chi Square	Prob > Chi Square
Wall	Status	3.51	0.06*
Wall	News	3.59	0.06*
Wall	Web	6.86	0.01**
Wall	All	22.58	0.01**
Status	Wall	0.66	0.42
Status	News	2.98	0.08*
Status	Web	5.64	0.02**
Status	All	11.81	0.01**
News	Wall	1.13	0.29
News	Status	11.31	0.01**
News	Web	4.73	0.03**
News	All	26.46	0.01**
Web	Wall	0.22	0.88
Web	Status	8.00	0.01**
Web	News	6.71	0.01**
Web	All	31.14	0.01**

* $p < 0.10$

* $p < 0.05$

social media like Facebook, and was then picked up by or searched for in the mainstream media. It is unclear why this case is so different from the others, but it is possible that Palin's novelty as a new and relatively unknown candidate contributes to this difference. Future research should test this as a possibility.

Conclusions

The overall story that seems to emerge from the data is twofold. First, as expected, there tends to be less political information on Twitter than what people are searching for on Google News. On a national scale, the difference is consistently significant, with Twitter demonstrating less attention to both political and pseudo-political information.

However, the second part of the story is equally important. While there tends to be less political information on Twitter, there is such information - and enough to occur in the top 10 trends nationally, as well as in the five largest cities in America. Moreover, in some circumstances attention to a political trend achieves parity on Twitter, as in the case of the nomination of Elena Kagan to the Supreme Court. Future research should consider under what circumstances such parity is achieved - are those instances driven by elites on Twitter, or the general population? What sorts of events are covered most similarly in social media as compared to legacy media?

The simple existence of political information on Twitter has important consequences, in that the politically uninterested may not be as successful at opting out of politics entirely as some scholars have feared they would. Online consumers who use Facebook or Twitter for entertainment purposes or to stay in touch with friends may very well be exposed to political content they did not seek out. This fundamentally changes the portion of the population exposed to political information. Whereas in a high choice media environment prior to the advent of social media, users were able to opt out of politics almost entirely, creating a large information gap among the most and least interested (Prior 2007), evidence presented in this chapter shows that is no longer the state of the world. Political information is consistently present in social media, and across social media platforms, suggesting that users of such media - a majority of the U.S. population - are similarly

Table 3.4 Granger Causality Test for Mentions of "Palin"

Equation	Excluded	Chi Square	Prob > Chi Square
Status	Wall	3.45	0.06*
Status	News	1.10	0.29
Status	Web	0.28	0.60
Status	All	8.40	0.04**
Wall	Status	3.71	0.05*
Wall	News	0.50	0.48
Wall	Web	0.01	0.94
Wall	All	11.00	0.01**
News	Status	2.85	0.09*
News	Wall	7.19	0.01**
News	Web	1.08	0.30
News	All	8.85	0.03**
Web	Status	2.72	0.10*
Web	Wall	7.24	0.01**
Web	News	0.02	0.89
Web	All	10.66	0.01**

* $p < 0.10$

* $p < 0.05$

exposed to political information. Of particular note is the potential of this far-reaching dissemination of political information to reach the *least* politically interested - those who in models proposed by both Zaller and Prior are the least likely to be exposed to political information (Zaller 1992). The potential for political education, persuasion, and mobilization among this portion of the public is particularly great.

Moreover, some expectations we might have of how information is spread on Twitter and similar media may be misguided. While it was anticipated that Twitter would pay only immediate attention to a particular topic before moving on, in each of the case studies that was not found to be the case. Users on Twitter paid similar attention (as compared to legacy media) to the issue of Kagan's nomination, and relatively similar attention to the pseudo-political case of the oil spill in the Gulf of Mexico. It is possible that these cases are unusual in some way, but they at least suggest that certain topics can capture the attention of a less interested sector of the population for extended periods of time. Future research might consider the conditions related to attention to a topic on social media. Such conditions might include national attention via legacy media, niche public attention in the form of a particular issue or issue area, other news occurring over the relevant period, and the type of story itself.

Similarly, data from Facebook suggests that there is not a clear agenda-setting trend between the mainstream media and social media. Generally speaking, they pick up trends from one another, but there is no clear relationship of one consistently following the other. Of particular note here is that in some cases social media may actually *lead* legacy media in attention to a particular media topic. In the case of the emergence of Sarah Palin as a national figure during the 2008 election, this was the case, suggesting that under certain unknown circumstances, legacy media may actually follow public opinion as expressed via social media. Indeed, we see evidence of this as legacy media has recently made it commonplace to comment on social media (Wallsten 2010), as well as analyze it (Van Dongen 2012). Future research should consider the specific circumstance in which social media leads or follows legacy media.

Obviously this is not the whole story when it comes to the existence of and exposure to political information via social media. This study is limited by considering only the top 10 trends in only

two areas, which could potentially bias the results we see. It is unclear whether a wider universe of information would yield either more or less political information in either of the two venues, but future research should cast the net wider with regard to the informational flows considered.

Similarly, this study is limited to a relatively short time period, which could limit the understanding of trends. A wider time range will allow any short-term effects to dissipate, resulting in a clearer picture of the actual differences in the amount and persistence of political information on Twitter and in Google News searches.

The techniques of analysis used here, while appropriate, could be bolstered by employing further statistical techniques. These include developed metrics for comparing rank-ordered lists such as Spearman's rho and Kendall's W (Bar-Ilan, 2005). These measures allow for more sophisticated comparisons, taking into account differences in both content and rank over time.

Finally, further exploration is needed to determine to what extent the observed trends are unique to Twitter and Google News searches. Many other venues for purposive information seeking exist, including Wikipedia, other news aggregators, and political websites. Likewise, social media abound, and it is certainly possible that different patterns of information occur on Facebook, YouTube, and other online venues. Analyses of these other potential areas in which political information may be flowing online are an important step in understanding when and how incidental exposure to political information may be taking place.

Perhaps most importantly, these analyses must be extended in order to understand the effects of incidental exposure to political information online. Survey data have begun to examine the likelihood of such an occurrence, but experimental manipulations should also be employed in order to gain as pure an understanding of the acquisition, processing, and resulting effects of incidental exposure to political information.

This study represents an important first step in understanding how political information is flowing in areas of the Internet which are yet unstudied from such a perspective. While more work remains to be done, it now seems that as the Internet becomes more networked and people are in constant contact with one another, "opting out" of the political world may become increasingly more difficult. Chapter 4 will build on this by considering actual exposure at the individual level.

That is, how is the average user exposed to political information via social media? How often does such exposure occur, under what circumstances, and what does the content of the information look like?

Figure 3.1

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Figure 3.2

Figure 3.3

Language Used Referring to the Oil Spill in the Gulf of Mexico on Google News and Twitter

■ Twitter
■ Google News
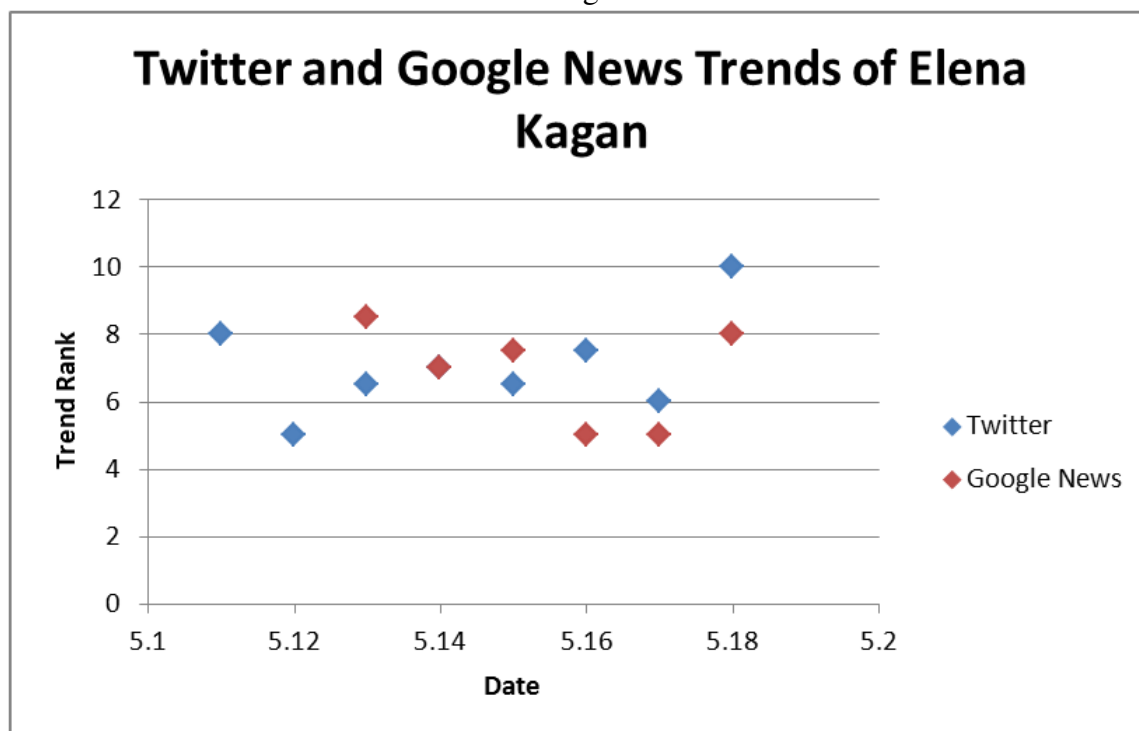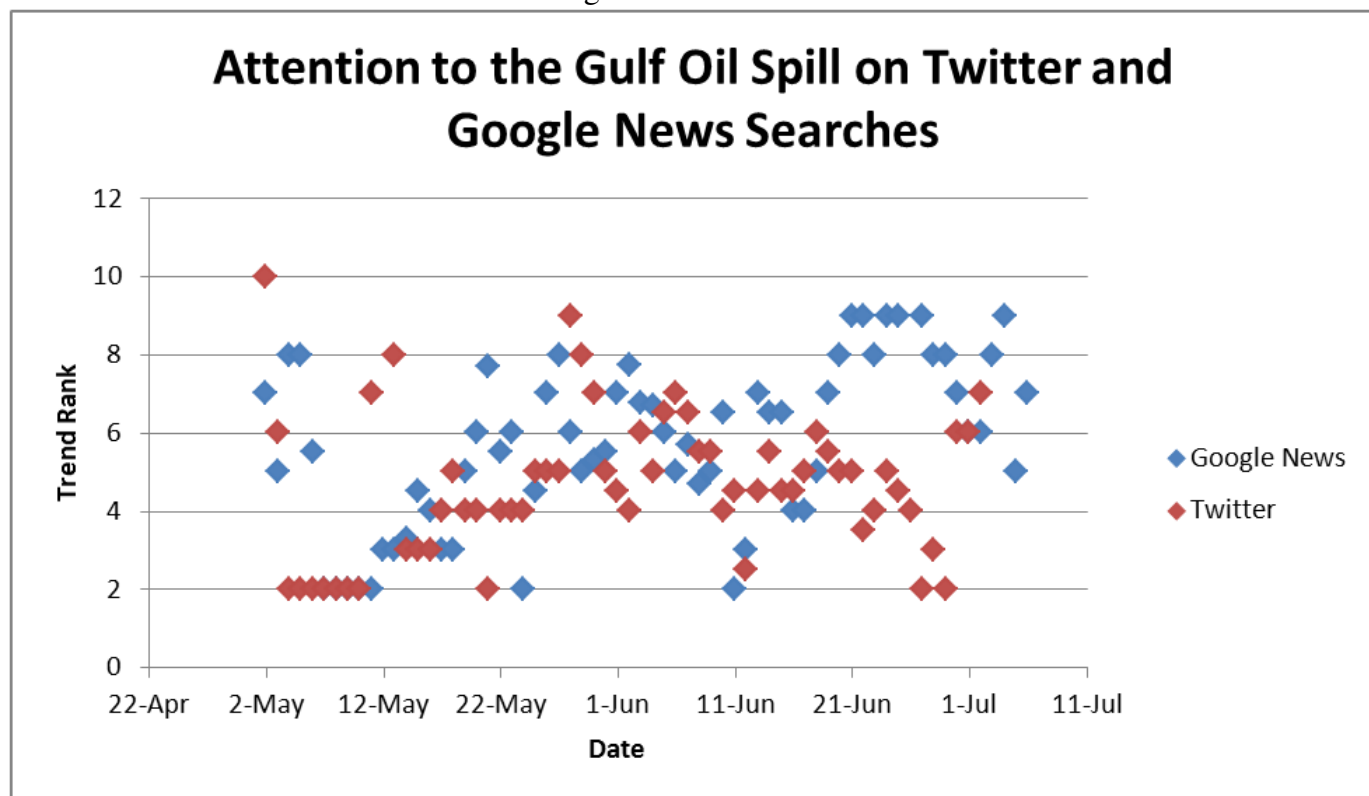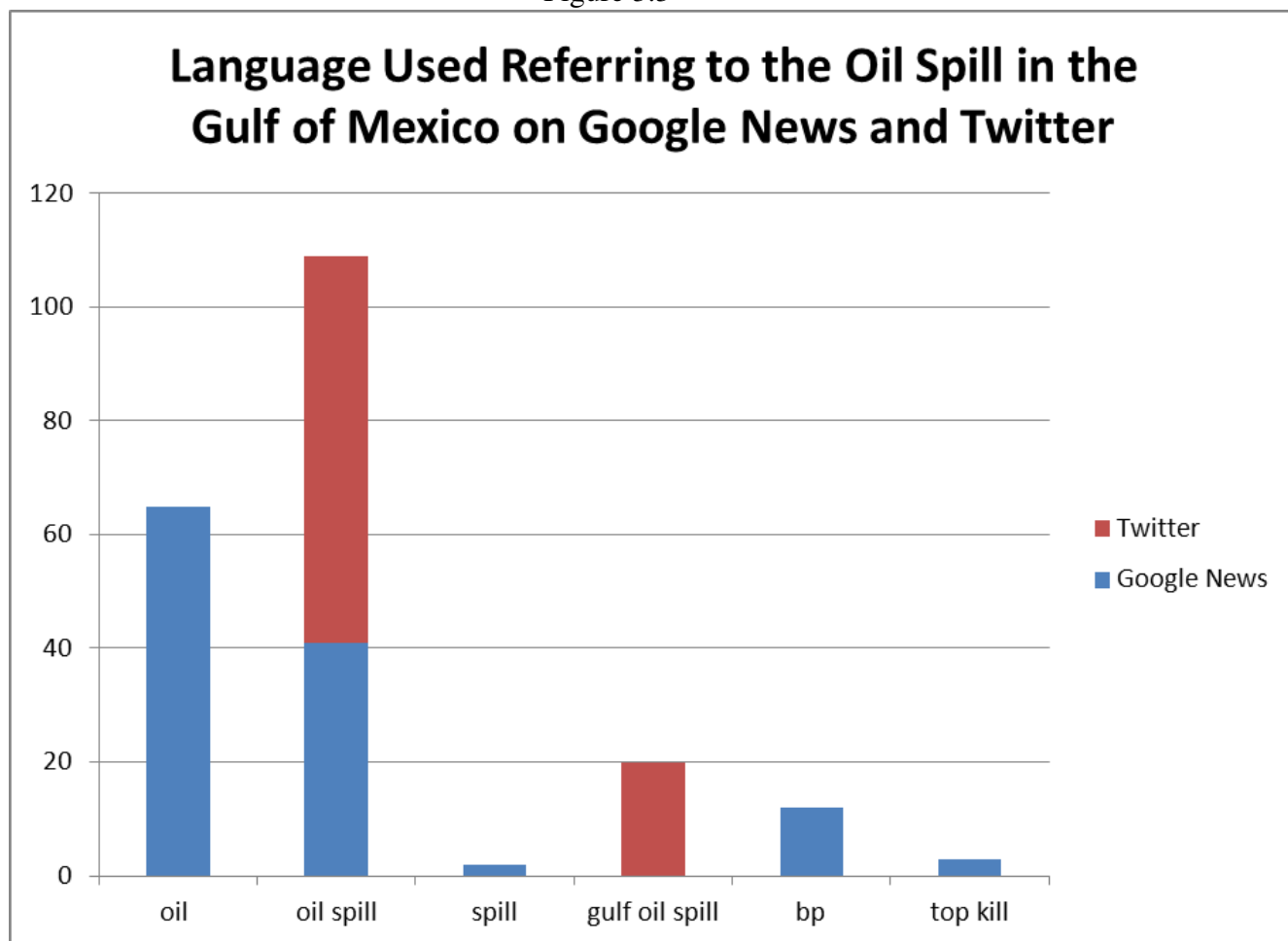
Figure 3.4 Facebook wall postings and Google News searches for "Obama"
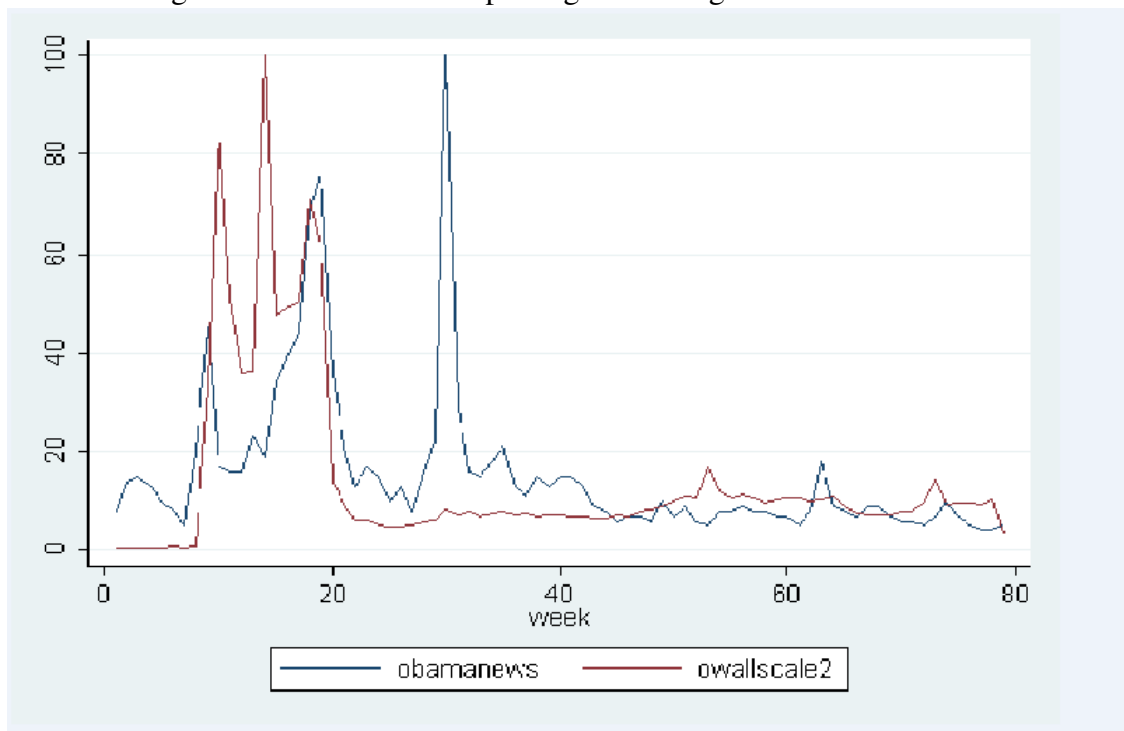
Chapter 4

Individual Exposure to Political Information via Social Media

Introduction

This chapter expands on the question of content and exposure. While Chapter 3 considered content and likelihood of exposure to such content from an aggregate level, considering social media flows of information as a whole, this chapter will consider similar topics but at the individual level. Specifically, I employ survey data to determine the frequency of exposure to political content for individual users of social media, as well as the nature of that content. This includes analysis related to whether the amount of political information to which a user is exposed via social media is contingent upon his or her interest in politics - a positive relationship would suggest that social media use is more purposive than incidental. Additionally I consider to what extent political information to which social media users are exposed is heterogeneous, as compared to that obtained via traditional person-to-person networks, and from the mass media, and whether heterogeneity of political information in social media is contingent on other factors related to individuals or the type of social media use in which they engage.

Fundamentally, in order for effects to be seen with regard to political knowledge or behaviors, exposure to political information must first be documented. User control directly affects the *content* to which a user is exposed. McGuire refers to this step as the "presentation" of information. In a high control environment, this is likely to very closely resemble the ideal content of the user, since she may customize it as much as she likes. In a low control environment, on the other hand, content may be wide-ranging in subject and scope and may veer far from the user's personal preferences for content.

Obviously, the content to which one is exposed has the potential to result in attention or inattention to the information. Attention paired with understanding or comprehension of the information in a context in which the recipient of the information is inclined to yield to that information can result in learning – retaining in some meaningful way information to which one is exposed via a media environment. For all these reasons, it becomes very important to consider the type and volume of content to which users are exposed via their social media use.

Expectations

Generally speaking, I expect analysis in this chapter to demonstrate that most users of social media are exposed to political information within that venue (H4.1). However, such exposure will vary by individual, and generally I expect that less of the content available within social media will be political in nature when compared to more traditional media sources (H4.2). Partially this is related to the overall volume of content within social media, and partially it is a function of the fact that we know the main reason people use social media is for social purposes (see Chapter 2). If less of the intent is political, we should expect less of the content to be political as well.

However, despite the fact that I expect most users to be exposed to social media, I further expect that exposure to be contingent upon the individual. Notably, I expect that the most politically sophisticated users should be exposed to political information via social media more often than their less informed or involved counterparts (H4.3). This is the pattern we see for general exposure to political information (see for example, Zaller 1992), and despite the partial control nature of social media, I expect this pattern to hold.

Finally, there is the question of the content of political information on social media. Notably, some scholars worry that such content will resemble an "echo chamber" - always confirming and never challenging previously held views of users. I challenge this notion. Because we know users join and use social media primarily for social reasons (see Chapter 2), their networks should not be selected specifically on political preference or affiliation. As a result, I expect most users of social media to be exposed to heterogeneous political content within social media (H4.4).

Individual Exposure to Political Information via Social Media

The first issue to address is simply how often social media users report being exposed to political information while engaging in social media. Although we have a sense of what this should look like, based on the aggregate analysis of political information flows in Chapter 3 (spiking when major political events occur, both on social media and in the mainstream media), we do not know how exposure varies for individuals or by medium.

Additionally, it is useful to note how often users are exposed to political information via social media, as compared with other more traditional media. While we think of legacy media as serving as conduits of political information, given that many of them are now either not used by the majority of the mass public (Pew Research Center for the People and the Press 2010, Public Policy Institute of California 2010), or used selectively, it is worth considering the extent to which people are exposed to political information in traditional media, as a baseline comparison for exposure via social media. Below you can see that respondents do feel they are exposed to political information more often from traditional media sources (Table 4.1). For newspapers and news websites, the means are over 7, and all other traditional media have means of at least 3.5 (scales are from 0 to 9). On the other hand, social media are less often cited as a frequent source of political information, with means of less than 4 and sometimes close to 1. This confirms H4.2 - that users of social media will report it as a sources of political information less often than more traditional media. It is also worth noting that more people cited social media as *never* serving as a source of political information than for any outlet of legacy media (as reflected by the N reported for each value).

Beyond these simple comparisons, it is useful to further consider self-reports of exposure to political information via social media. To do so, I employ several measures. First, in order for there to be political information in social media, users must generate such information. Thus it is useful to consider not only reports of exposure to political information, but also reports of generation of political information. Thus respondents were asked three questions about sharing political or pseudo-political content within their social media networks. First, respondents were asked "How often would you say you share news or current events stories on Facebook?" reflecting a tendency

Table 4.1 Frequency of Media Use for Political Information

	Mean	Standard Deviation	N
Newspaper	7.19	2.16	618
News website	7.17	2.03	615
Political blog	3.71	2.37	545
Television news	6.60	2.04	616
Talk Radio	4.70	2.36	574
Comedic news show	4.87	2.40	600
YouTube	3.37	2.11	549
Facebook	3.31	2.32	551
Twitter	1.80	1.98	519

Inverse Rankings Reported

to share news which may or may not be political in its nature. This reflects a general tendency to share information - apart from personal everyday information - within social media. Additionally, respondents were asked, "How often would you say you share political stories (whatever that means to you) on Facebook?" and "About how often do you tweet about politics?" to reflect the frequency with which they share specifically political information with their social media networks. Descriptive statistics of these measures are presented below, in Table 4.2.

As can be seen, a strong majority (71.2%) of users report sharing at least some news related to current events with their Facebook community. The proportion of Facebook users reporting doing so specifically with regard to political information is substantially lower, but still a large percentage of the population. 48.5% of users report sharing political information with their networks at least on occasion. Moreover, a non-negligible percent (20.7%) report doing so at least weekly, ensuring a steady supply of political information feeding social media networks. The numbers are similar, though slightly less, when considering the case of Twitter. 12% of Twitter users report tweeting about politics at least weekly, and 26.1% do so at least on occasion. These numbers are slightly higher than the aggregate numbers we saw in Chapter 3, which suggested about 5% of top Twitter trends reflect political topics. They reinforce the idea that social media is a venue in which political information is disseminated, increasing the likelihood that an average user will be exposed to political information within that realm.

The true purpose of this chapter, though, is to establish how often and under what conditions users are exposed to political information. The extent to which users are sharing political information is reassuring in that it suggests exposure should occur, but we have yet to measure actual exposure explicitly. Again, we rely on self-reports for this measure which has its share of problems, but apart from accessing private data within social media, is the best approximation we can get at this point. To indicate exposure to political information, respondents were asked, "How often would you say you see a political story (whatever that means to you) shows up on your News-Feed?" and could answer "multiple times a day," "once a day," "every couple of days," "about once a week," "less than once a week," or "virtually never." As can be seen in Table 4.3, relatively few respondents report seeing political information constantly, with only 7.5% reporting exposure

Table 4.2 Sharing Political Information on Social Media

	Multiple a Day	Once a Day	Every Couple of Days	Once a Week	< Once a Week	Never	N
News Facebook	4.1	8.4	19.0	14.2	25.3	28.8	604
Politics Facebook	1.0	2.2	7.5	10.1	27.8	51.5	604
Politics Twitter	0	1.1	7.6	3.3	14.1	73.9	92

Percentages Reported

multiple times per day. However, an additional 13.9% report seeing political information in their Facebook feeds at least once per day, and an impressive 61% are exposed to political information via Facebook at least on a weekly basis. Given that not everyone even checks their Facebook page on a daily basis, this is strong evidence that political information is flowing through most Facebook networks, at least with some regularity (confirming H4.1). Only a very small proportion of the survey sample suggested that they were exempt from such exposure (14.6%). Although this is an important and interesting minority of users to consider, it still seems that the typical Facebook user is exposed to political information at least occasionally if not more often.

The story is somewhat similar for Twitter, although the numbers drop a bit. Overall, much fewer people in my sample and in the United States at large use Twitter at all, but among those who do, exposure to political information seems to be less frequent on average than that for the typical Facebook user, with 46.7% of users reporting they are essentially able to avoid political information in their Twitter feeds. Interestingly, there are more people reporting multiple instances of politics occurring in their Twitter feeds each day (14.1%) than there are for Facebook (7.5%), suggesting that the distribution of exposure on Twitter is more bimodal. This makes sense, given what we know about Twitter - as a result of the lack of mutuality required for "following" behaviors, users are better able to tailor information feeds to their personal preferences, and feel less pressure to maintain any particular relationships via Twitter (see Chapter 2). Notably, for both Facebook and Twitter, users are *exposed* to political information more often than they report sharing it. This suggests that even those who are less interested in politics are still likely seeing political information from time to time via social media.

I was also interested in determining to what extent social media function as an important information source for users - that is, not only are they exposed to information, but also consider that information to be useful and/or novel. When exposed to information, do users find it helpful or useful, or is it simply something they skim over in search of baby photos or clever status updates? Moreover, is the specifically political information unique in that it varies from information users are exposed to in other media, and thus a more important source of information from a democratic normative perspective? While the data cannot speak to the question of why, if users perceive

Table 4.3 Exposure to Political Information on Social Media

	Multiple a Day	Once a Day	Every Couple of Days	Once a Week	< Once a Week	Never	N
Facebook	7.5	13.9	20.9	18.7	24.5	14.6	604
Twitter	14.1	13.0	9.8	6.5	9.8	46.7	92

Percentages Reported

Table 4.4 Facebook as an Information Source

	Very Frequently	Often	Sometimes	Rarely	Never	N
Information	13.7	30.5	31.3	20.5	4.0	604
Political Information	2.6	6.6	26.8	46.0	17.9	604
Percentages Reported						

Facebook as an important information source, that might suggest they are receiving additional information, tailored information to their individual network or cohort, or different information than that available via more traditional means of communication.

As can be seen in Table 4.4, most users suggest that Facebook is generally a useful source of information for them, with an overwhelming 75.5% reporting that Facebook serves as an information source at least sometimes, and only 4% reporting that it never plays such a role. The numbers are somewhat less when considering the special case of political information, with only 36% suggesting that Facebook is regularly a source of political information. But again, only 17.9% of respondents report that they would never consider Facebook to be a source of political information. This reinforces the idea that users are exposed to political information via social media, and that exposure is not necessarily limited to some portion of the population (such as the very politically interested) or certain specific circumstances in which political stories saturate the news (such as elections).

The Relationship between Political Sophistication and Exposure to Political Information

Equally important than simple frequency of exposure, however, is whether some types of users are more likely to be exposed to political information via social media, as compared to other users. Of particular note would be if the more politically sophisticated users were more likely to be exposed to political information than less politically sophisticated users. This would suggest that the network structure of social media reflects the "rich get richer" theory, and the political

information we witnessed in the aggregate flows of information on social media is present, but only being exchanged amongst those already interested in politics, and thus those already most likely to receive political information from other sources.

Despite a great deal of attention in the eighties and nineties (see for example Luskin 1987), there remains a fierce debate in the literature as to the appropriate way to measure political sophistication. Most commonly, work on political sophistication has considered political knowledge the most appropriate means of conceptualization (Delli Carpini and Keeter 1993, Goren 1997, Federico and Sidanius 2001). This captures the idea that those most informed about politics are best able to make political decisions, thus reflecting a higher level of sophistication. Others have considered a combination of knowledge and political interest, so as to capture a second dimension of political sophistication roughly reflecting motivation to engage in politics (Lau and Erber 1985, Hamil and Lodge 1986, Sidanius and Lau 1989). Still others have combined that same political interest with general education, presuming formal education to correlate with political sophistication (MacDonald, Rabinowitz, and Listhaug 1995). More complicated analyses have considered attitudinal consistency and stability (Wyckoff 1987, though this of course requires consideration over time), or various dimensions of sophistication including information, ability, and motivation (Luskin 1990).

Because this debate has gone unresolved, I choose to consider three conceptualizations of political sophistication when considering the possible relationship to exposure: political interest, political knowledge, and political talk. Political interest captures the idea of the individual motivated to be involved in politics, which is one type of political sophistication. Political knowledge is the classic measure of sophistication - reflecting those most objectively capable of making appropriate political decisions for themselves. And political talk reflects those most often actually engaging in the discussion of politics - a more practical real world conceptualization of political sophistication.

In any event, we might imagine any of these three components of political sophistication might drive the extent to which users of social media are exposed to political information. Those most interested in politics might tend to affiliate with other of similar interest (see for instance, Hafen, Laursen, Burk, and Stattin 2011), increasing their likelihood of exposure. Those most informed

about politics might be more likely to see politics when others see only current events, thus increasing not necessarily actual exposure, but reports of exposure. And those who choose to talk about politics with those around them might be similarly likely to have a heightened awareness of political exposure as opposed to those who do not. Thus it is important to examine all three measures, described below, in order to understand who is most likely to be exposed to political information via social media.

Political interest is a measure comprised of two items, asking respondents to what extent they agree or disagree with the statements, "I closely follow political issues" and "I am interested in political strategy" (strongly disagree = 1 to strongly disagree = 5) on item correlation = .91, mean = 3.55, SD = 1.03). Political knowledge is comprised of 9 items reflecting knowledge about political processes and current events. These include how many members of Congress serve in the House of Representatives, who is next in line for the presidency after the vice-president, how often an individual senator is up for reelection, which political party currently controls the Senate, which political party currently controls the House of Representatives, identifying the Democrat's position on the Bush tax cuts, identifying which party offered a "Pledge to America" outlining its 2010 policy platform, and identifying whether there was an election for senator in Wisconsin in 2010, and whether there as an election for governor in Wisconsin in 2010. These items were combined, where each correct answer received a point, and then the final score was divided by the total, creating a scale from 0 to 1 in which the mean was 0.69 and the standard deviation was 0.22. Political talk is a measure comprised of 4 items, reflecting a general tendency to talk about politics with others. Respondents were asked, during the past 6 months, how often have you, "talked about politics with family members," "talked about politics with friends," "talked about politics with people you don't know well," or "talked about politics with people that disagree with you" (1 to 5, "not at all" to "very frequently," α=0.83, mean = 3.00, SD = 0.82).

In the model estimating exposure to political information on Facebook, I further included two variables related to social media itself. First is a measure of how often a respondent shares political information with her network (for description, see above). We might expect this to serve as an

additional measure of political sophistication or interest, unique to social media.[1] This measure is included for the model estimating exposure on Twitter as well (reflecting how often a respondent tweets about politics). Additionally, I include a measure of reported Facebook network political heterogeneity (described in greater detail below) in order to determine whether the *amount* of political information to which one is exposed on Facebook is related to the *diversity* of the information.

In order to determine the type of person most likely to be exposed to political information, I estimated an ordinary least squares model predicting the key dependent variable of reported frequency of exposure to political information.[2] In addition to the variables already described, I include basic demographics (age, gender, and partisan identification), as well as media exposure variables, which might affect whether a respondent reports exposure to political information. Results are below in Table 4.5.

As can be seen, two variables of interest are worth noting. In the model estimating exposure on Facebook, political knowledge and sharing political information on Facebook are both indicators of reporting exposure to political information on Facebook. Notably, sharing political information on Facebook has the largest coefficient by far of any variable in the model. This could indicate one of two things. First, it is possible that those most likely exposed to political information are those already engaging heavily in political information (both discovering it elsewhere as reflected in political knowledge, and choosing to share it with their networks as well). Alternatively, it is possible that engaging in political information makes a respondent more likely to *recall* when asked about exposure to political information. In this interpretation, the correlation between knowledge or political sharing and exposure on Facebook is somewhat spurious. Unfortunately, without actual data from private Facebook pages, we cannot know for sure the extent to which respondents are actually exposed to political information in that realm.

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[1]Though it is worth noting that those most likely to share political information might be disproportionately likely to recall exposure to such information, and we thus may be measuring a tendency to report rather than a tendency to actually see political information in social media.

[2]The dependent variable, with 6 categories, roughly approximates continuity, and OLS is a robust estimation. However, to ensure appropriate estimation, I also estimated an ordered logistic regression, not reported. Results are similar (though occasionally losing significance, presumably from an issue of power) and thus I report from the OLS estimates for ease of interpretation.

Table 4.5 Ordinary Least Squares Regression Predicting Exposure to Political
Information via Social Media

	Facebook	Twitter
Gender	0.14 (0.11)	-0.60 (0.30)*
Age	0.01 (0.03)	-0.01 (0.08)
Democrat	0.01 (0.10)	0.19 (0.28)
Newspaper News	0.07 (0.04)*	0.08 (0.10)
TV News	-0.07 (0.05)	-0.49 (0.15)**
Online News	0.08 (0.05)	0.55 (0.12)**
Political Talk	0.09 (0.09)	-0.26 (0.25)
Political Knowledge	0.62 (0.31)*	-0.91 (0.98)
Political Interest	0.10 (0.07)	0.21 (0.18)
Share Politics on Social Media	0.54 (0.06)**	1.22 (0.16)**
Coefficients reported;	SE in parentheses	
* $p < .05$	** $p < .01$	

The model estimating exposure to political information on Twitter is similar, with sharing political information on Twitter playing a similarly large and significant role in predicting reported exposure to political information on Twitter. Other variables reflecting political sophistication do not reach significance, but additional control variables do seem to play a role in political exposure on Twitter. Both television news and online news consumption play a role in predicting exposure to political information, though interestingly, television news use negatively predicts exposure. Additionally, gender seems to play a role in predicting exposure to political information on Twitter, with females reporting greater exposure than males.

Overall this suggests modest support for the "rich get richer" paradigm - those most likely to report exposure to political information via social media are those already receiving political information from other sources (in order to share political information, you must have already been exposed to it elsewhere). This is not necessarily the most politically interested, but it is at least those knowledgeable with regard to politics, and willing to engage in politics with others in the social media environment (providing support for H4.3).

Heterogeneity of Political Information in Social media

There are also major concerns related to the type of political information to which social media users might be exposed. Namely, scholars have been concerned that social media might be the ultimate "online echo chamber" - a realm in which people are only exposed to confirmatory information (Sunstein 2007, Wallsten 2005, Adamic and Glance 2005). In such an environment, essentially the entire information environment consists only of agreeable or like-minded information. As a result, views are never challenged, and thus tend to be strongly reinforced. This can result in political polarization and decreased tolerance of oppositional viewpoints (Gil de Zuniga, Veenstra, Vraga, and Shah 2010, Stroud 2006, 2007). In a low choice environment, on the other hand, where content is likely to be much more diverse and incidentally obtained, users are much more likely to be exposed to cross-cutting viewpoints (Mutz 2002), and such exposure tends to increase tolerance and understanding (Mutz 2006; Huckfeldt, Morehouse Mendez, and Osborn 2004).

Evidence from survey research, however, suggests again that social media resemble a lower choice information environment. To ascertain the extent to which users are exposed to divergent political viewpoints via social media, they were asked a series of questions related to their social media network. First, they were asked to estimate what proportion of their Facebook friends fit into each of the following categories: family, very close friends, current friends, past friends, acquaintances, and people you've never met in real life. Descriptive statistics of these measures are included in Table 4.7. The extent to which Facebook friends fall in the former three categories as opposed to the latter three categories likely reflects the tightness of one's network on Facebook. Networks composed primarily of close and current ties are likely to be more similar to a user than are networks comprising more former and loose ties. This would suggest that users reporting more distant ties would be more likely to be exposed to heterogeneous political opinions, as compared to those whose networks are built more on close and current ties. Put simply, an acquaintance from your past is less likely to share your views than is your best friend.[3]

As can be seen in Table 4.6, Facebook communities are made up of all 6 categories of relationships. Most commonly respondents report their networks are composed of loose ties - current friends (45.11%), acquaintances (29.28%), and past friends (23.09%), with smaller percentages reflected as family (5.71%) or very close friends (18.64%). This composition suggests that opinions expressed within these networks should be more heterogeneous than those in less dispersed face-to-face networks.

Indeed, we see this directly, in measuring the perception of political disagreement in one's network. Along those lines, respondents were asked, "To what extent would you say are most of your Facebook friends similar to you in terms of political preferences or ideology?" Responses varied from "Almost all of my friends agree with my political preferences" to "Almost all of my friends disagree with my political preferences," on a 5 point scale.

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[3]This is, however an empirical question. When we aggregate the first three categories (close network ties - mean = 23.15, SD = 16.68) and the second three categories (distant network ties - mean = 19.67, SD = 21.36), neither of them correlate very well with reported political heterogeneity of one's network (See Table 4.7), as described below. This suggests either that users misperceive political affiliations of their networks (See, for example, Mutz and Martin 2001) or that closeness of the network is simply not related to diversity of political affiliation.

Table 4.6 Political Heterogeneity of Network and Closeness of Network Ties

Political Heterogeneity			Network Ties
Almost all agree	1.2	5.71	Family
Most agree	24.3	18.64	Very Close Friends
Some agree	66.7	45.11	Current Friends
Most disagree	6.5	23.09	Past Friends
Almost all disagree	1.3	29.28	Acquaintances
*	*	6.63	People You've Never Met
Percentages reported.			

Heterogeneity of exposure to political information, it is worth noting, is a complicated concept to measure. A debate exists as to whether it is more appropriate to determine the *actual* amount of heterogeneous information to which users are exposed, or simply their *perceptions* of the heterogeneity of such information. This represents a challenge of measurement for my purposes. I come down on the side of self-reports for two important reasons. First, it is simply more practical to use such a measure. Alternatively I would have to collect actual content from social media, which presents a challenge for any social media platform which allows for private shielding of information (this would include Facebook). While this is possible for more public social media (such as Twitter), there is still the second reason for using self-reports. Conceptually speaking, it may be more important whether a user feels she is being exposed to diverse content, rather than how objectively diverse researchers would deem it to be. For example, a user might be a Democrat and have a network primarily composed of Democrats, which traditional scholarship would determine to be relatively homogeneous. But the user might be exposed to conservative and liberal Democrats, who at times may disagree vehemently (and publicly, via social media) on political issues. As it is said, "To the sheep, all sheep look alike" (Franklin 2012). When asking users to report whether the other users in their network agree with their political preferences, I hope to capture both those who fit our traditional understanding of divergent political content as well as those who may see difference or disagreement where we would not.

As can be seen, users generally report exposure to a variety of viewpoints. Very few respondents report either near-complete agreement or near-complete disagreement (1.2% and 1.3% respectively). The vast majority of respondents, on the other hand, report their networks fall somewhere in the middle - ensuring they are exposed to both sides of the political spectrum (indeed, a full 66.7% chose the middle category). This provides strong confirmation for H4.4. Facebook networks are likely more diverse than typical face-to-face networks, simply because they are much much larger. Whereas people can generally only maintain a certain number of relationships in the offline world (see, for example, Gladwell 2000), Facebook networks lower the costs related to relationship maintenance, and thus the average Facebook network consists of approximately 120

Table 4.7 Political Heterogeneity of Network and Closeness of Network Ties

	Loose Network	Close Network	Political Heterogeneity
Loose Network	1	0.43*	0.07
Close Network	0.43*	1	0.03
Political Heterogeneity	0.07	0.03	1

Correlations reported.

 * p< 0.01

people (Sandberg 2009). As a result, some of those are likely to have divergent political viewpoints. Moreover, because of the social obligations related to friend choice in social media (as seen in Chapter 2), users may include people in their network with whom they disagree politically, but engage with socially.[4]

This finding has recently been confirmed by two other studies (conducted after my own). First, Facebook recently conducted a study which concluded that, although users are most likely to share information offered to them by close friends, they still do share information from weaker ties (Bakshy 2012). Again, weaker ties are less likely to agree with a user, ideologically speaking. Thus the study found that information distributed via weak ties is the type of information people would be less likely to see at all, if it were not for the social media network facilitating it. As a recent article reporting on the study put it, "Social networks...could be breaking you out of your filter bubble rather than reinforcing it" (Manjoo 2012).

Additionally, Pew Internet & American Life has just released a study reinforcing my findings that the vast majority of users have politically heterogeneous networks, and are very unlikely to unfriend people for political reasons (Pew Internet & American Life 2012).

[4]It is also worth noting, that when heterogeneity is included in the model estimated in Table 4.5, reported heterogeneity of Facebook network does not predict the likelihood of exposure to political information within that realm.

Conclusions

The findings of this chapter are somewhat mixed. On the one hand, it seems that those most likely to report exposure to political information via social media are also those most likely to be sharing similar information within the same venue. This is the classic "rich gets richer" argument. Although the potential is there for new users to be exposed to political information, and the vast majority of users report exposure to political information via social media on a regular basis, perhaps the networks comprised of politically interested individuals are those in which actual exposure occurs most frequently.

On the other hand, users report surprisingly diverse networks through social media. Whereas homophily is the norm in smaller, face-to-face networks, Facebook and similar platforms allow the generation and low-cost maintenance of much larger networks, facilitating maintenance of ties with divergent viewpoints. This suggests, at least, that social media are not the echo chamber some scholars have worried about. Users exposed to political information within these realms are likely seeing a variety of views and ideas expressed.

The combination of these two findings - that users are generally exposed to political information and that information is likely heterogeneous - is good news from a normative perspective. Social media represents a new political information source, and one which is able to bypass the selective exposure-related problems typical of other new media like cable television and the Internet writ large. Whereas in those venues, users are self-selecting into agreeable information, in social media the exposure is more incidental and more heterogeneous. Those that feel exposure to disagreement is important for a healthy citizen and a healthy democracy should be encouraged by the role of social media in America (Huckfeldt, Johnson, and Sprague, 2004, for example).

This study is most limited by the general problems associated with self-reports. Of particular note is the issue that we cannot fully disentangle the extent to which users are *actually* exposed to political information within social media, as opposed to simply reporting such exposure. This is particularly problematic, since many of the variables of interest could work by either promoting

actual exposure or promoting recall of such exposure. Ideally, we would mitigate this by considering actual social media content, but that is only possible in certain types of social media - that is, only those that are publicly available. Still, future research should endeavor to consider exposure to political information via social media in a variety of ways, in order to test the robustness of the effects described here. Qualitative data paired with social media content might be the most fruitful means of understanding what exposure to political information via social media looks like for a variety of social media users.

Similarly, self-reports regarding the diversity of political information to which users are exposed are likewise problematic. Future research might supplement this analysis by considering publicly available social media content (i.e. Twitter), in determining the extent to which political information flows on social media are truly heterogeneous.

Exposure to political information is an important step in understanding if and how social media functions as a source of political information for its users. However, exposure is only part of the question. In the following chapter, I will begin to consider the effects of such exposure, beginning with determining if and how exposure to political information via social media results in learning of such information by its users.

Chapter 5

Learning Politics Through Social Media

Introduction

In high control media environments (satellite television, personalized websites, RSS feeds), users can control the information to which they are exposed almost entirely, which lowers barriers to accepting information, and tends to result in active learning on the part of individuals exposed to political information. In low control environments on the other hand (1950's television, broadcast commercials), users have very little control over the information to which they are exposed, and thus tend to be exposed to a much greater variety of information. Because exposure is incidental, learning tends to be less active, but still occurs even when users are unaware of it. Notably, users tend to be more accepting of information in low control environments, where exposure is incidental and learning tends to be passive (Krugman and Hartley, 1970).

Social media, however, is one of various environments in which control is not high or low, but rather *partial*. In social media, users often choose to use to participate in the media itself for non-political (usually social but also informational) purposes. However, once they have opted into a particular medium and its corresponding network, they may be exposed to information they did not seek out or care to see (potentially including political information). In this way, social media resembles a low control environment. However, social media allows greater customizability than do most low control environments. For instance, on a social network site, if another user is exposing you to information you do not care to see, you can simply remove that user from your network (generally referred to as "unfriending"). Moreover, the very act of building one's network represents quite a bit more control than a low control environment. Having said that,

there are often reasons why social media users would refrain from customizing incoming content to this extent. Friends and family you might choose to connect with for non-informational reasons, for instance, may occasionally post information you would rather not see. Even though your underlying preference may be against exposure to such information, you may feel compelled for social reasons to retain these people within your opt-in social media network, thus continuing your exposure to information you would never seek out yourself.

Previous chapters have established that exposure to political information does take place within social media, and that users are aware of and (sometimes) take advantage of the partial control they may exert over information flows in the social media realm. However, because little scholarship exists on partial control media environments, it is unclear whether these facilitate learning of political information at all, and if so what implications that has for higher levels of political involvement, including preference formation, political activism, and voting behaviors. Beyond that, we have few expectations as to whether users might engage in active or passive learning of political information to which they are exposed via social media. Moreover, learning from such information is likely contingent on the degree of control users exert, their perceptions of the information to which they are exposed, and the interest they have in politics. This chapter addresses these issues by considering to what extent and under what circumstances users may learn from information, and especially political information, within the social media environment.

While we cannot directly test whether users engage in active or passive learning, we can test to what extent they absorb political information. Users in low control environments, when incidentally exposed to information, have fewer barriers in place keeping them from absorbing such information, and thus learning is "typically effortless, responsive to animated stimuli, amenable to artificial aid to relaxation, and characterized by an absence of resistance to what is learned" (Krugman and Hartley, 1970, 184). On the other hand, users of high control media environments, especially those engaging in selective exposure, are likely to have greater barriers in place with which to evaluate any information to which they are exposed. Generally speaking, agreeable information is accepted and disagreeable information is rationalized or rejected (Westen 2007). Given that we know social media users tend to be exposed to heterogeneous information (see Chapter 4),

they are less likely to be in a selective exposure mindset, and more likely to be exposed incidentally to new or novel information. Thus, we would expect that accrual of political information in this setting is an indication of more passive learning.

Moreover, more than any particular type of learning, a fundamental question is whether users of social media learn at all from the political information to which they are exposed. Theoretically, learning may be amplified, depressed, or may occur as it does in other informational exchanges.

On the one hand, users are encountering specialized information within the realm of social media. This is information that they have opted into by creating a network of known others, who then select information to be shared. Thus it is likely to be information of greater interest to the user than information encountered in the mainstream media, for instance. As we know from studies on person-to-person networks, this information is more likely to be trusted since it comes from intimate others (Huckfeldt, Beck, Dalton and Levine 1995). Thus learning from this information might be amplified, since the information is considered more useful and personally relevant than information acquired elsewhere.

On the other hand, users of social media may actually learn less in this context. Perhaps social media offers little new information, or the information it does offer is passed over in favor of more personal information on friends and family. Who wants to linger on a story about the deficit, after all, when there are baby pictures to be seen and Las Vegas vacation updates to be read? Moreover, because social media is "softer" than traditional media, information to which users are exposed may be written off as unimportant or unreliable, and because it comes from a single individual rather than an established institution it may appear biased.

Expectations

Broadly speaking, I expect that social media users exposed to political information will retain it in a meaningful way. Essentially, I expect that social media users will learn from the political information to which they are exposed (H5.1). Because social media functions as a partial control media environment, barriers to learning should be lowered, thus facilitating learning to take place.

Additionally, I expect this learning to be contingent on a variety of factors related to the information itself, as well as the sophistication of the user. Informationally, I expect learning to be related to interest in the information, novelty of the information, and trust in the information (H5.2). These factors should further lower the barriers and increase motivations for learning for the users exposed to such information. Moreover, less politically sophisticated users should be *more* likely to learn from exposure to political information, as they are less likely to already have a baseline of political knowledge (H5.3).

Perceptions of Information Accrued via Social Media

It is first important to consider how social media users perceive the information to which they are exposed. Do they believe the information their friends are posting? Do they consider it more or less biased, reliable, and trustworthy? Is it generally good at breaking down complex problems into simpler ideas? Because it comes from friends rather than institutions, is it especially relevant to users' lives? All of these questions and others might affect to what extent users accept or reject the information to which they are exposed while using social media. Thus I will consider each in turn, and further consider to what extent perceptions of information increase or decrease reported information gains from social media use.

In order to consider this set of questions, I employ novel survey data collected by the author in the Spring of 2010 (for more information on the details of these data, see Chapter 2). Within the realm of social media, I include political information obtained from three separate social media outlets: Facebook, YouTube, and Twitter. A number of measures are important to compare when considering how users perceive the information to which they are exposed via their social media use. While any number of concepts could be employed, I focus on classic measures of credibility (reliability, trustworthiness, and unbiasedness), and various concepts that might make information from social media somewhat different than information obtained from other media (Heesacker, Petty, and Cacioppo 1983; Markham 1968). Relevance to one's own life, for instance, might offer a particular advantage to information gained from social media use, as it may seem more important or more useful to an individual user. The ability to simplify complex problems might

similarly be useful to social media users - because mainstream media sources aim for the middle of an audience, some concepts may be over viewers'/readers' heads. Friend-to-friend postings on social media may therefore be more accessible to those less informed on any given concept. Social media may also offer information outside of the mainstream, in a way that traditional media cannot due to audience concerns. Thus while you may get a particular perspective from television, newspapers, and even blogs, social media has so many contributors, it may have the ability to provide unique information in a way that legacy media cannot. Finally, we might imagine that the perceived usefulness of information obtained might play a role in the extent to which learning occurs within social media. This could go either way - users might find information they encounter within social media to be more useful than that of the mainstream media, for many of the reasons described above, or might find it less useful, for reasons of format, subject matter, or credibility.

Reported values are from respondents, who were asked to rank each political information source on each of the seven measures, with "1" representing the best example of the quality, and "9" representing the source a respondent considered to least exemplify the quality. Thus lower means reflect more positive evaluations of the medium or source in question. Those who reported never gaining political information from a source are not included in the reported means. Because there is no inherent meaning in a scale from 1 to 9, I focus on comparisons between information sources, rather than the overall score given to social media by users.

The general trend we see from Table 1 is that traditional media score higher on each of the informational assessments. The differences are sometimes negligible - as in the case of uniqueness of information - and sometimes quite large - as for the three measures of credibility - but for each of the seven measures, political information acquired via social media scored poorly as compared to assessments of political information obtained from more traditional media sources. For individual social media sources, YouTube is generally ranked the highest, followed by Facebook and then Twitter.[1]

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[1]Interestingly, the variance tends to be quite high for social media sources, especially compared to that of more traditional sources of political information. This suggests that, while on the whole, users tend to think traditional media are more reliable, relevant, and useful, there is some portion of the population in disagreement on these issues.

Table 5.1 Perceptions of Information Obtained from Various Outlets

	Newspapers	News Websites	Political Blogs	Television News	Talk Radio	Comedic News Show	YouTube	Facebook	Twitter
Relevance	3.02	3.50	5.77	3.59	5.07	4.60	6.01	5.48	7.19
Reliability	1.93	2.71	5.46	3.49	4.25	5.73	6.50	6.95	7.90
Trustworthiness	1.96	2.80	5.55	3.60	4.34	5.60	6.46	6.84	7.68
Unbiasedness	2.37	2.95	6.29	3.94	4.67	5.61	6.01	6.50	7.29
Simplifying Problems	3.69	3.71	5.42	3.49	4.89	4.22	5.73	5.92	6.94
Uniqueness	5.10	4.95	4.40	5.26	5.22	3.13	4.63	5.12	5.76
Usefulness	2.22	2.74	5.29	3.42	4.48	5.40	6.38	6.69	7.72

Exploratory factor analysis of the various assessments generally reveals two main underlying dimensions on which users are evaluating social media as political information sources, reflecting the same basic pattern seen in Table 5.1. Generally users evaluate in terms of general credibility, including relevance, reliability, trustworthiness, unbiasedness, simplifying complex problems, and general usefulness. The exception in terms of evaluation of Facebook as a political information source is uniqueness of information. Recall that social media did slightly better than average on this dimension as compared with other information sources. For YouTube, evaluations of uniqueness of information factor with the source's ability to simplify complex problems. YouTube's unique niche within social media - it is the only social media case examined here to offer almost exclusively video content - may explain this finding. Video has the ability to combine audio and visual, which may aid in breaking down difficult ideas into their component parts in a way in which merely text, as is commonly found on Facebook and Twitter, cannot. Twitter breaks the pattern of a two factor solution, in that there is only a single dimension underlying users' evaluations of Twitter as a political information source. Of course, for any social media, evaluations are contingent upon one's own network, but this may be especially true for Twitter users (Recall from Chapter 2 that Twitter users opt in and out of information streams quite easily). Thus it is possible that unique network attributes directly influence all evaluations of the medium.

A Simple Test of Learning: Experimental Evidence

There are various ways to approach the question of whether or not social media users learn from their exposure to political information in that venue. Scholars from different disciplines, eras, and methodological backgrounds have come at the question of learning from a multitude of angles (See for example, Hilgard 1948; Neisser 1982). It is a difficult question that is perhaps best served by employing various methods and tests, in order to see whether a pattern of results might emerge. Along those lines, the remainder of this chapter will offer several tests for whether learning of political information occurs from exposure via social media, as well as what factors impact such learning.

The most straightforward approach to the question of whether such learning occurs is basic recall of information. If we know social media users are exposed to a particular piece of political information, and they can later recall detail from that information, that suggests learning of political information can take place within social media. In order to isolate a particular instance of exposure, I created a survey experiment in which respondents were exposed to a simulated Facebook Newsfeed. An experiment has the advantage of taking the question of actual usage level of social media, which varies dramatically, out of the picture. While such use is important for some understandings of learning, the first question to consider is simply whether information to which users are exposed within the realm of social media has the ability to "stick" in their minds, to be recalled at a later time. This is a necessary condition in order to have pieces of information available from which to draw conclusions or create attitudes (Zaller 1992).

The Newsfeed featured 12 various typical Facebook entries - status updates, news stories, video links, picture postings - with names and photos blurred so as not to indirectly influence any perceptions of content. Respondents were randomly assigned to either a control group or a treatment group, by means of the day of the month on which they were born. For the control group, the Newsfeed included a story with a link to a news story from CNN.com offering video of the flooding in Mississippi that occurred in May of 2011. The headline reads, "Record flooding to linger in Mississippi city," and it is posted with an accompanying comment, stating, "Check out this video of Mississippi flooding. Worth watching." Details under the headline read, "The flood-swollen Mississippi River held at historic levels at Vicksburg early Thursday - a status it's not expected to relinquish for days." The treatment group included the same postings in order, but instead of the flooding story, it included a story from CNN.com offering video of a speech by President Obama. The headline reads, "Obama to lay out post-Arab Spring vision," and is accompanied by the simulated poster's comment of "Check out Obama's speech on the Middle East. Worth watching." Details under the headline read, "In the wake of the Arab Spring protests across the Middle East and North Africa, President Barack Obama will pledge U.S. economic assistance to Egypt and Tunisia on Thursday in a speech highlighting his administration's revised policies toward the

changing region." Both stories are reported to have been posted 2 hours ago. See Figures 5.1 and 5.2 for partial images of the simulated Newsfeeds.

The Obama story was chosen as a treatment for several reasons. First, although President Obama is by no means a non-polarizing figure, it is likely that given his leadership role, partisans from both sides of the aisle and non-partisans alike would acknowledge the importance of presidential speech. Moreover, as the president he is an acknowledged political elite, and thus any speech he gives is inherently political. Thus there is no question that this posting constitutes political information, whereas the control story has no political references or obvious implications, and thus is not political information. Both stories were also chosen to be legitimately current events at the time of the fielding of the experiment, and thus more likely to offer new information to respondents, increasing the likelihood that tests would reveal experimental effects, rather than previously held knowledge.

Respondents were obtained from a panel recruited by SurveyMonkey, consisting of a nationally representative sample of American adults. The experiment was fielded online over a period of five days, from June 2nd to June 6th, 2011. 904 respondents began the survey, resulting in 689 completed questionnaires, representing a completion rate of 76.2% . Respondents answered a series of questions, and were then randomly assigned to the control or treatment stimulus based on the day of the month on which they were born[2] (randomization was effective, statistics are provided in Table 5.2 below). Respondents were shown the simulated Newsfeed appropriate to their assignment, and asked to browse it as they would their own Newsfeed. All questions relating to the stimulus asked respondents to "Please answer the questions as if the content came from your own Newsfeed."[3]

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[2]This is a typical method for randomization, particularly in medical trials, as day of the month should have no relationship with any other characteristic of the respondent. See for example Altman and Bland 1999.

[3]I am immensely grateful to SurveyMonkey for facilitating the collection of these data, and to Dhavan Shah, for facilitating the interaction with SurveyMonkey.

Table 5.2 Effective Randomization to Condition by Demographics

	Race (% White)	Hispanic	Gender	Education	Ideology
Exposed to Flooding	0.77	0.05	1.33	3.61	4.30
Exposed to Obama	0.76	0.05	1.35	3.57	4.35

Recall

The most basic test of learning is simple recall - the ability to retrieve information at some point after one is exposed to it (Neisser 1982). In the case of social media, to some extent this is a question of whether users are able to differentiate between postings, and whether they absorb the information to which they are exposed in a casual, primarily social environment. Two questions are thus of particular interest - first, whether users recall information to which they are exposed at all, and second, whether recall occurs at different rates dependent upon the type of information to which users are exposed. Results are reported in Table 5.3, below.

First it is worth taking a look at the baseline condition - being exposed to a neutral news story. In this case, respondents were exposed to a link to a CNN.com video and story regarding flooding in Mississippi. A large percentage of respondents exposed to the baseline condition were able to accurately recall exposure to such a story, with 67% reporting basic recall of the story. An additional 33 respondents who were *not* exposed to the baseline condition reported remembering the story, for a false positive rate of 9.2%. This rate is sufficiently low so as to indicate respondents are not reporting having seen a story simply for social desirability reasons. The baseline condition thus suggests that people at least have the potential to learn from information to which they are exposed in social media.

I was further interested in testing whether recall rates varied depending on the type of infor- mation to which respondents were exposed - namely, whether they were exposed to political or

Table 5.3 Recall of Information Obtained from Various Outlets

	Recall Flooding	Don't Recall Flooding	Don't Know	Recall Obama	Don't Recall Obama	Don't Know
Exposed to Flooding	241	99	21	29	308	24
Exposed to Obama	33	299	28	289	64	7

non-political information. Thus a comparison between the baseline and treatment conditions is appropriate. Of those exposed to the treatment condition, 80.3% reported recalling the story to which they were exposed. An additional 29 respondents reported recalling the Obama story among those who were not exposed to the story, for a false positive rate of 8.0%. These differences are quite large - respondents exposed to the political story were much more likely to report viewing it than were those exposed to the non-political story able to report viewing it - and they are statistically significant, suggesting confirmation of H5.1 ($F=70.1$, $p>.01$). This suggests that even if users are not exposed as frequently to political information, it may be more memorable and thus more likely to be retained.

Recall of Details

Respondents who reported seeing the story to which they were exposed were further asked to provide any details they remembered from the post in question, using a free response field. Specifically they were asked, "What do you remember about that story? Please list any words or phrases reflecting the story you remember seeing involving President Obama" or "What do you remember about that story? Please list any words or phrases reflecting the story you remember seeing involving flooding in Mississippi" depending upon their answer to questions asking whether they recalled each of the stories. This is a further test of recall and learning that may take place in the realm of social media. Not only recalling a story, but being able to offer additional detail about that story is an indication of greater learning. This can further demonstrate whether people are more or less likely to retain details related to a political story, as compared to a non-political

Table 5.4 Detailed Recall of Information Obtained from Various Outlets

	No Recall	Some Recall	Detailed Recall
Exposed to Flooding	167 (46.3%)	194 (53.7%)	74 (20.5%)
Exposed to Obama	189 (52.5%)	171 (47.5%)	101 (28.1%)
Total	356	365	175

story, when exposed to it via social media. They might be prone to ignore it given the location, or its novelty as a different sort of social media posting might stand out, prompting *greater* recall.

As can be seen in Table 5.4, there are interesting differences in level of detail recalled, depending on whether respondents were exposed to the political story or the non-political story. A greater number of people exposed to the political story were unable or unwilling to offer additional detail (above recalling the story itself), by a relatively large margin (these include people who skipped the question on detail recall, or offered statements such as "don't know" or "just saw it"). This might suggest that political stories are less memorable than other types of stories to which users may be exposed within the realm of social media. However, among those who did offer further detail, a greater number who were exposed to the political story were able to offer a great deal of detail, as compared to those exposed to the non-political story 28.1 % of users exposed to the political story were able to offer substantial detail, as opposed to 20.5% of respondents in the group exposed to the non-political story. This finding suggests that those who do pay attention to a political story may actually learn more than they would learn from a non-political story under the same circumstances. These differences are also statistically different from one another, with large F values indicating that detail recall between the two groups is not identical (F=16.54, p<.001).

Perceptions of Information

We might also gain some insight as to the learning taking place within the realm of social media by examining respondents' perceptions of the value of that information. Various factors

Table 5.5 Perceptions of Information Obtained from Various Outlets

	Interest	Novelty	Trust*
Exposed to Flooding	1.47 (1.30)	1.94 (1.64)	2.19 (0.86)
Exposed to Obama	1.46 (1.30)	2.17 (1.66)	1.78 (1.05)

Means reported, SD in parentheses

$* = p < .01$

are involved in learning, which might affect the results we see here as well as the likelihood of learning from political and non-political social media postings. One such factor might be interest in the subject discussed, since we know people spend more time and cognitive ability on things that interest them (Schiefele 1991). Additionally, a post's ability to offer new information on the subject might also increase learning - to some extent we might ignore information with which we are already familiar, whereas novel information is more likely to "stick" (This is believed to occur through a dopamine feedback loop in the hippocampus and other parts of the brain when exposed to novel information, see Fenker and Schutze 2008). Finally, the extent to which the information is trusted, whether because of its source, its context, or the nature of the information itself, is likely to affect the extent to which it may be recalled at a later time (See, for instance, Heesacker, Petty, and Cacioppo 1983; Huckfeldt, Beck, Dalton, and Levine 1995; Marx 2009).

Respondents were asked about their perceptions of the information to which they were exposed, in terms of their interest in it ("How interested were you in the story involving X?"), the extent to which it provided novel information to them on the subject ("Did the story include information you hadn't seen about that issue before?"), and the extent to which they trusted the information ("To what extent did you trust the information in the post involving X?"). Results were then compared between groups, which may be found in Table 5.5.

Information encountered on Facebook generally seems to be evaluated in similar ways, whether the information is political or not. In terms of interest in the information and novelty of the information, there is no statistical difference between evaluations of political information and non-political information, disconfirming H5.2. However, in the case of the degree to which respondents trust the information to which they are exposed, those exposed to political information are actually *less* trusting of the information than those exposed to non-political information. This is true even though the information is non-partisan and does not take a side. This could suggest that people have become jaded when it comes to the political information to which they are exposed in this venue (or possibly any venue), and thus less trusting of it. This could have further implications for learning, as information that is trusted is more likely to be accepted and retained Heesacker, Petty, and Cacioppo 1983; Huckfeldt, Beck, Dalton, and Levine 1995).

Understanding the Dynamics of Learning from Social Media

While we can now say a great deal about the nature of learning within social media, we might further expect that certain characteristics might promote or inhibit recalling a political story. To explore this possibility, I restrict the sample to only those exposed to the political story, and consider two additional characteristics that might affect political learning taking place via social media.

In line with the broader theory explicated in this project, one important characteristic to consider might be the amount of control a user chooses to exert over his or her own social media use. Exerting greater control might suggest less frequent exposure to undesired political stories. This in turn might increase the novelty of the story to which users are exposed in the experimental setting, and literature suggests novelty of information boosts recall (Fenker and Schutze 2008). In order to capture this concept, I employ a measure that asked respondents, "In the past 12 months, how often have you used the 'hide' function when a Facebook friend posts disagreeable political content?" (mean=0.65, SD=1.03).

Additionally, political interest is likely to affect whether a respondent recalls a political story. People naturally remember more information when it is in line with their interests, so the politically interested would be more likely to recall a political story than the politically uninterested (Schiefele

Table 5.6 Factors Influencing Recall of Political Information via Social Media

	Estimate	Standard Error	p value
Political Interest	0.017	0.058	.772
Social Media Control	-0.041	0.140	.770

1991). To capture this possibility, two measures, "I closely follow political issues," and "I am interested in political strategy" were averaged to create a measure of political interest (mean=5.57, SD=2.49).

To assess the extent to which these factors influence the recall of political information, I restrict the sample to only those who were exposed to the political story, and estimate a simple logistic regression with recall as the dependent variable, and political interested and social media control as independent variables. Results are presented in Table 5.6.

Neither political interest nor control exerted over social media seems to affect whether or not respondents exposed to the political story were able to recall it. This is particularly noteworthy, since it suggests that social media may influence even the politically uninterested - not only those who are already high in political interest and thus already likely to seek out political information themselves. It further indicates that those who exert stronger control over their social media information streams for political reasons are no more or less likely to recall political stories. Thus even those who choose to opt out of unpleasant political information within social media still have the ability to recall political information at equal rates to their peers who exert less control.

While this is an important starting point, and I believe I have identified the two most likely predictors of propensity to recall, future research should expand this model to include other potential variables that might relate to recall. Further research should flesh out to what extent recall is driven by the novelty of information, the type of social media in which a user engages, the nature of that use, and the effects of primacy and recency in political information recall. Moreover, additional

tests of learning apart from recall are also required before we can have a full understanding of how political learning takes place as a result of information acquired via social media.

Testing for General Learning from Social Media

Experiments allow us the virtue of isolating individual factors so as to understand the effects they have on various outcomes. In the case of this project, for instance, we can see how people recall and react to information they received moments before, and we have the benefit of knowing the origin and nature of that information. However, experiments suffer from their artificiality - in the real world, users of social media do not get only a few snippets of information at a time, from people they only "pretend" to know. Thus in addition to the knowledge gained experimentally, it is useful to examine the general political learning that might take place from social media use.

In order to do this, it is necessary to compare between users of social media and non-users of social media. In this case I will first consider users and non-users of Facebook. If Facebook users have higher political knowledge than do non-users, we might conclude that significant political learning takes place within the realm of Facebook.

However, it is not possible to simply compare between users and non-users, because we might expect those two sub-populations to be different along other dimensions as well. That is, we might be conflating the tendency to join Facebook with the learning that might take place there. If, for instance, those people who tend to be more social and create ties with many others are the ones most likely to join Facebook and also more likely to be high in political knowledge, it might appear that Facebook users are learning from their use of social media when in reality they were simply high in knowledge to begin with.

To remedy this issue, I employ matching, a technique to create a quasi-experimental design out of observational data, in which a population is divided into two groups based on a particular break variable - in this case, use of Facebook. The motivation behind this technique is the Rubin Causal Model, which suggests that we can think of two balanced subpopulations as treatment and control groups, as in the case of a controlled randomized experiment. Assuming that only one condition of the matching variable - treatment or control - is observed for each respondent, a causal effect may

be interpreted for the difference between treatment and control groups (Sekhon 2011). Matching helps to distinguish the treatment and control groups in a more meaningful way, by conditioning on observed covariates expected to be related to the likelihood of treatment. Observations in the treatment and control groups are not exactly alike, but they are comparable - that is, they are essentially exchangeable - thus mitigating the concern that differences in an outcome variable between the two groups are due to factors other than membership in the treatment group.

Genetic matching is a specific type of matching, in which the balance of observed covariates between the treated and control groups is maximized through an iterative process (Diamond and Sekhon 2005, Sekhon 2011). Other matching techniques (namely propensity score matching) generally give equal weight to all covariates upon which respondents are matched, which is problematic because it may be theoretically inappropriate and somewhat haphazard. Genetic matching, on the other hand, uses an evolutionary search algorithm to determine the optimal weight to give to each covariate while matching (Mebane and Sekhon 1998). It is non-parametric and more flexible than other methods (notably it does not require a propensity score). For these and other reasons, it consistently achieves better balance than other methods, reducing bias even where other methods may increase bias, and thus improving causal inference.

To test the effects of online social media use on political knowledge, users and non-users of Facebook are matched on a variety of factors that might predispose them to join Facebook in the first place. These include demographic characteristics such as income, age, number of children, marital status, race, ethnicity, gender, and education; political variables such as ideology, habits of political talk, political interest, and political participation; and other variables related to communication, including community ties, and news use (these covariates are based on work by Hargittai 2007 on who uses social media). The data are the experimental data described above, but all users are included (all measures were taken whether respondents were exposed to the treatment or to the control). I use the R packages Matching and MatchIt to conduct the matching, check for balance, and interpret causal results. For complete match balance results, see Appendix B. After matching

and checking balance, interpretation of causal results is quite straightforward, essentially consisting of experimental analysis and examining difference of means between the treatment and control groups.

The outcome variable of interest is restricted to a particular type of political knowledge. Because we might expect the bulk of the learning that goes on within social media to consist of current goings-on in the world, I consider only the type of political knowledge that corresponds to that type of exposure - political knowledge of current events. The variable is composed of a series of 14 questions in two groups, in which respondents were asked to identify (1) all of the people from a list of seven who had announced a candidacy for president of the United States at the time of the data collection, and (2) all of the countries from a list of seven that had been involved in the "Arab Spring" in the spring of 2011. Respondents were coded a 1 for correctly identifying a member of each group or correctly identifying a non-member, for a total score for each measure of up to 7. The two measures were then averaged to produce a variable reflecting political current events knowledge (mean=4.41, SD=.98).

I first matched on the covariates indicated above for the full sample of respondents. Preliminary results are in Table 7. If learning from social media takes place, our expectation would be that users of Facebook would have higher current events political knowledge than their non-user counterparts. As can be seen in the first row of Table 5.7, however, this expectation is not confirmed. The estimated causal effect of using Facebook on current events political knowledge is far from statistically significant, suggesting that perhaps learning of political current events does not take place as a result of this particular type of social media use.

However, it is possible that effects are not seen for all social media users, but rather for a particular type of user. Work by Zaller, for instance, might lead us to believe that those lowest in political sophistication are those most likely to be affected by new information, such as that to which they might be exposed on Facebook (1992). To test this possibility, I restricted the sample to only those in the lowest third of political interest, an indicator for political sophistication (overall mean = 5.57, SD = 2.49, lowest third = 4.5 or less on a scale of 1 to 10). Those less interested in politics are less motivated to seek out political information, and thus might experience greater

Table 5.7 Causal Inference from Genetic Matching

	Estimate	SE	p value	N
Facebook				
Full Sample	0.06	0.12	0.62	604
Low Political Interest	-0.01	0.28	0.95	172
High Political Interest	-0.19	0.18	0.30	299
Low Media Use	0.10	0.25	0.70	163
High Media Use	0.01	.18	0.98	269
Twitter				
Full Sample	0.06	0.03	0.03*	217
Low Political Interest	0.02	0.04	0.59	90
High Political Interest	0.01	0.04	0.71	74
Low Media Use	0.06	0.04	0.12	84
High Media Use	0.03	0.04	0.36	61

Reported N's include only matched observations.

gains from social media use than a more interested subgroup. As can be seen in the second and third row of Table 5.7, however, this does not necessarily seem to be the case. The estimated causal effect of Facebook use again fails to reach statistical significance, suggesting no difference between the politically uninterested who use Facebook and those who do not.

Finally, it is possible that Facebook creates a stream of information particularly useful to those who choose not to expose themselves to other information streams. In a high choice media environment, users have a great deal of choice in the communication and media in which they engage, and some users choose to opt out of news and information sources entirely (Prior 2007). We might expect that those users who do opt out of most information streams provided by the mass media would demonstrate the greatest difference in political knowledge as a result of Facebook use. To test this possibility, I restricted the sample to only those in the lowest third of overall media use (overall media use mean = 2.16, SD = 1.36; lowest third = 1.4 or less on a scale of 1 to 7). As can be seen in the fourth and fifth rows of Table 7, although the effects are in the expected direction (social media has a larger effect for those who use the media less), once again there appears to be no statistically significant effect of Facebook use on political knowledge, even among the lowest users of media use, disconfirming my hypothesis, H5.3, which expected greater learning among the less sophisticated.

In the case of Twitter, however, we see a statistically significant relationship between social media use and political knowledge.[4] As can be seen in Table 7, there is a small but significant difference in political knowledge between users and non-users of Twitter, all else being equal (and matching on the same covariates as above). Moreover, the expected relationship seems to exist for low media users and those of lower political interest, although the relationship again fails to reach statistical significance.

Several explanations are possible for the lack of effects discovered through genetic matching. First, the current events employed for testing are quite narrowly focused, and not necessarily the

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[4]The data used for Twitter come from the survey data described before. The political knowledge measure, rather than identification of presidential candidates and countries participating in the Arab Spring, is composed of respondents identifying party positions on major issues (Tax cuts, Pledge to America), identifying parties in power in each house of Congress, and identifying whether or not certain elections would be held locally that year (Senator and Governor).

type of political information likely to draw attention within the realm of Facebook. It is possible that for other types of current events, or for events more likely to receive postings on Facebook, effects would be found. Future research should test for alternative types of information along these lines. Pairing political knowledge batteries with content analysis of social media content might be particularly fruitful.

Second, the data available did not have ideal numbers to match on. That is, the distribution between users and non-users of Facebook (and even moreso for Twitter) was quite poor, with the overwhelming majority (84%) reporting Facebook use. This makes it more of a struggle to match between users and non-users, and may result in non-users being oversampled in order to provide sufficient matches for users. Unfortunately, Facebook use is quite common (and Twitter use rather uncommon) in the general population, so this problem is likely to occur in other data sets as well. Still, future research should attempt to create data sets in which there is more equal distribution between users and non-users, or consider other types of social media for which use is more evenly distributed in the population.

Conclusions

Several conclusions may be drawn when it comes to learning of political information within social media. First, we can definitively say that the opportunity for learning from political information to which social media users are exposed is a real one. Recall was achieved for the vast majority of experimental subjects exposed to political information, and a significant subpopulation (28.1%) was able to recall the political information in detail. This suggests that social media use is an important new flow of political information in American politics, and in order to understand how citizens form opinions, adjust attitudes, and motivate behaviors, we must also understand what political information they are exposed to via social media and what they learn from it.

This learning occurs despite subjects reporting generally poor perceptions of the value, credibility, and utility of information gleaned from social media. These are generally factors which limit learning or acceptance of information, thus suggesting that social media is not an inherently hospitable environment in which learning might occur. Future research should further consider

what specific factors within social media contribute to or impair learning, particularly within the population of skeptical users.

Further, learning - or at least recall - seems to occur more easily for political information than non-political information within the realm of social media. Users are statistically significantly more likely to report recall of a story to which they are exposed when it is political in nature. While I speculate that this is related to the perceived novelty of the information, recall is not related to political interest (a factor which should make political information less novel), suggesting the relationship between political information and increased recall may be more complicated than that. Future experiments may employ a more complicated design to flesh out which characteristics of a story posted within social media make it most memorable.

The experimental design is also limited by its simplicity. By comparing only two stories, results are subject to the idiosyncracies of those stories. Moreover, because actual stories were chosen in order to place them in a real life context, only certain subjects were available. Future experiments should supplement these findings with additional experimental evidence in order to minimize the issues with the current experiment. For instance, a political story featuring a politician might be compared to a non-political story featuring a sports star or other celebrity, to ensure that the finding here is not simply related to one story featuring a person and the other lacking one. Additional experiments might also compare exposure to information via social media formats with exposure to information via more traditional media, in order to see if learning and recall varies between the two. This are is ripe for potential research, and would allow us a fuller understanding of the process and circumstances surrounding acquisition of political information via social media.

All of this suggests that social media users experience passive learning, characteristic of a low choice media environment, when exposed to political information via social media. Passive learning occurs when users have fewer barriers to absorbing information, but are exposed to it incidentally.

Having said that, one notable piece of information leads in a different direction. The causal inference allowed by genetic matching suggested that under most circumstances social media users were no more likely to be informed than their non-using counterparts. This is true even among

low media users (those less likely to have other flows of information available) and among the politically uninterested, for whom political information exposure on social media might be a novelty. These initial findings suggest that users absorb less information from social media than other lines of analysis suggest, which indicates a tendency towards active learning, in which only certain streams or types of information are absorbed. Again, future research should endeavor to determine the more nuanced pathways to learning from social media exposure to political information. The notable exception is the use of Twitter, which does seem to boost political knowledge, all else equal. Twitter is generally considered to be more "newsie" than other social media - based more on sharing current events and news information than sharing more personal information. Likely this is one of the driving differences between the effects seen for Twitter use and the absence of effects for Facebook use, but it could also be due to sample size and type (the Twitter data are drawn from a sample of undergraduates, whereas the Facebook data come from an adult sample).

Having established that learning from exposure to political information via social media is at least possible, though it may not always occur, the following chapter seeks to determine the political behavioral effects of any such learning. Chapter 6 utilizes both survey and experimental data to examine whether attitudinal change, mobilization, or polarization take place as a result of exposure to political information within social media.

Figure 5.1

____ ____ and ____ ____ were tagged in ____ ____'s album.

Hey, it's a new album

10 minutes ago

____ ____
Cant wait to eat lunch!!!
21 minutes ago via Android · Like · Comment

____ ____ ____
"The greatest mistake you can make in life is to be continually fearing you will make one" : D
about an hour ago · Like · Comment

2 people like this.

____ ____ so u on break mr teacher!!
about an hour ago · Like

____ ____ ____
in n out likes california & texas
http://www.huffingtonpost.com/2011/05/12/in-n-out-burger-north-texas-expansion_n_861172.html

In-N-Out Burger Expands To North Texas, People Line Up (UPDATE)
www.huffingtonpost.com
In-N-Out Burger, the extremely popular and fanatically-followed California-based burger chain, has long remained a staple of the western United States.

about an hour ago · Like · Comment · Share

____ ____ ____ test market is in the dallas area :(
58 minutes ago · Like

Write a comment...

____ ____
I only have 5 more days to get everything done!! Ughhhh...I need more hours in the day.
2 hours ago via iPhone · Like · Comment

____ ____
Check out this video of Mississippi flooding. Worth watching.

Record flooding to linger in Mississippi city
www.cnn.com
The flood-swollen Mississippi River held at historic levels at Vicksburg early Thursday -- a status it's not expected to relinquish for days.

2 hours ago · · Like · Comment · Share

____ ____ shared a link.

____-May 6, 2011 Jet Lounge
www.youtube.com

____ ____ ____

Figure 5.2

_____ _____ and _____ _____ were tagged in _____ _____'s album.

Hey, it's a new album

🔒 10 minutes ago

_____ _____

Cant wait to eat lunch!!!

📱 21 minutes ago via Android · Like · Comment

_____ _____ _____

"The greatest mistake you can make in life is to be continually fearing you will make one" : D

about an hour ago · Like · Comment

👍 2 people like this.

_____ _____ so u on break mr teacher!!
about an hour ago · Like

_____ _____ _____

in n out likes california & texas
http://www.huffingtonpost.com/2011/05/12/in-n-out-burger-north-texas-expansion_n_861172.html

In-N-Out Burger Expands To North Texas, People Line Up (UPDATE)
www.huffingtonpost.com
In-N-Out Burger, the extremely popular and fanatically-followed California-based burger chain, has long remained a staple of the western United States.

📷 about an hour ago · Like · Comment · Share

_____ _____ _____ test market is in the dallas area :(
58 minutes ago · Like

Write a comment...

_____ _____

I only have 5 more days to get everything done!! Ughhhh...I need more hours in the day.

📱 2 hours ago via iPhone · Like · Comment

_____ _____

Check out Obama's speech on the Middle East. Worth watching.

Obama to lay out post-Arab Spring vision
www.cnn.com
In the wake of the Arab Spring protests across the Middle East and North Africa, President Barack Obama will pledge U.S. economic assistance to Egypt and Tunisia on Thursday in a speech highlighting his administration's revised policies toward the changing region.

📷 2 hours ago · 🔒 · Like · Comment · Share

_____ _____ shared a link.

_____ -May 6, 2011 Jet Lounge
www.youtube.com
▶

_____ _____ _____

Chapter 6

Behavioral Effects of Exposure to Political Information via Social Media

Introduction

We have now established a number of critical factors related to exposure to political information via social media. We know that most users do encounter political information in these spaces, at least occasionally. We know that they learn from that information in some settings and under certain circumstances. These findings are satisfying in a number of ways - they indicate the importance of a role social media can play in a democratic society by informing and educating large numbers of people about political matters. However, of utmost importance in a democracy is actual democratic behaviors. That is, does all of this exposure to politics via social media create meaningful democratic outcomes? Do users adjust their attitudes or behaviors as a result of the information they encounter while using social media? This is the final question examined in the project, and the emphasis of this final empirical chapter.

This is truly the heart of this project. While exposure to political information within social media, and even learning from such information are very interesting questions, the normative benefit from such questions comes only if and when they manifest into other types of political behaviors. Thus in this chapter I will consider the ways in which exposure and recall lead to political behaviors within social media, attitudinal change, and political behaviors outside of social media.

Expectations

Overall my theory suggests that social media should function more like an absent control environment than a total control environment. In a total control environment, we would expect certain attitudes and behaviors to result from consistent exposure to like-minded, amenable information. Attitudes should include an absence of opinion change - that is, users should have no reason to change their minds about an issue if they are only exposed to like-minded information which would never challenge an already-held position, whereas in a partial control media environment, opinion change should occur with exposure to new information (H6.1). Additionally, we might expect general political polarization in a total control environment (Stroud 2008). Again, without being challenged, views should become more crystallized, reducing tolerance for the opinions of the other side and increasing partisan polarization (Garrett 2009). In a social media environment, however, polarization should not be expected, as we presume that users are being regularly exposed to alternative viewpoints (H6.2). These are the main hypotheses generated by my theory.

However, other hypotheses are of interest as well, and could potentially fit within the theory (though are not specifically predicted by it). Political behaviors are generally amplified when citizens are exposed to new political information (Galston 2001). Thus I expect political behaviors to increase both within social media (H6.3) and outside of social media (H6.4). Finally, users exposed to information in a partial control media environment might have increased uncertainty, and thus engage with that information via either information seeking or sharing (H6.5) (Cox 1967). More specific expectations will be discussed throughout the chapter as well.

Attitudinal Change

Attitudinal change is an important behavior to consider in a democratic society, where we presume that the presence or awareness of new information should result in an updating of beliefs or preferences - this is the fundamental concept on which deliberative democracy is based. Recall that users who are engaging in selective exposure to political information should be less likely to engage in attitudinal change, whereas users in a partial control media environment such as social

media should be more likely to engage in such behaviors (H6.1). In considering opinion change, it is best to turn to experimental data, so as to get an impression in near-real time as to whether a single story made an impression resulting in changing one's attitudes or opinions on a subject. In the experimental data, relatively few subjects reported changing their opinion as a direct result of their exposure to a political story. Only 39 individuals (out of 372 exposed to political story) reported that it changed their opinion of President Obama (who featured heavily in the political story), representing 11.2% of respondents after accounting for missing data. Similarly, only 30 respondents (8.6% of those exposed) reported that exposure to the story changed their opinion about the Middle East (which also featured strongly in the story to which they were exposed).

These numbers are relatively smaller than expected - not an overwhelming number of people report that the story impacted their opinion. However, such a disparity is perhaps to be expected. First, although every effort was made to imitate a Facebook newsfeed, some limitations of the survey experiment format meant that stories presented in the newfeed were necessarily artificial. Most importantly, users could not actually click on the stories to which they were exposed to learn more. Thus the only information available to them to create actual opinion change was the information included in the link in the newsfeed (this included the user comment, "Check out Obama's speech on the Middle East. Worth watching." as well as a headline ("Obama to lay out post-Arab Spring vision") and a "blurb" provided by CNN, to which the link led, stating, "In the wake of the Arab Spring protests across the Middle East and North Africa, President Barack Obama will pledge U.S. economic assistance to Egypt and Tunisia on Thursday in a speech highlighting his administration's revised policies toward the changing region.") Given such limited information, it is unsurprising that many respondents experienced no direct opinion change from viewing this story.

Additionally, in the real world, respondents have the potential to be exposed not only to more information from each given link or story offered by their newsfeed (via clicking on a link to learn more), but are also likely exposed to a much greater volume of stories as well. Even if only 10% of respondents are influenced by any given story, as is roughly evidenced here, an average newsfeed may post hundreds of stories in a given day, strongly increasing the likelihood that at least one of

those stories will sway an opinion. Given this, descriptively these numbers suggest modest support for H6.1.

When considering what type of person is most likely to be persuaded by a story, several factors are likely important. In the experiment, the story presented was a new one, released only within the last 24 hours. Thus new information provided by the story might be a likely driver of opinion change as a result. Users might also be swayed if they were unexposed to similar stories (captured in both media use and frequency with which political stories appear on their Facebook newsfeeds).

To determine which factors matter, I estimated a logistic regression model, simply capturing whether a respondent reported opinion change on either dimension (regarding Obama or regarding the Middle East) or reported no such change. As can be seen in Table 6.1, the story is somewhat surprising. Interestingly, those already exposed to similar stories through the media or their own Newsfeed are *more* likely to undergo a change in opinion. And perhaps most surprisingly, the story's ability to offer new information has no impact on the likelihood of opinion change. It is worth noting that the artificiality of this experiment may be playing a role in these results. Future research might consider other formats and employ mixed methods to better understand the process by which opinion change occurs in these venues.

To begin, I triangulate my data by considering an additional source of data examining the same phenomenon of opinion change. Survey data is perhaps less helpful generally in this area, as users may not be able to accurately report the frequency with which they have changed their opinion on an issue after exposure to political information within Facebook. Still, the results are worth considering.

This model, found in Table 6.2 predicts whether respondents report "changing your opinion on an issue" as a way of using political information encountered on Facebook (12.4% report doing so)[1]. Not surprisingly, this model does a poor job overall of predicting reports of opinion change (R^2 = .025). Only a single variable significantly predicts likelihood of opinion change. Political

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[1] Again, I would have expected the actual number self-reported in the survey to be higher than that reported in the experiment, given the volume and more amenable format of stories to which users are exposed in the real world. However, I believe this tendency is trumped by the cognitive difficulty of answering a question reflecting how often a user has changed her mind on an issue after being exposed to political information on Facebook. It is simply a complicated thing to recall, and thus I have only limited confidence in these numbers

Table 6.1 Logistic Regression Estimating Opinion Change After Exposure to Stimulus

	Coefficient	Standard Error
White	-1.11	0.40**
Education	-0.14	0.09
Gender	-0.29	0.40
Ideology	0.06	0.14
Facebook Political Exposure	0.23	0.12*
New Information	-0.17	0.12
Political Interest	-0.03	0.09
Media Use	0.42	0.15**

Coefficients reported.

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

interest is negatively related, suggesting those least interested in politics are the most likely to change their minds following exposure to political information on Facebook. This fits within a Zaller understanding of political sophistication - those least interested in politics have the least information, and thus are easier to persuade on a matter (Zaller 1992). Still, I have little confidence in this model overall given its constraints and poor predictive power, and thus cannot definitively suggest support for H6.1.

Political Polarization

Again, recall that we do not expect polarization within the population of users exposed to political information on social media, given that I have theorized that social media should function as a partial control media environment, rather than one in which users may customize their information, thus insulating themselves from disagreeable politics.

Using survey data, we are limited in what we can establish with regard to polarization, given that my survey data only offer a snapshot in time - and thus we cannot determine whether any relationships are social media influencing partisanship or partisanship influencing social media use. Moreover, the best measure of polarization available to me is simply a folded measure of partisan identification, reflecting whether a respondent placed herself as a definite partisan (that is, not leaning one way or moderate)[2]. However, given these caveats, we might yet expect that those who are getting only friendly messages from social media might have their views reinforced, and not challenged, resulting in polarization. Thus those who see political stories regularly and those who have a relatively homogeneous social media network should look more polarized than those who do not.

In the data, we find marginal support for this idea and thus for H6.2 (See Table 6.3). Again, I am hesitant to draw many conclusions from correlational data at one point in time, but it does seem that the more homogeneous one's network, the more likely one is to report being at either end of the political spectrum. This is very likely a selection effect - those more strongly partisan likely select

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[2]Using this measure produces a roughly even split between respondents classified as strong or weak partisans - 50.4% are considered strong and 49.6% are classified as weak.

Table 6.2 Logistic Regression Estimating Reported Opinion Change

	Coefficient	Standard Error
Gender	0.01	0.03
Age	0.01	0.01
Partisan ID	-0.01	0.01
Media Use	0.02	0.02
Political Interest	-0.04	0.02*
Political Talk	0.01	0.02
Political Participation	0.01	0.02
Friend Pressure	-0.01	0.02
Heterogeneity	0.03	0.02
Facebook Political Exposure	0.02	0.01*

Coefficients reported.

 * p<.05   ** p<.01

Table 6.3 Logistic Regression Estimating Polarization via Partisan Strength

	Coefficient	Standard Error
Gender	0.35	0.18*
Age	0.01	0.05
Ideology	-0.09	0.05
Political Interest	0.29	0.10**
Media Use	-0.04	0.09
Facebook Political Exposure	0.01	0.06
Heterogeneity	-0.32	0.14**
Coefficients reported.		
* p<.05	** p<.01	

into more homogeneous networks. However, the frequency with which users see political stories does *not* seem to play a role in their partisan strength, suggesting it may not entirely be a selection effect (since we would expect partisans to select into volume of political information as well as its content). Still, I am unconvinced survey data is the appropriate means of answering this question. We can come slightly closer to having leverage on this question by considering experimental data.

Experimentally, we see no evidence of polarization. To test this potential, respondents exposed to each story were asked, "How much do you think you would be affected by the story involving President Obama/flooding in Mississippi, depending on whether the person who posted it was..." with options including "someone who agreed with you" and "someone who disagreed with you." If polarization were to occur, we would expect significant differences between those reporting favorability toward agreeable information (and antipathy toward disagreeable information) depending on whether they were exposed to the political story or the non-political story. As can be seen in Table 6.4, both ANOVA's estimated to perceive any such differences do not come close to reaching statistical significance.

Table 6.4 ANOVA's Estimating Polarization via Feelings Toward Posters

	Mean Square	F	Significance
Agree	0.01	0.01	0.94
Disagree	0.25	0.27	0.61
* p<.05	** p<.01		

Again, this is a relatively artificial test, in that a single instance of exposure to a neutral and unbiased story is unlikely to result in polarization of opinion. This is better tested over the long term using panel data or a series of experiments. Still, the evidence we have suggests that exposure to political information within social media does not result in polarization, supporting H6.2 and further suggesting that social media do function as a partial control media environment, rather than one in which users are exerting a great deal of control over the information to which they are exposed.

Behaviors within Social Media

In terms of behaviors, first it is worth considering the types of political behaviors people may engage in within the realm of social media. If we are considering the effects of exposure to and reception of political information within social media, it is reasonable to look first within that medium for effects of such exposure. People may engage in a variety of behaviors within social media that are political in nature, or responding to information which is political in nature.

Political Behaviors in Social Media: Expressive Behaviors

The medium allows for a great deal of engagement, which may be either active or expressive. Expressive behaviors consist of announcing some political viewpoint or preference to one's network. These behaviors include commenting on others' postings, or indicating that you "like" them (there is a separate button for each post to indicate such a preference). Users may also click on

links posted by others, so as to gain additional information from the original source (generally, these tend to be legacy media articles but may also be pictures, videos, blogs, etc).

All of these behaviors - clicking on links, commenting on postings, and liking postings - are important political behaviors users may engage in within social media. While some scholars have deemed such activities "easy" political behavior, or even gone so far as to deem it "slacktivism" (Morozov 2009), at least two aspects of these behaviors make them of normative interest to scholars of political science. First, they are gateway behaviors to other, more traditional types of political behavior. Recent work has shown that adolescents who engaged in politically oriented social media behaviors in time 1 were more likely to engage in traditional offline political behaviors at time 2 during the 2008 election cycle (Bode, Vraga, Borah, and Shah Forthcoming). Thus social media political behaviors may presage other types of political behavior. Additionally, these behaviors are semi-public. Each time a user comments on a story or likes it, that information is shared with the rest of her Facebook network. This provides additional exposure for others to be exposed to the political story which prompted the like or the comment in the first place, thus spreading the political information even further.

The first step in understanding such behaviors is simply considering how frequently they tend to occur. To assess this, I separate the population within my experiment between those who were exposed to a political story and those exposed to the non-political story, and then ask how likely they would be to click on the link provided in the story, comment on the story, or like the story. Answers ranged from 1 to 7, "not likely at all" to "very likely." Descriptive statistics are included in Table 6.5. As can be seen, means are relatively low, suggesting the average user would not click, comment, or like on the stimulus story. The difference between those exposed to the political story and those exposed to the non-political story reaches significance only in the case of clicking on the link provided - those exposed to the non-political story are more likely to do so ($p<0.01$). Users reported being most likely to click on the link, and somewhat less likely to comment on the story or to like it. This might suggest a hesitance to publicly demonstrate interest in a story (commenting and liking would be made public to one's network, whereas clicking on a link is generally not). Such a possibility should be explored in future research. In any case, this is not strong support for

Table 6.5 Descriptive Statistics: Behavior Within Social Media

	Political Story	Non-Political Story
Click**	3.17 (1.99)	3.62 (2.00)
Comment	2.56 (1.78)	2.61 (1.75)
Like	2.58 (1.81)	2.64 (1.77)

Means reported;   SD in parentheses.

  * p<.05   ** p<.01

H6.3, in that exposure to political information does not necessarily encourage users to participate politically within that realm.

Although these variables factor together well (chronbach's alpha = .82**), they reflect different activities of interest, and as such I consider them separately. Table 6.6 includes models estimating each of the three behaviors of interest - reported tendency to click on a link, like the story, or comment on the story. Because I am fundamentally interested in political information, I limit my analysis in this section to only those respondents who were exposed to the political story. Each model was estimated using a basic ordinary least squares model[3], and results are available in Table 6.6.

The decision to estimate the models separately is supported by the differences found between them. Interestingly, in all cases, whites are less likely than minorities to engage in these behaviors. This is an unexpected finding, and may suggest different norms of participation in different cultures. I can come to no definitive conclusion given my limited sample size, but this is an interesting possibility to pursue in the future. Likewise, in each case media use is positively related to the activity in question (commenting, liking, or clicking on a link). This suggests a "news junkie" phenomenon - those most engaged in news and current events already are most likely to further engaged when confronted with political information on Facebook. Both commenting and liking are further predicted by education, which is negatively related to the activities, and by the frequency

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[3]Although the outcomes are not strictly continuous, they are roughly so, with answers ranging from 1 to 7.

Table 6.6 Ordinary Least Squares Regression Estimating Behaviors within Social Media

	Click	Comment	Like
Gender	0.42 (0.26)	-0.19 (0.21)	0.20 (0.22)
Age	-0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)
Education	-0.01 (0.06)	-0.09 (0.05)*	-0.10 (0.05)*
White	-1.02 (0.29)**	-0.69 (0.23)**	-0.96 (0.24)**
Ideology	-0.11 (0.09))	-0.13 (0.07)	-0.17 (0.07)*
Media Use	0.20 (0.10)*	0.30 (0.08)**	0.35 (0.08)**
Political Interest	0.06 (0.05)	0.04 (0.04)	-0.03 (0.05)
Facebook Political Exposure	0.06 (0.07)	0.14 (0.06)*	0.13 (0.06)*
Coefficients reported.	SE in parentheses.		
* $p<.05$	** $p<.01$		

with which political stories appear on a user's newsfeed (positively related to activities). This suggests that the less educated are actually more likely to engage on Facebook - perhaps because it provides new information, or as a replacement for other types of political engagement. And those most accustomed to seeing such information in their own network are more likely to engage - suggesting that exposure is a large part of the story here. This can be construed as support for H6.3 - those most exposed to information are most likely to engage in these behaviors. Finally, liking a story is further predicted by a user's ideology - those more liberal are more likely to like a story than those who report their ideology as being more conservative.

Finally, however, I wanted to further consider all three behaviors together, using the full experimental sample, to see to what extent learning from political information on Facebook plays a role in the likelihood of engaging in expressive political behaviors on Facebook. To do so, I created a scale of the three behaviors (clicking on the link, commenting, or liking; mean = 2.79, SD = 1.56, chronbach's alpha = .82), and then estimated an ordinary least squares model predicting that variable. The model is similar to the individual models estimated above, but includes two additional variables - one reflecting whether the respondent was in the treatment or control group (higher number is treatment group) and one reflecting whether they had been able to recall their exposure to the story to which they were exposed. I would expect those who were able to recall their exposure to be more likely to report their inclination to engage with the story than those who did not.

As can be seen in Table 6.7, the variables predicting the behaviors for the full sample are similar to those predicting individual behaviors for the portion only exposed to the political story, as discussed above. Additionally, the treatment variable is significant and negative, suggesting that those exposed to the political story were *less* likely to report a likelihood of engaging with the story than were those exposed to the control condition. Finally, recall seems to play no role in whether or not a respondent reports being likely to engage with the story - that is, she doesn't have to have experienced actual learning from the story in order to engage with it. Again, this seems an area ripe for additional inquiry. I see the most potential in qualitative data contributing to our understanding

of how and when users choose to engage in the stories to which they are exposed within social media.

Political Behaviors in Social Media: Active Behaviors

It's also worth considering a number of other political behaviors users may engage in while using social media. Among these are more active political behaviors, in which users proactively decide to engage in politics. These include the sharing of political information on either Facebook or Twitter, becoming a fan or a friend of a politician, joining a political group, and being invited to a political event within Facebook. Sharing political information on social media is the equivalent of talking about politics offline - a user engages her community by sharing information with them and it often (though of course not always) prompts a conversation. Fanning or friending politicians, joining political groups, and announcing attendance to political events on Facebook are similarly interesting - this is a public statement of one's political allegiance, likened to a similarly public action such as displaying a yard sign, bumper sticker, or button. Descriptive statistics of these behaviors (as taken from the 2010 survey data) are displayed in Table 6.8.

While we cannot firmly conclude that H6.3 is supported by means of descriptive statistics alone, these numbers at least suggest the potential exists. Users do engage in a variety of meaningful political behaviors within social media. The variables range from 1 (Never) to 4 (Often), so the means suggest that these are not necessarily common behaviors, but they are not rare either. Particularly of note are the measures reflecting joining a political group and being invited to a political event, whose means reach levels suggestive that most users do so at least occasionally.

Equally important is considering who engages in such behaviors. The sharing of political information is particularly interesting, since that information is then inserted into the newsfeed or Twitter feed of hundreds of the users' friends. I consider what predicts such behaviors below, in Table 6.9. Five main variables are statistically significant in predicting who shares political information on Facebook. Media use, political interest, political talk, offline political participation, and the frequency of seeing others post political information in one's Facebook network are all positively correlated with the tendency to share political information on Facebook. This is an

Table 6.7 Ordinary Least Squares Regression Estimating Behaviors within Social Media

	Coefficient	SE
Gender	0.20	0.15
Age	0.01	0.01
Education	-0.05	0.04
White	-0.50	0.17**
Ideology	-0.15	0.05**
Media Use	0.29	0.06**
Political Interest	0.02	0.03
Recall	0.46	0.36
Treatment	-0.41	0.14**

Coefficients reported.
 * p<.05   ** p<.01

Table 6.8 Descriptive Statistics for Active Behaviors within Social Media

	Mean	SD
Share Politics Facebook	1.84	1.11
Share Politics Twitter	1.48	0.95
Fanning/friending	1.96	0.98
Political Group	2.12	0.94
Political Event	2.50	0.91

indication of a "rich get richer" effect on social media. That is, it seems only those who are already highly politically engaged in other ways are most likely to share political information on Facebook. Still, the fact that those most exposed to political information via social media are most likely to engage in active political behaviors within social media further supports H6.3.[4]

Interestingly, this relationship does not hold when considering who shares political information on Twitter. The only variable which positively predicts tweeting about politics is the frequency with which a user sees political tweets in her feed (although political talk also comes close to reaching traditional levels of statistical significance). This suggests that politics on Twitter is more specific to the medium - some users who may not be politically engaged outside of Twitter but who regularly see political tweets in that realm may increasingly share political information in that medium as well. Again, this offers support for H6.3. The differences between social media in this regard are fascinating and deserve additional scholarly attention in the future.

To consider the type of user engaging in other political behaviors within social media, I created a scale out of the three relevant variables - fanning or friending a politician, joining a political group, and being invited to a political event. They create one factor and scale together well, with chronbach's alpha = .81 (mean = 2.19, SD = 0.81). The model predicting engaging in such behaviors is found in Table 6.10. As can be seen, this analysis suggests that those most likely to engage in political behaviors in social media are those already likely engaging in such behaviors elsewhere. These users, in addition to being more female and more Democratic, tend to be heavier media users, talk about politics in other areas, are more interested in politics, more likely to engage in political participation offline, and more likely to be exposed to political stories within Facebook regularly. Again, this suggests a "rich get richer" paradigm and support for H6.3, at least when considering political behaviors within social media.

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[4]It should be noted that I have estimated models predicting sharing political information including exposure to political information as an independent variable, and the reverse as well. This is part of the complicated nature of the questions I am considering. In the absence of data which extends over time, I am unable to determine the direction of the relationship, but rather can only establish its existence.

Table 6.9 Ordinary Least Squares Regression Estimating Sharing Behaviors within Social Media

	Facebook	Twitter
Gender	-0.01 (0.08)	0.06 (0.18)
Age	0.01 (0.02)	-0.02 (0.04)
Partisan ID	-0.02 (0.02)	-0.03 (0.04)
Media Use	0.21 (0.04)**	0.12 (0.09)
Political Interest	0.10 (0.05)*	-0.02 (0.10)
Political Talk	0.14 (0.06)*	0.24 (0.14)
Political Participation	0.18 (0.04)**	-0.17 (0.11)
Social Media Political Exposure	0.25 (0.03)**	0.30 (0.04)**

Coefficients reported.   SE in parentheses.

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

Table 6.10 Ordinary Least Squares Regression Estimating Active Political Behaviors within Social Media

	Coefficient	SE
Gender	0.13	0.06*
Age	-0.01	0.02
PID	-0.05	0.01**
Media Use	0.07	0.03*
Political Talk	0.13	0.04**
Political Interest	0.08	0.03*
Political Behavior	0.21	0.03**
Facebook Political Exposure	0.15	0.02**

Coefficients reported.

 * p<.05   ** p<.01

Links Between Social Media Political Behaviors and Offline Political Behavior

Behaviors within social media are likely the most convenient way to respond to political information presented in that venue. They are important not only for their own sake, but also because they have been shown to predict offline political participation as well (Bode, Vraga, Borah, and Shah Forthcoming). This is true for data presented here as well - political behaviors exhibited within the realm of social media (including linking, commenting, liking political information, as well as sharing it with others via social media, email, or in person conversations) are statistically significantly correlated with traditional political participation such as volunteering, attending political meetings, rallies, and speeches, displaying campaign stickers or buttons, contacting politicians, donating money to campaigns, or signing petitions. The correlation between political participation and sharing information encountered on Facebook in some way is 0.26 (p<.001) and that between political participation and engaging in politics on Facebook by clicking on links, liking, or commenting on political stories is 0.49 (p<.001). This provides partial support for H6.4, which will be further considered in the next section.

To some extent, however, the data presented here tell a different story than that of Bode et al. They find that even the non-engaged may *become* engaged offline by first engaging within social media. As a result of the panel data they have, they can and do demonstrate this with certainty. With the data presented here, I cannot be sure whether users first engage offline or within social media. However, it does seem that the more engaged on social media are also more engaged offline in more traditional political activities.

Political Participation

It is also useful to consider independently political behaviors outside of social media, particularly since such behaviors are strongly valued in democratic norms. Recall that my theory suggests such behaviors should be higher among those exposed to political information via social media (H6.4). We have already seen indirect support for this hypothesis, in that political behaviors within

social media are related to exposure to political information via social media, and are also related to offline political behaviors.

Ideally, I would test for the specific effect of *learning* from political information exposure via social media, but practically this makes less sense. Whereas for political behaviors within social media, I was able to employ experimental data, to do so for the case of offline or classic political behaviors makes less sense. Exposure to a single story is unlikely to prompt offline political behaviors, and expecting overall political behavior to change as a result of such exposure is somewhat misguided. Moreover, in a survey setting, users are unlikely to be able to accurately report whether or not they learn from information to which they are exposed on social media. Thus to some extent I am missing the middle step in my presumed causal chain - users should be exposed to political information, learn from it, and then engage in behaviors as a result. I am unable to measure with any confidence the actual learning in the middle of this process, though of course it was demonstrated in Chapter 5 that such learning does generally take place. Still, it is useful to consider the steps on either side - that is, whether exposure to political information via social media produces classic offline political behaviors.

To test whether exposure to political information via social media is related to offline political behavior, respondents were asked in what ways they have used political information they've found on Facebook with the applicable answer choice inquiring if they had ever participated in an offline political activity (protest, volunteering, etc) as a result of such exposure. 15.2% of respondents reported doing so. This allows a direct measure of activities undergone as a direct result of exposure to political information. Notably, we can measure engagement in behaviors as a direct result of exposure to political information on Facebook *above and beyond* the general tendency to engage in political behaviors.[5] Again, H6.4 suggests this measure should be related to exposure to political information via social media. Because the dependent variable in question is a dichotomous measure, a logistic regression was estimated to determine whether such a relationship exists.

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[5]Traditional political participation is operationalized as a scale composed of seven items: volunteering in a community or for a campaign, attending political meetings, rallies, and speeches, displaying campaign stickers or buttons, contacting politicians, donating money to campaigns, and signing petitions (chronbach's alpha = .81, mean = 1.92, SD = .97; Scale validated by Bode, Vraga, Borah, and Shah Forthcoming; Lee, Shah, and McLeod 2012).

The results of the model are reported in Table 6.11. As can be seen, three main variables are of interest. Both political talk and political participation measured generally are significantly related to the specific act of participating in a political activity as a result of exposure to political information on Facebook. This is expected - users who are already politically engaged should experience fewer barriers to doing so as a result of exposure to information on social media. However, the variable reflecting exposure to political information via social media also gains significance. This suggests that exposure to such information matters for spurring political activities above and beyond the general inclination to participate in politics offline. Overall, this suggests confirmation of H6.4.

Information Seeking and Sharing: Using Acquired Political Information

It is also worth considering how users make use of information they are exposed to or acquire within social media. To do so, I consider survey data on the matter, asking respondents "In which of the following ways have you used political information you've found on Facebook?" Answers included "gone to a link," "shared the information through your own Facebook account," "shared the information through email," "shared the information in a conversation with someone," "Changed your opinion on an issue," and "participated in an offline activity." Descriptive statistics for these behaviors are provided in Table 6.12.

Descriptively, H6.5 seems to be supported. The number one use of political information users report is going to a link - that is, seeking additional information about a subject to which they have been exposed. This is a behavior we would strongly suspect in an absent control environment, and not at all one that would be expected in a total control information environment, again suggesting social media functions more toward the absent control end of the spectrum but somewhere between the two. Additionally, significant numbers of users describe using information in such a way that it is shared with others - either through social media (46.7%), email (18%), or face-to-face conversation (57.7%). Sharing information again suggests new information, rather than confirming information which would be found in a total control information environment. Of additional note is that only 4.3% of users indicated that they engaged in none of the behaviors listed in Table 6.12.

Table 6.11 Logistic Regression Estimating Political Activity as a Result of Social Media Exposure

	Coefficient	SE
Gender	0.43	0.26
Age	-0.03	0.08
PID	-0.05	0.06
Political Interest	-0.17	0.16
Media Use	0.17	0.13
Political Talk	0.45	0.19*
Political Behavior	0.41	0.13**
Facebook Political Exposure	0.17	0.09*
Heterogeneity	-0.24	0.19
Friend Pressure	-0.08	0.26

Coefficients reported.

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

Table 6.12 Descriptive Statistics: Expressive Behaviors Within Social Media

	Percentage
Gone to a link	76.7
Shared the information through your own Facebook account	46.7
Shared the information through email	18.0
Shared the information in a conversation with someone	57.7
Changed your opinion on an issue	13.0
Participated in an offline activity (protest, volunteering, etc)	20.6
None of the above	4.3

Percentages reported.

These first four behaviors - going to a link, and sharing information through Facebook, email, or face-to-face conversation - factor into a single component (chronbach's alpha = .65), which I used to create a scale of these behaviors. A model predicting this composite of behaviors is available in Table 6.13. Interestingly, three variables seem to be significantly predicting information-related behaviors on Facebook. First, partisan identification is negative, suggesting that Democrats engage in these behaviors more often than their Republican counterparts. Additionally, political talk is significant. This makes sense - we would expect those that talk about politics in other realms to also pass on information acquired within social media, and to have more opportunities to do so. Finally, seeing political information on Facebook is also positively related to behaviors related to acquisition of political information within that realm. This is reassuring, in that without regularly seeing political information, such behaviors would not make sense in the first place. It further supports H6.5 in that those most exposed to political information are most likely to engage in associated behaviors.

Overall it seems users make use of the political information they acquire within Facebook on a regular basis. They report visiting links, sharing information with others in a variety of ways, as well as other behaviors which will be further investigated below. Moreover, the people engaging in such behaviors are not necessarily the most politically sophisticated or politically interested, but rather seem to be those exposed to political information within social media most frequently.

Conclusions

Overall the majority of my hypotheses were confirmed - in terms of the behaviors prompted by exposure to political information via social media, the theory that social media acts as a partial control media environment seems to be the appropriate one. Users tend to engage in behaviors more resembling those of people exposed to incidental information than those selectively exposing themselves to political information of their own choosing.

H6.1, which predicted that users exposed to political information via social media should undergo opinion change on a regular basis as a result, was only marginally supported. While some users do report changing their opinion on an issue, the numbers are generally small. Moreover, the

Table 6.13 Ordinary Least Squares Regression Estimating Political Activity as a Result of Social Media Exposure

	Coefficient	SE
Gender	0.04	0.02
Age	0.01	0.01
PID	-0.01	0.01*
Media Use	0.01	0.01
Political Interest	0.02	0.01
Political Talk	0.06	0.02**
Political Behavior	0.01	0.01
Facebook Political Exposure	0.07	0.01**

Coefficients reported.

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

models predicting such changes are not terribly predictive, explaining only a fraction of the variance in the outcome. Future research should gain leverage on this question by pairing survey and experimental data with qualitative data, which might better gauge the circumstances under which opinion change takes place.

H6.2 predicted that polarization would not be a major outcome as a result of exposure to political information on social media, since such information should be heterogeneous and thus at least occasionally challenge users' beliefs, preventing crystallization of opinions. This hypothesis was partially confirmed with survey data, which showed no difference between users exposed to a political story and those exposed to a non-political story in terms of perceptions of the story depending on whether the poster agreed or disagreed with the user. However, this is only partial confirmation, particularly since the political story in the experiment did not take a stance on the issue. A more partisan story might prompt a different, and possibly more polarized, response. Survey data confirmed a relationship between network homogeneity and partisan strength, which would suggest a disconfirmation of H6.2, though the direction of causality in this case is unknown (and I suspect, again, that this is a result of network selection effects). However, the fact that tendency to see political stories via social media was not related to partisan strength provides a tenuous suggestion that network selection effects may be slightly weaker than the prior relationship suggests. Tentatively, there at least does not seem to be a strong or consistent relationship between exposure to political information via social media and political polarization. Future research should consider this question at a more macro level, considering whether social media users as a group tend to be more partisan and/or less tolerant than non-users.

I expected that political behaviors within social media would, naturally, be higher among those exposed to political information within that venue (H6.3). This hypothesis was generally confirmed, though the levels of such behaviors might be lower than expected. Users generally engage in both expressive and active political behaviors within social media, though surprisingly those behaviors are not necessarily related to whether users seem to learn from the information to which

they are exposed. This suggests an interesting path in the relationship between exposure and behaviors - suggesting that our understanding of learning from political information may need updating in the modern media environment.

This idea was expanded upon in considering whether exposure to political information resulted in an increase in offline political behavior. There seems to be a direct relationship between exposure to political information within social media and behavior in offline activities, at least in some cases, suggesting confirmation of H6.4. Such behaviors are highest, not surprisingly, among those who are already active in the offline political arena, but exposure to political information via social media has an impact in offline behavior above and beyond such a general tendency. Future research should consider if and how pathways between information and participation differ for the habitual participators versus those who are generally less engaged politically.

Finally, H6.5 predicted that users exposed to political information via social media should be prompted to engage in information seeking and sharing, as a result of exposure to new and possibly disconfirming information. This hypothesis was strongly confirmed. Information seeking appears to be one of the most common behaviors as a result of exposure to political information via social media, and information seeking and sharing are directly related to such exposure. The next obvious step in this line of research is to consider what additional information is gained by information seeking, and what type of information is most likely to be shared, as well as what format users choose to disseminate acquired information with others.

Additional research along these lines might further consider the specific conditions which prompt information seeking, as well as the different results of information seeking given different motivations. That is, what does information seeking look like for someone exposed to political information via social media, depending upon whether they seek to confirm their own opinions, counterargue against someone else's opinion, or gain analytic information in order to clarify between two competing opinions?

Overall, though, I can conclude definitively that exposure to political information via social media results in a number of expected behaviors, most of which are political in nature. This

highlights the importance of studying this topic further, as the consequences are likely to influence democratic behaviors on a wide scale.

Chapter 7

Conclusions

Introduction

In this study I sought out to determine the impact of social media on the modern political information environment. As social media use has grown into a veritable phenomenon in the United, States, occupying more time spent online than any other activity (Myers 2011), it is essential that scholars begin to take notice of this new media environment and especially its impact on politics. As some scholars worry social media use will replace traditional political behavior (Morozov 2009), or create an online echo chamber in which users only hear their own opinions parroted back at them (Sunstein 2007), others see social media as a panacea - a means of reaching citizens that have otherwise successfully opted out of politics (Utz 2009).

Because the question of the impact of social media on political information and democracy writ large is a complicated issue to understand, some portions of it remain unanswered, but generally speaking I am confident in making a number of conclusions following the completion of my study.

Overview

Overall we can verify that social media act as theorized - as a partial control media environment tending towards absent control, particularly when considering the flow of political information. Users recognize that the major reason they use social media is for social purposes - gaining information about friends, learning about current events, and the like. They do not join or use social media primarily for political purposes, at least in any significant numbers. Moreover, although they feel somewhat comfortable adjusting their social media networks, as the infrastructure allows

them to do, they are very unlikely to do so for political reasons. This is clearly demonstrated in Chapter 2.

As a result, users are more likely to be incidentally exposed to political information within the realm of social media, and in their everyday use of the mediums to which they belong. This expectation was realized in Chapters 3 and 4, which demonstrated that political information is regularly flowing in social media, and reaching the vast majority of users on a consistent basis. Thus users are exposed to a great deal of information mostly incidentally – not information she purposively sought. This incidental exposure to political information results in learning without motivation, which is "typically effortless, responsive to animated stimuli, amenable to artificial aid to relaxation, and characterized by an absence of resistance to what is learned" (1970, 184). Notable is the "absence of resistance to what is learned" – that is, users are actually less likely to put up barriers to absorbing the information to which they are exposed in these environments (Krugman 1965). As a result of this, we see extensive learning from exposure to political information in Chapter 5.

Finally there are the behavioral results of exposure and learning. In a partial choice environment, where content is likely to be much more diverse and incidentally obtained, users are much more likely to be exposed to cross-cutting viewpoints (Mutz 2002). This is born out in Chapter 6. Moreover, we see evidence of other expected behaviors, including political behaviors within and outside of social media, and information seeking and sharing.

Major Findings

Partial Control

I find strong support for the theorizing of social media as a partial control media environment, coming closer to absent control than to total control. Because many scholars have been concerned about the potential of social media to devolve into an echo chamber of political likemindedness (Sunstein 2007, Prior 2007), this is good news indeed. Social media users are aware of their ability to opt in and out of networks with ease, and exercise that ability on a regular basis. However, users report opting out of networks *for political reasons* only very rarely. Partly this is due to the

social ties that tend to hold social media networks together. As a result, many social media sites, including LinkedIn and Pinterest, which lack such social ties, are likely to display different patterns of network flows and likewise exposure to political information. Still, Facebook and Twitter are the largest social media sites in the United States, and so they offer an important look at how a typical American social media user exercises control. From these cases, it is clear that social media generally functions as a partial control information environment.

Exposure

In terms of exposure, we can definitively say that the average social media user is exposed to political information on a regular basis. Although, as demonstrated in Chapter 3, the amount of political information in social media is less than that in traditional media, the dissemination of such political information is still wide - that is, most social media users (even those uninterested in politics) are unable to insulate themselves from political information in social media. Most users are exposed consistently to political information in their networks, and such exposure is unrelated to classic measures of political sophistication, including political interest and political talk. This suggests that even users who would not choose politics in other parts of their lives are still exposed to political information within social media. This is an exciting finding, in that it indicates that social media is a means by which a previously unreachable segment of the population might be accessed for exposure to democratic information and values. Because we know from prior research that those citizens are most amenable to persuasion but least able to actually be persuaded given their self-imposed lack of exposure to politics (Zaller 1992, Prior 2007), the ability of social media to change these dynamics has great potential for voter outreach and mobilization efforts.

Also notable is the heterogeneity of networks within social media, and thus the likely heterogeneity of information to which social media users are exposed. Because users are able to maintain much larger networks via social media than they could in a traditional offline environment, these networks include ties that are more diffuse (almost 30% of a typical network is comprised of mere "acquaintances"). As we know, more diffuse ties result in greater exposure to political disagreement (Mutz and Martin 2001), and this seems to be born out in social media. A vast majority of

social media users report exposure to a heterogeneous network on Facebook, with less than 2% reporting evidence of the echo chamber concerns of other scholars. This too is great news from a normative perspective. Classic democratic theorists have emphasized the importance of exposure to disagreement for the health of a democracy (Habermas 1962, Breyer 2005). Because we now know that social media users are both exposed to political information and to networks which are composed of a variety of political viewpoints, it is reasonable to assume that social media use is not detrimental to democracy, and may even improve it under the right circumstances.

Overall, social media clearly represents a new political information source, and one which is able to bypass the selective exposure-related problems typical of other new media like cable television and the Internet writ large. Whereas in those venues, users are self-selecting into agreeable information, in social media the exposure is more incidental and more heterogeneous. Those that feel exposure to disagreement is important for a healthy citizen and a healthy democracy should be encouraged by the role of social media in America (Huckfeldt, Johnson, and Sprague, 2004, for example).

Learning

Several conclusions may be drawn when it comes to learning of political information within social media. First, we can definitively say that the opportunity for learning from political information to which social media users are exposed is a real one. Recall was achieved for the vast majority of experimental subjects exposed to political information, and a significant subpopulation was able to recall the political information in detail. This suggests that social media use is an important new flow of political information in American politics, and in order to understand how citizens form opinions, adjust attitudes, and motivate behaviors, we must also understand what political information they are exposed to via social media and what they learn from it. Notably, recall is not higher among those most interested or most sophisticated, suggesting again that social media is a means by which those lower in political interest might be reached and persuaded.

Having said that, one notable piece of information leads in a different direction. The causal inference allowed by genetic matching suggested that under most circumstances social media users

were no more likely to be informed than their non-using counterparts. This is true even among low media users (those less likely to have other flows of information available) and among the politically uninterested, for whom political information exposure on social media might be a novelty. These initial findings suggest that users absorb less information from social media than other lines of analysis suggest. Again, future research should endeavor to determine the more nuanced pathways to learning from social media exposure to political information.

Behavior

In terms of the behaviors prompted by exposure to political information via social media, the theory that social media acts as a partial control media environment is again confirmed. Users tend to engage in behaviors more resembling those of people exposed to incidental information than those selectively exposing themselves to political information of their own choosing.

I expected that political behaviors within social media would, naturally, be higher among those exposed to political information within that venue, and this hypothesis was generally confirmed. Users engage in both expressive and active political behaviors within social media, though surprisingly those behaviors are not necessarily related to whether users seem to learn from the information to which they are exposed. This suggests an interesting path in the relationship between exposure and behaviors - suggesting that our understanding of learning from political information may need updating in the modern media environment.

This idea was expanded upon in considering whether exposure to political information resulted in an increase in offline political behavior. There seems to be a direct relationship between exposure to political information within social media and behavior in offline activities, at least in some cases. Such behaviors are highest, not surprisingly, among those who are already active in the offline political arena, but exposure to political information via social media has an impact in offline behavior above and beyond such a general tendency. Future research should consider if and how pathways between information and participation differ for the habitual participators versus those who are generally less engaged politically.

Finally, I confirmed that users exposed to political information via social media are prompted to engage in information seeking and sharing, as a result of exposure to new and possibly disconfirming information. Information seeking appears to be one of the most common behaviors as a result of exposure to political information via social media, and information seeking and sharing are directly related to such exposure. The next obvious step in this line of research is to consider what additional information is gained by information seeking, and what type of information is most likely to be shared, as well as what format users choose to disseminate acquired information with others.

The exception to these patterns of behavior seems to be attitudinal change. Although users do undergo opinion change, the numbers are relatively small. Moreover, it is difficult to predict with any confidence which types of people will undergo opinion change as a result of exposure to political information within social media. This area is ripe for future research, particularly using mixed methods that might uncover more nuanced circumstances in which opinion change is most likely to occur.

Overall, though, I can conclude definitively that exposure to political information via social media results in a number of expected behaviors, most of which are political in nature. This highlights the importance of studying this topic further, as the consequences are likely to influence democratic behaviors on a wide scale.

Implications and Contributions

Broadly speaking, my project contributes significantly tot he new and constantly evolving field of research considering the political implications of social media use. The implications of this research are broad and important, as are the contributions it offers to a wide range of literatures.

Implications

This research suggests, first, that social media is not the threat to democracy that some have hypothesized (Sunstein 2007, Shirky 2011). Social media use results in exposure to political information, whether users are interested in politics or not. Exposure results in learning of political

information, and both exposure and learning result in a wide variety of democratically valuable experiences and behaviors, including contact with political disagreement, a rnage of political participation, and occasional attitudinal change.

As a result of this, it seems that social media is a means by which to reach citizens that have otherwise been left out of the democratic process. A large portion of the electorate has opted out of politics - they do not choose to inform themselves about politics, vote, or participate in the political process in any way. The continued fragmentation of the media has facilitated this decision, by allowing the uninterested to insulate themselves from political information almost entirely (Prior 2007). Social media, however, represents a new type of media which goes against the fragmentation to which we have become accustomed. Rather than allowing users to choose the information to which they are exposed, they instead choose *flows* of information. Notably, these sources of information are people with whom users have intimate (or at least social) ties, and thus reflect a wide variety of content and perspectives. Social media is not just another source of new media. It is fundamentally different from cable news and the Internet writ large. As a result, users of social media are exposed to a greater volume and variety of political information than users of other types of media.

While this is good news for democracy, it complicates things for scholars of political communication. Gone is the time when exposure to political information is the same experience for all users of a particular medium. Whereas reading the *New York Times* is virtually identical for readers all across the nation, each social media user has a unique experience each time she logs in. This makes measuring the experience (and thus the exposure and its effects) more difficult and nuanced than studying earlier mediums with which we are more accustomed. Depending on the user, each glance at a social media site may contain more political information than in the whole of the *New York Times*, or none at all.

Contributions

This project represents a significant contribution to the literature in both political science and in communication. Most notably, it develops a theoretical framework for understanding how social

media functions as a conduit of political information. Empirical tests of this theory suggest it is an appropriate map for understanding social media as a source of political information.

As social media use continue to increase and diversify, it becomes increasingly important that political communication scholars understand the role social media may play in a new information environment. Although some questions are left unanswered, this project is an important first step in increasing our understanding of the role social media may play in informing and mobilizing American citizens. In addition to updating our understanding of classic questions in political communication and political behavior, this project helps to frame the debate for an emerging literature in social and online media.

Moreover, this understanding of the modern political communication environment speaks to several other existing models. First, it suggests a way to shift the curve of the Zaller model. Zaller proposed a model in which effects were largest for those with middle levels of political sophistication, because those at the higher end were unlikely to be persuaded, and those at the lower end were unlikely to encounter politics at all (Zaller 1992). The tendency to be exposed to political information incidentally via social media changes the dynamics of the lower end of Zaller's model - those who formerly would be able to insulate themselves from politics are now likely exposed to small quantities of political information on a regular basis as a result of their use of social media. Thus the exposure part of the model has shifted whereas the ability to be persuaded has not. As a result, this suggests that effects are now likely among both the lowest and the middle range of political sophistication. Of course future work should endeavor to discover whether this adapted model holds up.

Additionally, it speaks to the theory that we are entering a new era of minimal effects. This theory, proposed by Bennett and Iyengar, suggests that as "people have become increasingly detached from overarching institutions such as public schools, political parties, and civic groups," while "information channels have proliferated and simultaneously become more individualized" (Bennett and Iyengar 2008, 707). They suggest that as a result of this fragmentation, we can no longer think of "mass media effects" in the simplistic way of the past. Critiques of this theory offer that rather than minimal effects predicted by Bennett and Iyengar, we should actually expect continued mass

media effects, and emphasize that technology is not necessarily deterministic (Holbert, Garrett, and Gleason 2010).

My work suggests a compromise between these two positions. For the right user, in the right circumstances, the world might very well be accurately described by either Bennett and Iyengar or Holbert et al. A modern political information environment is certainly affected by technology implementation and use, but by no means is such use deterministic. Technology, and indeed social media, facilitate the ability to selectively expose oneself to political information or to opt out of it entirely. However, social norms and more primary uses and gratifications of social media use tend to steer users away from such selective exposure, resulting in a diverse political information environment for the average user, and supporting Holbert et al's general theory. However, for the right user, social media allows the type of fragmentation that Bennett and Iyengar propose. In this way my work bridges an important divide in the literature, and proposes middle ground worth exploring further in the future.

Extensions

This project is an important step in understanding social media as a partial control media environment for the transmission of political information, but much remains to be studied.

First, I would like to expand the analysis contained herein to continue to reveal the nuanced circumstances under which exposure, learning, and political behavior take place. Additional measures, particularly from the experimental data, may be employed to better understand how users make sense of information they receive via social media, depending on who it comes from. This would further highlight the *social* part of social media, which is unfortunately somewhat neglected in the current analyses.

Additionally, analysis might be extended to further understand which behaviors are prompted by exposure to specific types of political information. Is political information that takes a side more likely to spur action than neutral, unbiased information? What is the role of misinformation in this process? Is there an effect of volume, whereby if a single user in one's network posts a piece of information it is relatively unpersuasive, but if some critical mass of others do it becomes

moreso (think of the Kony 2012 effect)? All of these questions deserve additional attention in understanding the role of social media in political information and democracy.

Finally, further exploration is needed to determine to what extent the observed trends are unique to Twitter and Facebook. Many other social media venues exist, including YouTube, LinkedIn, Pinterest, and Google+. Analyses of these other potential areas in which political information may be flowing online are an important step in understanding when and how social media exposure to political information may be taking place. Moreover, I have considered only the American context. Application to international contexts and their accompanying social media platforms (Weibo, Qzone, etc) would also be a useful route for future research to take.

I am also interested in further developing the theory I have proposed here. Although the cases of Twitter and Facebook clearly fit the theory I have put forth, I believe extending the theory to other realms requires refinement and additional theory testing. This might be achieved by creating a typology of partial control media environments - considering, perhaps, both control facilitated structurally and social ties inherent in the medium. This would facilitate a more nuanced understanding of the role that structure and norms respectively play in how social media are actually used, and thus how political information is transmitted within these realms.

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