

TWEETING THE ISSUES IN THE AGE OF SOCIAL MEDIA? INTERMEDIA AGENDA  
SETTING BETWEEN THE NEW YORK TIMES AND TWITTER

By

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the requirements for the degree of

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To the Faculty of Washington State University:

The members of the Committee appointed to examine the  
dissertation of MATTHEW JAMES KUSHIN find it satisfactory and recommend  
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Abstract

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This dissertation examined the intermedia agenda setting relationship between the online publication of the *New York Times* (i.e., NYTimes.com) and Twitter. This relationship was examined within the context of the changing media environment. The news media industry is facing down questions about its ability to turn a profit and maintain significant audience share. Simultaneously, social media services such as Twitter are growing exponentially. To this end, this dissertation explored the relative influence of each media on the other in an age where some scholars are questioning the agenda setting role of traditional news media. The dissertation assesses the argument that social media, specifically Twitter, has a direct influence on the news media agenda.

This dissertation tested several hypotheses which hold that there is bi-directional intermedia agenda setting between the New York Times and Twitter both over the course of a single day and between days. Two content analyses were conducted. Data were collected twice per day over the course of one week. One content analysis examined the content of the online publication of the *New York Times*. The second content analysis examined posts made to Twitter. Cross-lagged panels with the Rozelle-Campbell Baseline were used to assess the nature of the hypothesized relationship.

Results of the cross-correlation showed a lack of intermedia agenda setting between the *New York Times* online publication and Twitter for both the within-day and between-day panels. Further, results showed a lack of intermedia agenda setting for specific issues examined: the economy, the military, national security, and terrorism. Results overall suggested that the nature of the relationship between the two media under study is one of subtle influence. These results raise additional issues about the agenda setting role of traditional news media extending this argument to the social media environment. Results also demonstrate that the news media agenda and social media agenda are often similar, questioning notions of audience fragmentation as a casualty of the news media's agenda setting ability.

Results were discussed in terms of their implications for the field of agenda setting research, as well as limitations and directions for future research.

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## DEDICATION

*Through challenges we learn about ourselves. Most importantly, we learn the importance of those who love us in shaping the person we emerge from challenges as.*

*I dedicate this work to the many people who have blessed me with their love. Specifically:*

*To Ms. Mary Malone – for promises kept. And for all you taught me about determination, bravery and spirit.*

*To Mom and Dad – for being the amazing people that you are. Words cannot express the admiration I have and the gratitude I feel.*

*To Kelin – for your patience, the sunshine you have brought into my life these many years, and for always supporting me and believing in us.*

*You are all cherished.*

# CHAPTER ONE

## INTRODUCTION

### **The Problem of the Social Media Agenda**

Today, social media exerts a direct influence on the traditional media agenda. Social media is a term encompassing a myriad of new types of online media that fit under the rubric of Web 2.0, as defined by Tim O'Reilly (2005). Various social media platforms have emerged such as social network sites and micro-blogging that offer users greater affordances for immediate multimedia information access in an interactive environment. Such social media services have become very popular (e.g., "Twitter's Tweets," 2009). Concurrent with the rise of social media, the traditional news media industry has faced difficult economic times due in part to a decline in market share given the ever-growing number of media choices ("Economics," 2008; "Key Findings," 2009).

The struggle of traditional news media is accompanied by concerns that traditional news media is losing its relevance in our current media environment. Traditionally, the news media has played an influential role in society in its ability to set the public agenda (McCombs, 2004). However it may be that with the growing prominence of social media coupled with the efforts by traditional news media to adapt to a changing media landscape by taking cues from social media, the dynamic of agenda setting is changing. The extent to which traditional news media is able to impact what is discussed on social media is a test of the importance of traditional news media in today's media environment. Conversely, the extent to which social media is able to impact the news media agenda indicates the importance of social media in the news environment today. One may then ask the question: Does social media drive the media agenda and if so is a new model of



agenda setting needed in the social media age, or does the news media set the social media agenda?

To date, the agenda setting relationship between the emergent social media phenomenon micro-blogs and traditional news media in online format has not been examined. The news utility of social media has received little attention from scholars and its role is not well understood. This dissertation makes the following three arguments. I argue that social media users use an array of media including mainstream media to collectively construct an agenda. I argue that the mainstream media uses cues from social media as a way to adapt to a change in the producer/consumer media landscape. I further argue that as a consequence a web of intermedia agenda setting between social media and news media has changed the dynamic of traditional public agenda setting.

### **Potential Contribution of this Study**

Results of this study can be of significance to theorists, researchers and practitioners. My study benefit communication theorists by furthering understanding of the intermedia agenda setting phenomenon. This dissertation potentially benefits theorists of new media by offering greater understanding of the interrelationship and influence between traditional and social media. For researchers, the methods employed in this study offer groundwork for replication for those interested in further examining the agenda setting theory and those interested in how social media and traditional media influence one another. Lastly, there is a rising field of social media practitioners. These practitioners could benefit from greater insight into the emergent role of social media in the media environment, how users are using social media, what is the nature of content posted on social media and what type of information users post on social media. From

this knowledge, both content creators in social media and editors in traditional news media may gain insight that could impact what sources they turn to and how they report news.

**Brief history of agenda setting.** The agenda setting role of the news media was found by McCombs and Shaw (1972) and is a line of inquiry that has received a great deal of attention from scholars (Dearing & Rogers, 1996). Broadly speaking, agenda setting is interested in the relationship between the media and public opinion. More recently, scholars have begun examining intermedia agenda setting, or how one form of media can set the agenda for another form of media (McCombs, 1993). This line of research seeks to examine “who sets the media's agenda?” (McCombs, 1993).

Intermedia agenda setting research has been applied in recent years to study online news media (e.g., Ku, Kaid, Pfau, 2003; Lee, Lancendorfer & Lee, 2005; Lim, 2006; Sweetser, Golan & Wanta, 2008). In this line of research, scholars have become interested in the intermedia agenda setting relationship between online news media and participatory online media where individual users are the creators of content. Such research has examined the interrelationship between the news media and online discussion on EBBS, or Electronic Bulletin Board Systems (Roberts, Wanta & Dzwu, 2002). This research has found there is evidence of the news media setting the agenda for discussion on EBBS (Roberts, Wanta & Dzwu, 2002). Research has also demonstrated influence in the opposite direction in certain circumstances when EBBS discussion influences the news media agenda (Lee, Lancendorfer & Lee, 2005). Also, scholars have examined the intermedia agenda setting between blogs and the news (Sweetser, Golan & Wanta, 2008; Wallsten, 2007). This research has found evidence for a bidirectional relationship between blogs and media based on analysis across time (Sweetser, Golan & Wanta, 2008; Wallsten, 2007). However, intermedia agenda setting related to the social media phenomenon of focus in

this study knows as micro-blogs has not been examined. Micro-blogs are a form of social media that allow users to post short messages. Micro-blogging differs from both EBBS discussion and blogs in that it occurs in real time.

**The emergence of new media.** In recent years, the structure of the Internet has been shifted from a medium which, like traditional media, failed to provide users with interactive opportunities to a new constitution that enables engagement in the content creation process (Kolbitsch & Maurer, 2006). This participatory constitution has been widely referred to as Web 2.0, an approach to online networks that values their ability to tap the participation of large-scale social collectives in creating and amassing information (O'Reilly, 2005; Jenkins, Clinton, Purushotma, Robison and Weigel, 2006).

Social media is a broad term generally used to refer to online media tools that foster social interaction and operate from a Web 2.0 approach. In social media, participation is fostered through collaborative services that are generally low-cost to maintain and free for end users (Tapscott & Williams, 2006). Such tools include blogs, wikis, social network sites and micro-blogs such as Twitter. Some have heralded that social media is having and will continue to have a profound, even revolutionary impact on culture, society and the economy (Benkler, 2006; Tapscott & Williams, 2006). As is made evident in this dissertation, the reach of this profound impact may include the agenda setting process.

Traditional online news media published on the Internet, known commonly as online news media, has grown in popularity since the emergence of the Internet ("Internet overtakes," 2008). This form of news content delivery has become very popular in recent years, growing in popularity alongside the decline of print news ("Internet overtakes," 2008; "Newspapers face,"

2009). Previous research has shown that online news content, just like traditional news content, functions within the agenda setting theory (e.g., Lim, 2006)

### **Research questions**

In this dissertation I seek to answer three research questions about the relationship between social media and traditional news media. The first research question is: Does intermedia agenda setting occur between traditional news media and social media? The second research question is: What is the direction of intermedia agenda setting between traditional news media and social media? The third research question is: Is agenda setting between traditional news media and social media bi-directional or uni-directional?

### **The Scope of this Investigation**

In order to examine the above research questions I use agenda setting theory, specifically intermedia agenda setting between traditional online news media and social media. Although social media is a term encompassing a variety of different tools and services, this study focuses specifically on the micro-blogging service Twitter.

Micro-blogs are a type of social media that allow users to frequently post short messages. Twitter is the most popular micro-blogging service. Twitter's functionality is described on their website in this way: "Twitter asks one question, 'What are you doing?' Answers must be under 140 characters in length and can be sent via mobile texting, instant message, or the web" ("Why do," 2009, ¶ 1). When a user posts a message on Twitter it is posted in real-time in the same manner that an Internet chatroom works. Messages posted by an individual to Twitter are sent to every user who is subscribed to that member's account. On Twitter, users can subscribe to any other user by simply clicking "follow" on that user's account. When logged in, each Twitter user gets a stream in real-time of posts sent to her account from all the members of Twitter that she is

following. Additionally, by using Twitter's search tool users can track in real-time posts made to the service from any user whose account is public.

This study focuses specifically on Twitter for a number of reasons. The first reason is the present enormous popularity and recent growth of Twitter. Twitter began in 2006 ("About Us", 2009) but its popularity did not boom until 2009. Nielsen reported that Twitter saw an astronomical 1,382% growth between February 2008 and February 2009, growing from 475,000 visitors to 7 million visitors ("Twitter's Tweets,"2009).

The second reason Twitter was chosen is due to its widespread adoption by the news media (Rindfuss, 2009) and the popular discussion about its potential in journalism (e.g., Betancourt, 2009; Cohen, 2009; Hermida, 2009; Kirkpatrick, 2009b; Wright, 2009). Adoption of Twitter by the news industry is widespread among the national mainstream press with all of the top 100 newspapers using Twitter (Rindfuss, 2009). Twitter is also widely used by regional media markets. Although there are no official statistics on the percentage of news organizations that use Twitter, various groups have tried to keep track of the widespread adoption. For example, the adoption of Twitter by the news media has become so common that one website, "Journalists on Twitter," states that in February, 2009 the Website's founder's attempt to catalogue the presence of journalists on Twitter became so overwhelming that she gave up after creating a list of 1,300 ("Journalists on Twitter," 2009). The founder turned to a wiki format, opening the web site up for its members to help build the list ("Journalists on Twitter," 2009). Ubiquity of use of Twitter by news organizations in this day in age is so common, the Washington State University school newspaper *The Daily Evergreen* maintains a Twitter account.

The third reason Twitter was chosen was because of its real-time and mobile features which enable citizen journalists and witnesses to events, as well as reporters to use the service to engage in live reporting during an event. Twitter has been used in this fashion on a number of very popular occasions including the Iran election situation, the emergency plane landing in the Hudson River and the Senate confirmation hearings of Supreme Court Justice Sotomayor ("Citizen photo," 2009; "Latest Tweets," 2009; Stone & Cohen, 2009). The fourth reason Twitter was chosen, which relates to reason number three, is because Twitter is unique in its popularity as a real-time information dissemination service (Johnson & Yang, 2009; "Twitter and," 2009). Twitter was originally intended to enable people to stay connected in real time ("Twitter's Tweets," 2009). But, the service has become an information-dissemination tool for many organizations adapting to the social media revolution, including the news media ("Study finds," 2009; Chittal, 2009). Likewise, many individuals use the service as a means to send and receive information from other individuals as well as organizations and corporations.

Traditional online mainstream news media will be operationalized as traditional mainstream news media that was originally established as a print newspaper and is published on the Internet. For the sake of brevity I hereto forward refer to traditional online mainstream news media as online news media. Many Twitter media users select to get their news from online news sources as opposed to print news sources ("Twitter and," 2009). This study will focus specifically on the online publication of the *New York Times*. The *New York Times* was selected because it is a national newspaper with a large circulation and long-standing prominence as one of the United States' elite newspapers (Winter & Eyal, 1981). The *New York Times* has been shown to be a leader in intermedia agenda setting, acting as a beacon for other U.S. news outlets (Mazur, 1987; Gilbert, Eyal, McCombs & Nicholas, 1980).

A further advantage of the *New York Times* is that it is a traditional news outlet with both a large print and online circulation that offers its content for free online. This study will not examine print news media because currently print circulation is in steady decline and the future of the printed newspaper as a medium for news is uncertain (“Key Findings,” 2009; “Newspapers face,” 2009). This study will not examine traditional blogs, a phenomenon that received a great deal of interest from scholars following their popularity in the 2004 election campaign (e.g., Bichard, 2006; Eveland & Dylko, 2007; Sweetser, Golan & Wanta, 2008). Also, this study does not examine social network sites such as Facebook, a popular form of social media which garnered a great deal of scholarly attention in the previous 5 years (e.g., Acquisti & Gross 2006; boyd & Ellison, 2007; Ellison, Steinfield, Lampe, 2007; Williams & Gulati, 2007).

I do not examine the 160 character profiles of Twitter users and do not attempt to assess demographic, political or other characteristics of users based on these brief profiles as Twitter is a service that offers users very little ability to communicate person information through a personal profile. I also do not collect any self-report data of Twitter users. To this end, I do not attempt to make any inferences on the impact of their personal characteristics, attitudes or beliefs on their media use behaviors.

However, there is some general information about the Twitter demographic that provides indication of the pool from which the sample will be pulled from. The demographic of Twitter is changing as the service grows. As of Fall 2009, young adults are more likely to use the service with one-third of U.S. adults under 30 used Twitter while 22% of adults between 30 and 49 used Twitter (“Twitter and status,” 2009). That percentage drops under 10% for persons 50 of older (“Twitter and status,” 2009). Teens have been cited as a demographic that has not embraced Twitter en masse, preferring social networking sites like Facebook (Cook, 2009; Miller, 2009).

Twitter use is more evenly distributed across education and income level. Twenty-one percent of U.S. college graduates and persons with some college education use Twitter while 17% of persons with a high school diploma and 18% of persons with some high school education use Twitter (“Twitter and status,” 2009). Similarly, 22% of U.S. citizens who make under \$30,000 use Twitter while the percentage of persons making between \$30,000 and \$49,000 who use Twitter is 21% and 20% of U.S. citizens making \$50,000 or more use Twitter (“Twitter and status,” 2009). Nineteen percent of white U.S. citizens use Twitter, 26% of African American’s use Twitter and 18% of Hispanics use Twitter (“Twitter and status,” 2009). Seventeen percent of U.S. men use Twitter and 21% of U.S. women use the service (“Twitter and status,” 2009).

This dissertation uses content analysis to analyze online news media and Twitter posts during the course of one week. Online news media content and Twitter posts are collected both in the morning and in the evening hours. This study also analyzes rank orders of themes in online news media and Twitter posts. To test for intermedia agenda setting between online news media and social media, the cross-lagged panel design is employed to measure the correlation of ranked themes between online news media at Tx and social media at Tx +1. The cross-lagged approach with the Rozelle-Campbell (1969) baseline has been used previously in intermedia agenda setting research (Lopez-Escobar, McCombs & Lennon, 1998; Roberts & McCombs, 1994; Sweetser, Golan and Wanta, 2008). Lastly, t-test are used to assess the overall relationship between online news media and social media when classified by the total number of themes mentioned for all seven days.

**Preview of chapters.** What follows in this dissertation proposal are two chapters. Chapter 2 is a review of the literature and findings in the area of agenda setting research. . Chapter 3 reviews the content analysis approach that will be employed to complete my study.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **The Current Medial Landscape**

The news media have traditionally played an influential role in society in their ability to set the public agenda, a phenomenon known as the agenda setting function of the press (McCombs, 2004). Yet, in recent years the media landscape has become increasingly complicated (McQuail et al., 1998). This complication has brought the issue of intermedia agenda setting to the forefront. The current media landscape is presenting a difficult economic environment to the traditional news media industry. The news media industry is losing its market share in an environment of ever growing media choices ("Newspapers face," 2000; "Key Findings," 2009). This struggle has been accompanied by speculation that news media are losing their relevance in our current media environment. Further, complicating the issue of relevance is the blurring lines between producers and consumers of content. Indeed, there has been a move towards empowering individuals to be producers of media content (Tapscott & Williams, 2006). The news industry is being impacted by the increase of citizens using media production devices (Filloux, 2009; Rosen, 2009). Incidences such as the Iran election situation and the emergency flight landing in the Hudson River in 2009 were reported by witnesses using interactive media devices ("Citizen photo," 2009; Filloux, 2009). The news media is adapting to the consumer as content producer, making consumer input central to the news product (Kelly, 2009).

Currently, a number of social media platforms such as the popular micro-blogging service Twitter offer users greater affordances for immediate information access and interaction.

Twitter is used primarily as a tool to gather and exchange information (Johnson & Yang, 2009; "Twitter and," 2009). As a consequence, the extent to which traditional news media are able to impact what is exchanged on social media is indicative of the importance of traditional news media in today's media environment. Previous studies have demonstrated this potential, showing that traditional news media have an agenda setting impact on participatory media such as blogs and online discussion (Lee, Lancendorder & Lee, 2005; Roberts, Wanta & Dzwo, 2002, Wallsten, 2007).

Conversely, the extent to which social media is able to impact the news media agenda indicates the importance of social media in the news environment today. Prior research has shown that the agenda setting potential of social media is a distinct possibility by demonstrating intermedia agenda setting from blogs and online discussion boards, two forms of participatory media, on traditional news media (Lee, Lancendorder & Lee, 2005; Wallsten, 2007). One may then ask: Does social media drive the media agenda and if so is a new model of agenda setting needed in the social media age, or does the news media set the social media agenda?

### **Applicability of Traditional Agenda Setting Theory**

Some have questioned the applicability of the traditional agenda setting approach in a fragmented media environment (Antony & Thomas, n.d.; Chafee & Metzger, 2001; Takeshita, 2005). Indeed, it may very well be that changes in the media landscape have impacted the dynamic of agenda setting. Given today's media environment, therefore, the traditional theory that the news media set the public agenda needs to be revisited. Indeed, McCombs (2005) argued that in the age of the Internet where an array of potential influences on media agenda are not well understood, intermedia agenda setting - or the study of how of how one medium influences another - is a vein of agenda setting research that is in need of greater attention.

Scholars have long sought to understand the effect the news media on the public. As a prominent mass communication theory, agenda setting argues that the importance of the news media lies in its ability to set the public agenda (McCombs, 2004; Severin & Tankard, 2001).

The reason agenda setting holds that the news media has an influence on the public comes from the work of Walter Lippmann (McCombs, 2004; McCombs & Bell, 1996; Severin & Tankard, 2001). Lippmann (1922) wrote in his seminal work 'Public Opinion,' that public perception is formed not in response to the world as it exists but rather in response to the environment constructed by the media, the so-called picture in our head (Lippmann, 1922). This is to imply that public perception does not reflect reality or direct experience. Rather, it is shaped and formed by the knowledge gained via media the public is exposed to. It is Lippmann's (1922) conceptualization of the public's perception that is the theoretical cornerstone of how the agenda setting perspective perceives that media impact what the public thinks is important. The agenda setting theory postulated that it is primarily the media that we have to rely on for our understanding of the world (McCombs & Shaw, 1972). The news media, the major source of news and information for people, is responsible for setting the public agenda (McCombs, 2004).

The agenda setting hypothesis emerged during the dominance of the limited-effects model (McCombs & Reynolds, 2002; Severin & Tankard, 2001) —a dominant positioning at the time about the effect of mass communication on the public. In the limited effects model mass media were perceived to have little influence over the public because studies had not found substantial evidence about their impact on opinions and attitudes (McCombs & Reynolds, 2002; Severin & Tankard, 2001). Some scholars rejected the notion that the mass media had limited effects and researchers began re-conceptualizing what type of effects the mass media may have (Severin & Tankard, 2001). The agenda setting hypothesis challenged the notion of the limited-

effects model, returning the focus of media effects research from an emphasis on attitude and opinion change to re-emphasize attention and learning (Weaver, Graber, McCombs & Eyal, 1981).

### **Agenda Setting Research Tradition**

**Issue salience.** Agenda setting research was popularized with the seminal study of the 1968 election by McCombs and Shaw (1972) in what has become known as the Chapel Hill study. Broadly speaking, agenda setting research is interested in the relationship between the media and public opinion. The agenda setting function of the mass media “refers to the media’s capability, through repeated news coverage, of raising the importance of an issue in the public’s mind” (Severin & Tankard, 2001, p. 219). In their study, McCombs and Shaw (1972) focused agenda setting research specifically on the role the press plays in political news and how that impacts public perceptions about what issues are important. They believed that by reflecting what candidates are saying during a campaign, mass media determine the importance of issues (McCombs & Shaw, 1972). The reason why the press played an agenda setting role, McCombs and Shaw (1972) argued, was because most Americans did not have direct access to a campaign. Therefore, the understanding of the campaign and candidates most Americans had was mediated by the news media. Because the press played this mediating role, the press determined what the public learned about the campaign by directing attention to some campaign issues and away from others.

McCombs and Shaw (1972) were interested in and sought to assess an issue’s *salience* or “whether or not something is perceived as important or prominent” (McCombs & Bell, 1996, p. 95). Salience is an important concept to agenda setting. Agenda setting is about the transfer of salience, or the prominence of an object in the media, from the media to the public (McCombs &

Reynolds, 2002; Weaver, Graber, McCombs & Eyal, 1981). In other words, agenda setting occurs when attention given to an issue in the mass media causes an elevation in the importance ascribed to that issue by the public (Severin & Tankard, 2001).

McCombs and Shaw (1972) tested the hypothesis that mass media set the agenda for each political campaign, influencing the salience of attitudes towards political issues. These researchers attempted to match what voters said were the key campaign issues with the mass media content the voters used during the campaign (McCombs & Shaw, 1972). This research established salience and media content as the key variables in agenda setting research. Salience was the dependent variable in this study (McCombs & Bell, 1996). To assess the salience of issues among voters, McCombs and Shaw (1972) conducted interviews of 100 undecided voters asking each to list what they saw to be the key issues. Agenda setting scholars since have primarily relied on interviews, public opinion polls or other such surveys to assess salience in the public agenda (McCombs & Bell, 1996).

Media content was the independent variable in the Chapel Hill study (McCombs & Bell, 1996). To assess media content the researchers performed a content analysis of a total of nine newspapers, news magazines and broadcast news programming determined through a pretest to be the major sources of news for voters in this region. Content analysis has remained the prominent method for assessing the media agenda (McCombs & Bell, 1996). The Chapel Hill study tested for agenda setting by correlating the content analysis research and the survey research (McCombs & Shaw, 1972). This basic design has remained the prominent methodological foundation in agenda setting research, although experiments are sometimes used (McCombs & Bell, 1996).

Media content and the salience of issues for the public were rank-ordered according to their relative prominence within each sample. In support of the agenda setting hypothesis, McCombs and Shaw (1972) found that voters shared the media's composite definition of what is important. They concluded the media have considerable impact on voters' judgment of what they consider major campaign issues, with correlations of greater than .90 between rank orders of the issues the media covered and rank orders of the salience of issues to the public (McCombs & Shaw, 1972). To suggest this relationship is spurious, these scholars argued, is to assume voters have alternative ways to get information about the election which they did not at this time.

**Selective perception.** Further, these scholars distinguished the *agenda setting model* from a popular alternative perspective called *selective perception*. Selective perception states that individuals seek to avoid exposure to information contrary to their beliefs and to maximize exposure to information that supports their beliefs (McCombs & Reynolds, 2002). The selective perception perspective is often cited as the explanation for the approach that the mass media have a limited effect on the public (McCombs & Reynolds, 2002). McCombs and Shaw (1972) found support favoring agenda setting over selective perception by showing that for the majority of news outlets under study, the voter's agenda was more strongly correlated with the overall news agenda than it was with the agenda of stories only about the voters' preferred party. Not only were McCombs and Shaw (1972) able to show support for their hypothesis about the effect of the media on the public, they were able to show evidence against competing perspectives.

In a follow-up study of the 1972 election campaign, these scholars tested the agenda setting hypothesis on a larger sample drawn from the city of Charlotte, North Carolina. In the Charlotte study, Shaw and McCombs (1977) used a panel design in an attempt to test the causal direction between the media agenda and the public agenda so as to determine which agenda was

influencing which. The researchers used cross-lagged correlations to assess two time periods, establishing time order as key to agenda setting effects. They determined that the newspaper agenda at Time 1 was influencing the voters' agenda at Time 2. However, a similar relationship between television news and voters' perceptions was not found. This demonstrated that the agenda setting function of the press may vary by media. Overall, findings of the Charlotte study generally supported the initial agenda setting hypothesis, at least for newspapers.

**Issue obtrusiveness.** As agenda setting research has grown, scholars have sought to identify the contingent conditions which affect agenda setting. Aspects of issues have been explored to determine what factors can enhance or inhibit agenda setting effects. A study by Zucker (1978) explored whether the news media has a stronger effect on influencing public opinion for some issues than for others. Zucker (1978) introduced the concept of *issue obtrusiveness*. Obtrusiveness is the extent to which the public has experience with an issue. This study hypothesized that the "less direct experience the people have with a given issue area, the more they will rely on the news media for information and interpretation in that area" (1978, p. 227). Using the Television News Index's monthly publication, Zucker (1978) assessed the number of times a given issue received attention on network evening news each month. Gallup polls were used to assess public attention. Pearson correlation coefficients were used to test the relationship between the public and the months prior to the poll, the public and the month of the poll, and the public with the months following the poll. Results indicated that for issues identified as obtrusive - cost of living and unemployment - there was no significant correlation between public opinion and news coverage in the preceding months. There was however significant correlations for unobtrusive issues - pollution and drugs. Zucker (1978) concluded that there is two worlds that people live in: the real world and the media world. The public has

first-hand experience with or interpersonal communication about some issues and is less influenced by the media about those issues. There are other issues for which the media is the primary information source.

Palmgreen and Clarke (1977) also examined what aspects of issues mediated agenda setting effects. These scholars hypothesized that agenda setting should be weaker for local issues than for national issues given that local issues are more obtrusive. They also believed that interpersonal communication networks could moderate the media's agenda setting role, and that national issues were more prominent than local issues in the news media (Palmgreen & Clarke, 1977). Interviews of 400 residents in a metropolitan area were conducted and individuals were assigned alternatively to the local or national questionnaire. In the two weeks prior to the interviews, a content analysis was conducted of local newspapers and television news assessing for issues at both the local and national level. Some issues were categorized as both local and national, such as crime. Correlations were calculated between media coverage of issues at both levels and the proportion of respondents at both levels who stated that an issue was "most important." Results supported the hypothesized relationship with correlations at the national level ( $r = .82$ ) higher than at the local level ( $r = .53$ ). Also, newspaper had a stronger agenda setting role on local issues while local television and network television had a more powerful agenda setting role about national issues. Palmgreen and Clarke (1977) concluded that the agenda setting role of the media varies depending on whether the issue is of local or national origin and through which media it is communicated.

**Susceptibility to agenda setting effects and the role of time.** Aspects of the individual have been examined to explore why some individuals are more likely to be susceptible to agenda setting effects. McCombs and Weaver (1973) asserted that each individual has a need for



orientation, or a psychological need to be familiar with his/her physical and cognitive environment. They argued that the mass media played the role of fulfilling this need and that higher levels of need for orientation lead to higher levels of media use which results in agenda setting. McCombs and Weaver (1973) tested whether or not the agenda setting effect was dependent on the individual's level of need for orientation. Their model stated that need for orientation was dependent upon two key variables: i) the relevance of an issue to the person and ii) the person's relative uncertainty about an issue. Interviews of randomly selected individuals assessed level of interest in political issues and degree of uncertainty about political issues. Survey data were compared with a content analysis of the major regional newspaper where the survey participants lived. Results showed that effects of agenda setting were positively related with need for orientation. The authors concluded that an individual's need for orientation moderated agenda setting effects.

Scholars have also explored different conceptualizations about how time figures into agenda setting. Salwen (1988) sought beyond measuring the prominence of news coverage of an issues as the independent variable. He conducted a study seeking to determine the impact of the accumulation of coverage on issue salience. He focused on the accumulation of coverage of environmental issues as the independent variable. To assess the public's issue salience, Salwen (1988) conducted phone interviews of 880 individuals from three waves of participants randomly selected from the same population. Each participant was asked how personally important a series of environmental issues were. For the dependent variable, Salwen (1988) performed a content analysis of major regional news outlets in the Lansing, Michigan region over a 293 day period, rank-ordering environmental issues by total column inches they received. The results showed no clear evidence of the existence of an optimal duration of agenda setting effects. This researcher

also found that agenda setting effects accumulated quite rapidly within five to seven weeks, then leveled off after 8 to 10 weeks, and then declined slowly, if at all, after this period. He concluded that agenda setting occurs quite rapidly from media coverage but that a decline in media coverage has little impact on reducing the salience of issues among the public.

Over the years, many studies have furthered the field of communication's understanding of the agenda setting phenomenon. Dearing and Rogers (1996) reported over a decade ago that there had been over 350 empirical studies investigating agenda setting since the Chapel Hill study. The research testing agenda setting has provided strong support for the theory. For example, a meta-analysis of 90 agenda setting studies by Wanta and Ghanem (2007) concluded that there is wide-spread support for the agenda setting function of the mass media, with an average correlation between the media agenda and issue salience of .53 across their sample. Further, this meta-analysis found that there were only slight differences among different types of agenda setting studies. The differences between studies focusing on single issues ( $r = .54$ ) versus multiple issues ( $r = .53$ ) were not significant. Differences between studies focusing on individual level effects ( $r = .52$ ) versus the aggregate public ( $r = .54$ ) were also not significant. There were slight yet significant differences between studies that used content analysis of media as the independent variable ( $r = .53$ ) and those that used media exposure measures ( $r = .49$ ). Similarly, there were slight significant differences between longitudinal studies ( $r = .56$ ) and cross-sectional studies ( $r = .49$ ).

Agenda setting is a robust mass communication theory that has withstood testing from multiple methods, across multiple issues and types of news (Wanta & Ghanem, 2007). It is a well accepted and confirmed theory of the relationship between the news media and the public.

Yet it is a theory that is still growing, being challenged and which's relevance in the current media landscape is in question.

### **The Current Fragmented Media Landscape**

Perhaps the biggest threat to the agenda setting theory comes from skepticism about the impact of the current media environment on the ability of the news media to set the public agenda as it once did (Chafee & Metzger, 2001; McCombs, 2005; Takeshita, 2005). The public agenda is the collective perceptions of what individuals think are important at the aggregate level (McCombs, 2004). The major tenet of agenda setting theory is that the public agenda is set by the news media (McCombs, 2004). As noted above, the agenda setting function of the press is its ability through repetition of coverage to increase the salience of issues in the mind of the public (Severin & Tankard, 2001). The fragmented media landscape problematizes this tenet.

The relationship between the news media and the public is not as clean cut as the agenda setting theory traditionally held. Agenda setting theory was developed at a time when people had to rely primarily on a few mainstream news media choices to inform their understanding of issues (Chaffee & Metzger, 2001; McCombs & Shaw, 1972). Today, the mainstream media's ability to establish a common agenda for the public is threatened by the ever-growing array of information sources made available by advances in new communication technologies (Chaffee & Metzger, 2001; McCombs, 1993).

Technology enables people to go beyond just mainstream news media and get information from various sources. For instance, a study by Ku, Kaid & Pfau (2003) assessed the relationship between candidate websites and public opinion. Public opinion polls were used to assess the public agenda and compared with a content analyses of the *New York Times*, *The Washington Post* and nightly news broadcasts on ABC, NBC and CBS. Path models showed that

the Website agendas had a significant agenda setting impact on the public agenda, demonstrating that in the Internet age sources beyond the news media can have the ability to influence public perceptions.

**The Active Public.** With the rise of interactive online media, scholars have begun hypothesizing what could be a shift in the agenda setting process. In an article addressing the impact of the changing media landscape to mass communication theory, Chafee & Metzger (2001) argued that in the emerging fragmented and participatory new media environment, "the key problem for agenda-setting theory will change from what issues the media tell people to think about to what issues people tell the media they want to think about" (p. 375).

Original agenda setting studies such as the Chapel Hill study (McCombs & Shaw, 1972) and the Charlotte study (Shaw and McCombs, 1977) examined the hypothesis that through exposure to the news media the public gained a sense of what was important. The role of the public in influencing the agenda was not explored. And, this makes sense. Mass communication presumes an information flow from one entity to an anonymous many (Severin & Tankard, 2001). The public had no real way of communicating *en masse* their interests back to the mass media.

More recently, agenda setting scholars have explored the possibility that the public may influence the news media through their use of participatory media such blogs and online discussion boards. Blogs, for example, have been shown to have an influence on the news media. A study by Wallsten (2007) examined the agenda setting impact of both professional bloggers and amateur bloggers on the mainstream media in the 2004 campaign. Results of time series analyses provided evidence that both amateur blogs and professional blogs influenced issues covered in the *New York Times*.

Research has also sought to explore whether or not online discussion can have an impact on the news media. In a seminal study of this kind, Lee, Lancendorfer & Lee (2005) examined the impact of online discussion on the 2000 general election in South Korea. This study used cross-lagged correlations between time lags of four days to test for agenda setting effects of electronic bulletin board discussion on two Korean national newspapers. This study tested for *issue*, or first-level agenda setting effects, and *attribute*, or second-level agenda setting effects. Attribute agenda setting effects concern how the focus on specific aspects of an issue impacts how people think about the issue (Lee, Lacendorder & Lee, 2005). Lee and colleagues (2005) found evidence in two out of three lagged panels for second-level agenda setting effects from online discussion to the newspaper. In other words, the way candidates were depicted in online discussion colored the way the newspapers depicted the candidates (Lee et al., 2005). These scholars concluded that the online discussant "is not only an audience who is affected by the existing media, but also an active creator of messages" (2005, p. 60). The researchers posited that perhaps the messages created by online discussants impacts what the news media chooses to cover because the news media monitor and react to these online discussion spaces. Lee and colleagues conclude there is evidence that traditional news media take online political activity seriously by covering these discussions.

### **The Public Agenda Online**

Traditionally, agenda setting scholars have used public opinion polls or other such surveys to assess the public agenda (McCombs & Bell, 1996). Often these studies assess the public agenda by asking what the respondent perceives as the most important issues of the day or what issues the respondent is most concerned about (McCombs & Bell, 1996). Yet, the growth of the Internet has enabled new ways of studying the public agenda. Agenda setting researchers

have measured the online public agenda by assessing users' commentary in online spaces (Roberts, Wanta & Dzwo, 2002; Lee, Lacendorder & Lee, 2005).

In agenda setting research that examines online discussion, online commentary has been envisaged as a surrogate for the public agenda (Roberts, Wanta & Dzwo, 2002). Investigators examine online commentary under the assumption that agenda setting impacts not only what people think about, but that it has a behavioral impact as people use the media to determine what to talk about (Roberts, Wanta & Dzwo, 2002). This assumption follows the perceived ability of the news media to set the agenda for not only what the public thinks about but also what they discuss with one another (McCombs and Reynolds, 2002). *Whereas earlier agenda setting scholarship investigated the results of public opinion surveys to measure the public agenda, researchers have become interested in the potential of online activities to serve as locations for democratic participation, including public discussion.*

The notion that the Internet fosters democratic participation online has been widely explored. There are many who believe the Internet is a democratizing medium in part because it enables interaction among citizens and allows them to exchange ideas and opinions (Morris, 1999). Several scholars have explored the potential of computer-mediated communication to serve as a location for political discussion (e.g., Brundidge, 2006; Davis, 1999; Holt, 2004). With regard to agenda setting research, it is the discussion, expression and exchange of ideas and opinions within online public spaces that impacts what the online participants perceive to be important. In their study investigating the potential of online discussion to impact the news media agenda discussed above, Lee and colleagues argued that Internet discussion boards constitute public spaces where individuals exchange opinions and debate about public issues (Lee et al., 2005). As Lee and colleagues (2005) state:

Various opinions about public issues, for instance, are posted on the Internet bulletin boards or the Usenet newsgroup by Netizens, and the opinions then form an agenda in which other Netizens can perceive the salient issue. As such, it is assumed that not only does the Internet function as the public space, but it can also function as a medium for forming Internet users' opinion. (p. 59)

That is to say that through the discussion and exchange of ideas online an agenda emerges within that online community. Lee et al. (2005) called the result of this process the *Netizen agenda*, in reference to a term used to describe persons who actively participate in online communities who are dedicated to the growth and development of the Internet. The latter scholars used cross-correlations and found that the online discussion issue agenda in online discussion boards in Korea was influenced by the issue agendas of two Korean newspapers. They also found that the online discussion attribute agenda influenced the attribute agenda of the Korean newspapers (Lee et al., 2005). The results upheld their argument of a Netizen agenda and supported Roberts et al. (2002) position that citizen discussion online can serve as a surrogate for the public agenda.

### **Intermedia Agenda Setting**

Studies that followed the original vein of research established in the Chapel Hill study sought to investigate the question "Who sets the public agenda - and under what conditions?" (McCombs, 1993). The original agenda setting theory has evolved during its rich history as a line of scholarly inquiry. In the 1980s, a new line of scholarly inquiry emerged that sought to investigate what factors shaped the agenda presented by the media (McCombs, 2004). This research sought to answer the question "who sets the media's agenda?" (McCombs, 1993). There have been a variety of influences on the media agenda which have been identified including key external sources such as the president, political campaigns and public relations (McCombs,

2004). One particularly critical factor that influences the media agenda are "the interactions and influence of the various mass media on each other" (McCombs, 2004, p. 99). These interactions constitute a phenomenon called intermedia agenda-setting.

Research into the intermedia agenda setting phenomenon examines how media content influence other media content (McCombs, 2004). In a 2005 essay reviewing current trends and future directions of agenda setting research, McCombs argued that intermedia agenda setting research is particularly important in today's fragmented Internet media environment because there is little understanding of the influence between traditional news media and new online media such as blogs (McCombs, 2005).

Much of the early research into the intermedia agenda-setting phenomenon focused on how one news outlet, often a national, elite news outlet, impacted the news coverage of less prominent news outlets, such as regional newspapers. For example, Reese and Danielian (1989) showed the agenda setting impact the coverage of the so-called drug problem by the *New York Times* had which led to an increase in coverage of the drug issue by major television news outlets and newspapers.

In more recent years, scholars have become interested in intermedia agenda setting in the Internet age. Some of these studies have continued to explore the vein of which form of media is the influencer and which is the influenced, focusing exclusively on comparisons between news organizations in online form (e.g., Lim, 2006).

There is also research which has emerged that seeks to examine the relationship between news media and other online media forms. In this vein of research, scholars have explored and found evidence of intermedia agenda setting effects between traditional news media and various forms of online media. A study by Ku and colleagues (2003) examined the influence between



website campaigning and traditional news media in the 2000 election. These scholars were interested not only in whether or not campaign controlled messages could impact the public agenda as discussed above, but also whether or not campaign controlled messaging could impact the media's agenda. The researchers assessed the media agenda of evening newscasts for major television networks ABC, NBC and CBS as well as the prominent newspapers *the Washington Post* and the *New York Times*.

Ku Kaid and Pfau (2003) used cross-lagged correlations to test for effects across three lag periods of seven days. Results showed that in some instances there was significant intermedia agenda setting from the candidate websites of Al Gore and George Bush on the news media. The evidence also showed intermedia agenda setting from candidate Websites at Time 2 to the television news media at Time 3 and from the candidate Websites at Time 1 to the national newspapers at Time 2 and Time 3. Also, there was some evidence of reciprocity in the relationship between websites and the news. For example, the website agendas and the newspaper agendas at Time 2 and Time 3 were reciprocal indicating that the news media helped set the agenda on the candidate Websites. These scholars concluded that candidate Websites are becoming sources of information in the journalistic practices of the news media.

Scholars have also explored the intermedia influence of the news media on blogs (Sweetser, Golan & Wanta, 2008; Wallsten, 2007). A study by Sweetser and colleagues looked, in part, at the relationship between the official blogs of presidential candidates John Kerry and George Bush and television network news media in the 2004 election campaign (Sweetser et al., 2008). This study focused only on broadcast news as opposed to print or online news publications. Using cross-lagged analysis to compare content analyses of blog posts and news stories, the investigators examined intermedia agenda setting between two four-week periods.

These researchers tested for a positive correlation between blogs at Time 1 and news broadcasts at Time 2, which would indicate intermedia agenda setting effects from the candidate's blogs to the news media. They also tested the opposite direction for a correlation between news broadcasts at Time 1 and candidate's blogs at Time 2 which would indicate intermedia agenda setting from the news to candidate's blogs. They found significant correlations for both directions. However, the correlation from broadcast news at Time 1 to blog posts at Time 2 were greater than for the opposite direction. They concluded that the primary direction of influence was therefore from the television news media to candidate's campaign blogs. However, their results indicated that there was also a slight reciprocal relationship in which the television news media was influenced by blogs.

Intermedia agenda setting research investigating blogs has also looked at how the news media impact online participatory media examining the agenda setting impact of the news media on so-called professional blogs and amateur blogs (Wallsten, 2007). In an attempt to debunk the popular notion that blogs influenced the media agenda, Wallsten (2007) sought to test the hypothesis that the mainstream media sets the agenda for blogs. Focusing on 35 issues that emerged during the 2004 presidential campaign, Wallsten (2007) performed a content analysis of 10 randomly selected popular blogs and 50 randomly selected amateur blogs collected on a daily basis for five months. To determine the media agenda for this period, he performed a content analysis of the *New York Times*.

His study was challenged by a need to determine what blogs to sample given the voluminous nature of the blogosphere. This challenge presented sampling and measurement limitations that Wallsten (2007) had to address. To determine popular blogs the researcher sampled from four different blog indexes that have a list of their most popular blogs, each index

using different means of determining their top blog list. Blogs that were listed as top blogs on at least two of the four indexes were sampled from. To create a sample of amateur blogs, Wallsten (2007) also used the less reliable measure of using keyword searches of political blogs on twelve well-known blog indexes. The primary drawback of this sampling method for determining amateur blogs is that in order for a blog to be listed on a blog index the blogger must submit the blog to the index, excluding an unknown number of blogs from Wallsten's (2007) sample. It must be noted that his work was limited by a lack of pre-established measures for determining prominence of an issue in blogs. Whereas previous agenda setting research had used measures such as column inches or placement of the story within the newspaper to determine the importance of a story within the media, there was no agreed upon method for the blogosphere. Prominence of an issue could be measured using a number of methods such as the amount of discussion in the blogs comment section under a post, the amount of times a story is linked to or other such methods. Wallsten (2007) chose to measure issue prominence using frequency counts of keywords within each article in his sample.

Time series analysis was employed with seven-day lags for intervals to test for agenda setting effects across time. Contrary to the hypothesis, Wallsten (2007) found bidirectional intermedia agenda setting between professional bloggers and the news media as well as between amateur blogs and the news media. However, like the study by Sweetser and colleagues (2008), Wallsten's (2007) results were not clean cut. On 19 of the 35 issues there was evidence of a bidirectional relationship between the popular blogs and the news coverage. Indeed, Wallsten (2007) found that on many issues there is no relationship between blogs and the media - indicating that these two media respond to different factors. A unidirectional influence from the media to the blogs was found on only two of the 35 issues. Similarly, there was a unidirectional

influence from popular blogs to the media on only three of 35 issues. The nature of the bidirectional relationships varied by issue. On some issues, there were bidirectional influences across all 15 time lags analyzed. However, for some issues the influence was more often from one form of media to the other over the 15 time lags. The results were similar for less popular blogs. Wallsten (2007) found evidence for bi-directional influence between amateur blogs and the news media on 22 of 35 issues. There was a unidirectional influence of blogs on the media for only three issues and media coverage had no unidirectional influence on blogs. In some cases he found a negative relationship for both popular and amateur blogs suggesting that when blogs are giving a great deal of attention to one issue the media may feel the issue is saturated and give attention to a neglected issue and vice versa. Clearly, the relationship between blogs and the news media varied by issue. The investigator concluded that a complex, bidirectional relationship existed between the media agenda and the agenda on blogs in which bloggers and journalists influence one-another over the course of just a few days.

In addition to investigating the relationship between blogs run by citizens and the news media, intermedia agenda setting studies have examined another form of online participatory media - online discussion. The notion of an intermedia agenda setting impact of news media on online discussion comes from a key study by Roberts Wanta and Dzwu (2002). In this study, the researchers examined postings to an electronic bulletin board (EBBS) about political issues on the online service provider America Online. These scholars were interested in testing for more powerful effects than traditional agenda setting research that explores cognitive effects (Roberts et al., 2002). Specifically, these researchers were interested in whether or not "high media coverage of certain issues will not only make the issue appear to be important, [but] it will also stimulate enough interest in the topic so that Internet users will feel compelled to bring that topic

to EBBS for discussion" (Roberts et al., 2002, p. 453). That is, these researchers tested for agenda setting effects from the news media to online discussion.

To assess the media agenda, the researchers performed content analysis of the major media outlets the *New York Times*, the Associated Press, Reuters, *Time* magazine and CNN. To assess the public agenda, the researchers downloaded and analyzed discussion posts to an electronic bulletin board about politics on America Online. Time-series analysis was used with time lags from one to seven days to assess agenda setting of four issues: immigration, abortion, taxes and health care.

Agenda setting effects were not uniform. The researchers found variations in agenda setting effects by media and issue across various time lags. Some issues showed agenda setting effects in a short period of time that did not last for many days. For example, immigration showed an agenda setting effect after one and two days but disappeared by the third day and did not re-emerge between days four and seven. Other issues such as taxes took numerous days to have an agenda setting effect. Different issues such as immigration were more susceptible to agenda setting effects than other issues, such as abortion. There was no agenda setting impact on the issue of abortion. The researchers concluded that certain issues required prompting to receive discussion whereas there are other issues, like abortion and taxes, about which people hold very strong opinions and were likely to discuss whether or not the issue was receiving media attention. Similarly, different media outlets produced different effects across issues. The *New York Times*, which has been shown in previous research to have a strong agenda setting effect (Gilbert, Eyal, McCombs & Nicholas, 1980; Mazur, 1987; Winter & Eyal, 1981), demonstrated the greatest agenda setting impact on online discussion.

These scholars do caution that external information sources, such as a presidential speech, could have impacted online discussion and could be a reason for found effects (Roberts, Wanta & Dzwu, 2002). However, this limitation is a reality for most any agenda setting study that does not employ an experimental design to help control for confounding variables. Despite this limitation, these scholars determined that there was evidence of agenda setting effects from various forms of news media about various issues on discussion on an electronic bulletin board. They concluded that media coverage is capable of providing web users with information to use in online discussions.

Later research has confirmed an intermedia agenda setting impact of online news media on online discussion (Lee, Lancendorfer & Lee, 2005). In addition to the findings discussed above about Lee and colleague's (2005) study that showed evidence of attribute agenda setting from online discussion to the news media, these researchers also found evidence for influence from the news media to online discussion. Specifically, these scholars found in some instances that there was intermedia agenda setting effects of the news media issue agenda on the online discussion issue agenda at a later time.

### **The Changing Media Environment**

**The producer/consumer relationship.** The proliferation of new media has intensified competition causing a destabilization of the established media order (McQuail et al., 1998). The media world is facing a paradigm shift enabled, in part, by the emergence of various new media technologies (Christians , Glasser, McQuail, Nordenstreng & White, 2009). The shift that has taken place has applied to many businesses beyond the news media. This shift is a change in the producer/consumer landscape. As Tapscott and Williams (2006) argued, advancements in

technology are a major factor that have helped usher in new modes of production that are revolutionizing how businesses are run.

Tapscott and Williams (2006) argue that we are in a transition towards a "world where knowledge, power and productive capability will be more dispersed than at any time in our history" (p. 12). In the new environment today, customers have been empowered to create content and contribute to the business (Tapscott & Williams, 2006). The same is true for the news media business. As argued in a report in Oxford University's Reuters Institute for the Study of Journalism, the production order in the news industry has changed and the user has become central to the production of news (Kelly, 2009). The report notes:

Users don't have to be users anymore; they can be producers. In fact, the tables have turned so much that the old producers - the newspapers, the TV news operations - are now users. Today, the mainstream media is continually asking citizens to have their say. (Kelly, 2009, p. 1-2)

Kelly (2009) states that the news product will be measured in part by its ability to empower users to contribute to, share and customize the news. Nowhere are Kelly's points evidenced in such manifest blatancy than CNN's iReport. iReport is CNN's branded user-generated website, whose tagline is "Unedited. Unfiltered. News" ("iReport," 2009). The site encourages viewers to be the reporter by contributing their own stories in video format ("iReport," 2009).

Yet more is taking place than just the responses from the public to the news media's solicitations for contributions. The public is going out on its own to create and produce content, essentially bypassing the mainstream press. Jay Rosen, journalism professor at New York University, wrote that the "people formally known as the audience" have been given the tools to create and distributed media content that were previously under the control of the mainstream

media due to their high cost (Rosen, 2009). Anyone with access to these technologies can report an event bypassing the structure and institution of the traditional news organization by reporting directly to the conversational communities on the social web (Bowman & Willis, 2003). Citizen journalists empowered with such tools challenge the news media's ability to break the news (Filloux, 2009). Citizen journalists are both content producers and consumers and in effect collectively construct their own agenda.

**Hard times.** The media landscape is also changing in that traditional news media organizations are losing their market share and their revenue. The outlook for the printed newspaper is especially bad as circulation for dailies fell 4.6% in 2008, a drop of 13.5% since 2001 ("Key Findings," 2009). In 2008 and 2009, many newspapers closed, including Denver's *Rocky Mountain News* (Perez-Pena, 2009). Others have filed for bankruptcy, including the Tribune Company, owner of the *Los Angeles Times* (Perez-Pena, 2009). Readership of traditional mainstream news is down on the whole, even when taking into consideration the growing use of the Internet to get news ("Newspapers face," 2009). According to a study conducted by the Pew Research Center for the People & the Press, the percent of Americans who reported reading a printed newspaper was down from 34% in 2006 to 25% in 2008. The same study found that when readership of newspapers in online and print form were combined, readership was still down from 43% in 2006 to 39% in 2008.

Further complicating the plight of the news media is the current trend in advertising revenue. According to a report by the Pew Project for Excellence in Journalism, advertising revenue is down in some sectors of the news media market, including down 16% in 2008 for newspapers, and down 7% for local television ("Key Findings," 2009). Reports by Pew on the state of the news media have observed that factors contributing to the decline in revenue include



new digital technologies that enable those seeking to reach consumers the ability to circumvent the news media as middle man ("Key Findings," 2009) as well as free alternatives to newspaper classifieds such as Craigslist.org ("Economics," 2008). The cut in revenue has impacted news staffs across media. Newspapers, network and local TV, radio and weekly news magazines all shed jobs in 2008 ("Key Findings," 2009).

News media organizations today are in the difficult position of competing with other media forms for the public's attention in an attempt to remain relevant. The news media is being forced to adapt to the changing media environment on account of the industry's grim outlook.

**Changing journalistic norms.** Using an onion as a metaphor, McCombs (2004) presented three fundamental layers which work to set the media agenda. The first, and most external, are key external sources such as the United States president which provide information for journalists to use. Second, and deeper inside the onion are other news media, the layer where intermedia agenda setting occurs. According to McCombs' metaphor, the third and closest layer to the media agenda is the layer of news norms. He noted that news norms and traditions "define the ground rules for the ultimate shaping of the mass media" (McCombs, 2004, p. 99). Thus, how the news media practice news gathering and reporting has the strongest influence on the resulting media agenda. Therefore, it is critical to consider these journalistic practices in the context of the contemporary changing media environment.

**Adapting to the new media environment.** Because social media fosters interaction and the contributions of its users, it is part and parcel to the changing environment that has empowered everyday citizens to create and share media content (Boyd, 2007; O'Reilly, 2005; Jenkins, Clinton, Purushotma, Robison and Weigel, 2006; Tapscott & Williams, 2006). Social

media is thus ideally suited to be used by news media practitioners in an attempt to adapt to the changing relationship between producer and consumer.

Blogs are one such form of social media that journalists are taking cues from. Results from a preliminary survey by the Society for New Communications Research of journalism professionals in 2009 found that 66% of respondents reported using blogs in one way or another to assist reporting. Of journalists participating in an online survey by the marketing and public relations firm Arketi Group, 84% reported that they would or already have used blogs as primary or secondary sources ("Arketi Group," 2007). Blogs are also serving as resources for story ideas and angles. According to the Brodeur Journalists New Media Survey of January 2008, over 75% of those surveyed responded that they use blogs as a helpful resource for story ideas and angles ("Brodeur", 2008). The study by Arketi Group confirms the tendency among many journalists to turn to blogs for story ideas, finding that 54% of journalists participating in the survey report using blogs to spark story ideas ("Arketi Group," 2007). Blogs also serve an important surveillance function for journalists ("Brodeur", 2008). Of journalists surveyed by Brodeur, 76.2% found blogs to be very helpful or somewhat helpful in gaining insight into the tone of a debate or discussion about an issue. Blogs are important sources of information about breaking news for many journalists, with 46.9% of respondents in the Brodeur survey reporting that they find blogs very or somewhat helpful at serving this function ("Brodeur", 2008).

Beyond blogs, other social media tools such as social networks are finding their way into journalistic practices. Preliminary results from a 2009 survey of journalist professionals conducted by the Society for New Communications Research found that 70% reported using social networks to assist reporting, up from 41% from the previous year (Maul, 2009). An example of journalists using social media to assist in reporting is a case in which the Associated

Press cited the social network profile of former Governor of Alaska Sarah Palin as an information source about her future plans (e.g., "Palin cites," 2009). The Society for New Communications Research survey found that 92% of respondents agreed either strongly or somewhat that new social media are having a positive impact on journalism given its ability to improve efficiency in reporting, enhance research and help build relationships with sources and their audience (Maul, 2009). Accordingly, a number of communities have emerged online advocating greater integration of social media tools to enhance reporting such as cyberjournalist.net and wiredjournalist.com. These platforms enable self-motivated journalists the opportunity to share their passion for integrating social media into their reporting, exchange examples of the use of social media in journalism, and share tips and discuss practices.

There is a great deal of interest in using Twitter as part of journalistic practices (Farhi, 2009). Preliminary results from a 2009 survey of 317 professional journalists by the Society for New Communications Research found that 47% use Twitter or other micro-blogging services to assist in reporting (Maul, 2009). The survey showed that journalist's perceptions about Twitter as an information source are overall positive with 57% of those surveyed responding that information found on Twitter is "somewhat credible" and 6% reporting it is "very credible" (Maul, 2009).

The journalism industry is using Twitter in a number of ways. CNN has experimented with using Twitter to solicit audience feedback (Hirsch, 2008). Similarly, print news organizations have culled posts from Twitter users about newsworthy events and posted them to their website in the spirit of the "classic man-on-the-street opinion feature" (Farhi, 2009, 14). Also, the news media sometimes reports the citizen journalism that is reported to Twitter such as it did in the case of the Iran election ("Latest Tweets," 2009). Supporting the growing demand in

the journalism profession to use Twitter are webinars offering to train journalists how to use the new service (e.g., "Twitter for journalists," n.d.).

A prime example of the news media turning to Twitter as they struggle to adapt to the change in the producer/consumer landscape is the Iran election protests of 2009. In the wake of the media crackdown by the Iranian government that forced many mainstream news media to leave the country, the Iranian opposition turned to social media platforms such as Twitter and YouTube to broadcast their opposition and report events taking place in the country (Stone & Cohen, 2009).

As much of the news about the events inside Iran were streaming through Twitter, many on Twitter became upset at the visible lack of reporting by CNN about the protests (Kirkpatrick, 2009). What ensued was a user-organized popular protest of CNN on Internet sites like Twitter that took on the moniker "CNNFail" (Cashmore, 2009a; Terdiman, 2009). CNN responded to the heat it received from the Twitter community, stating that it was on top of the story, despite evidence to the contrary (Cashmore, 2009b). Twitter's role in breaking news about the Iran election protests forced mainstream news media outlets including CNN and *Time Magazine* to turn to the micro-blogging service for news and information that they then reported to the public ("Latest Tweets," 2009).

### **Twitter Agenda: The Role of Collective Intelligence**

Social software is about the collective and promotes the interaction and engagement of individuals (Boyd, 2007). The participation of many individuals on such a network produces a phenomenon known as collective intelligence. Collective intelligence is the sum of knowledge amassed through the collective contributions of many dispersed individuals creating a community of knowledge (Jenkins, Clinton, Purushotma, Robison, & Weigel, 2006; Tapscott &

Williams, 2006). These contributions at the aggregate level constitute the collection of what its members have to offer. On such a platform where what people contribute is what they are interested in at that moment, the result is a list of what is important to members of the network. Such an environment exists in the micro-blogging platform Twitter.

Twitter offers its users a unique opportunity to survey and contribute to and shape an ongoing exchange of information streaming through the micro-blogging network. Boyd, Golder and Lotan (2009) argue that Twitter is unique because of the open structure of the site that produces a shared and public conversation. They state:

Because Twitter's structure disperses conversation throughout a network of interconnected actors rather than constraining conversation within bounded spaces or groups, many people may talk about a particular topic at once, such that others have a sense of being surrounded by a conversation, despite perhaps not being an active contributor. The stream of messages provided by Twitter allows individuals to be peripherally aware without directly participating. (Boyd, Golder & Lotan, 2009, p. 1)

This structure is important because it gives Twitter users a sense of awareness of what is going on across Twitter creating a sense of connectedness that invites their involvement. The public conversation that emerges is open for all to consume as well as contribute to despite the vast size of the network. A primary way people contribute to the tenor of this massive, open Twitter conversation is through the media content they share.

**Modes of information dissemination on Twitter.** Twitter mainly plays an information dissemination and retrieval function for many of its users. A study of the uses and gratifications of Twitter users found that the micro-blogging service is used primarily to gratify information gathering motives as opposed to social motives (Johnson & Yang, 2009). A Pew study

corroborates this, stating that for many Twitter users, "learning about and sharing relevant and recent nuggets of information is a primary utility of the service" ("Twitter and," 2009, 5). Twitter users get and exchange news and other information by posting URL links to websites.

Dissemination of information on Twitter works in several different ways. One way information dissemination takes place on Twitter is through the news media. According to research done by the Pew Internet & American Life Project, Twitter users are comparable to non-Twitter users on the Internet in their consumption of news ("Twitter and," 2009, 5). But, the study found that Twitter users were greater users of online newspapers than the Internet population at large ("Twitter and," 2009, 5). This may be because users are being driven to online news content through Twitter use. Many news outlets including newspaper companies have Twitter pages that they use to disseminate news and drive traffic back to content posted on their website ("Study finds," 2009). For example, *the Los Angeles Times* and the *New York Times* run dozens of Twitter accounts for various sections and individual journalists ("Los Angeles Times," 2009; "The *New York Times* on Twitter," 2009). Nearly all mainstream media news outlets, both traditionally print and television, have established a Twitter presence.

The mainstream news media are not the only media pushing content onto Twitter. The Twitter presence of journalists both from the mainstream media and alternative online media sources such as blogs is large and ever growing. A number of websites attempt to catalogue the Twitter presence of both mainstream and non-mainstream journalists such as bloggers and alternative news outlets (Porter, n.d.), with one such site MediaOnTwitter.com listing over 1,000 self-described journalists as of September, 2009. Many information sources Twitter users follow on Twitter are culled from this large presence of alternative media, niche news and blogs.

Information dissemination on Twitter by various media outlets, both the mainstream news media and others, is just one of the ways information is exchanged. The most common way information is disseminated is via the individual users themselves. The culture of sharing what users find interesting or important encourages information exchange. Twitter users share mediated content culled from anywhere on the Internet, from any type of source ranging from mainstream media, to blogs, to media from organizations or businesses, to other social media networks and so forth. Because people share and comment about what they find important, this behavior contributes to the social media agenda on Twitter.

Twitter users use short URLs to post links to Twitter, often accompanied by descriptions or commentary about the linked content. These posts can elicit responses from other users who share their commentary. When it comes to sharing online content, Twitter users contribute both novel content they have found and content they found via Twitter. When Twitter users disseminate information they received through Twitter they engage in the act of retweeting. As Boyd, Golden & Lotan (2009) explain, "[s]tructurally, retweeting is the Twitter-equivalent of email forwarding where users post messages originally posted by others" (p. 1). When a user retweets a message that message is then broadcast to all of the user's followers thus increasing the reach of the message. A retweeted message may contain additional commentary by the user retweeting it, or may have been otherwise altered (Boyd, Golden & Lotan, 2009). In any case, because a retweet adds an additional post of the message to the total number of posts being made to Twitter at a given time, it increases the rank of that information on the social media agenda on Twitter.

Twitter can also be used for real-time reporting of events. The emergence of social media tools like Twitter which allow immediate information distribution in the wake of an event has

challenged the ability of the news media to break the news (Filloux, 2009). Amateur reporters or unexpected bystanders to newsworthy events use the service to post first-hand experiences, effectively filing 140-character reports in the spirit of citizen journalism (Filloux, 2009). Citizen journalism is the practice of citizens being active in the process of news gathering, analysis and reporting and dissemination (Bowman & Willis, 2003). Examples of this happening include the US Airlines flight that made an emergency landing in the Hudson River and during the Iran election protests in the summer, 2009 ("Citizen photo," 2009; "Latest Tweets," 2009). These are but a few examples of the increasingly common occurrence of persons with mobile devices and access to their Twitter accounts witnessing a newsworthy event and sharing information about it on Twitter. These accounts may include what the witness has seen and even links to photos they have taken. The reporting potential of Twitter has been recognized by the mainstream news media and they are also using the service to report events live such as the Associated Press did during the Judge Sotomayor's Senate confirmation hearings (Kanalley, 2009).

And of course, sometimes Twitter users simply share their commentary about whatever is on their mind, in effect adding to the larger conversation of users concerned with the same topic. For example, if people are watching a popular television show being aired, they may go onto Twitter to share their thoughts about the show adding to the conversation about the show across the Twitter community.

Because Twitter is a real-time service, it can be searched at any given time in order to rank the most popular subjects being shared or discussed at that moment. In fact, Twitter actively promotes what issues are the most popular on the service with its list of trends. Trends are the most popular topics being discussed on the site at any given time. The information is displayed prominently on the Twitter homepage in the form of a list of popular keywords being posted to



Twitter in real time. The sum of the information exchange and commentary that takes place on Twitter represents what Twitter users collectively find important and thus comprises the social media agenda on Twitter. An infinite array of sources may contribute to the social media agenda on Twitter. The mainstream media is one type of content people feel compelled to share and comment on on Twitter and is thus one factor that helps set the agenda on Twitter. The extent to which the mainstream media impact the social media agenda, then, is a test of the influence the mainstream news media has today in the social media world.

**Impact of *New York Times* on Twitter Agenda.** As noted, there are many sources that Twitter users get their information from. The *New York Times* is a mainstream news media source that has an agenda setting impact on the Twitter agenda. There are no studies into how many Twitter users are readers of the *New York Times*. But as of December 21, 2009, there are over 2,200,000 followers of the *New York Times*' main Twitter account. However, that leaves a large subset of the Twitter population who do not follow the *New York Times* directly. Certainly many users who follow people who follow the *New York Times* on Twitter are exposed to those users' retweets of the *New York Times*. Yet, it is Twitter's prominent role as an intermedia agenda setter that solidifies its impact on the Twitter agenda.

According to Graber (1997), the *New York Times* news coverage tends to serve as beacon for what other media outlets perceive as important. Indeed, numerous studies have shown the *New York Times* has an intermedia agenda setting role for other U.S. news outlets who use the newspaper as a guide in deciding what to cover (Mazur, 1987; Gilbert, Eyal, McCombs & Nicholas, 1980; Reese & Danielian, 1989). For example, Reese and Danielian (1989) showed the agenda setting impact the coverage of the so-called drug problem by the *New York Times* had which led to an increases in coverage of the drug issue by major television news outlets and

newspapers. Similarly, Mazur (1987) demonstrated that the *New York Times* coverage of the health threats posed by radon spawned widespread coverage at both the national and regional level and subsequent attention to the issue.

Because the *New York Times* sets the agenda other news outlets within the U.S., the reach of the *New York Times* extends beyond direct consumption of the publication itself and its Twitter posts. Other news outlets turn to the *New York Times* to determine what is newsworthy. The *New York Times*' influence trickles down to these news outlets impacting their coverage. Twitter users are greater users of online newspapers and more likely to read a newspaper on a mobile device than the Internet population at large ("Twitter users are," 2009). Because news outlets commonly use Twitter as a way to promote their content ("Study finds," 2009), Twitter users consuming other news media through Twitter are in many cases indirectly influenced by the *New York Times*.

**The *New York Times*' attention to the Twitter agenda.** In order to argue that the agenda on Twitter may influence the coverage of the *New York Times* it is essential to address how reporters from the *New York Times* are able to know what the agenda is on Twitter. While there is evidence that the participatory online media of amateur and professional blogs have had an agenda setting effect on the *New York Times* (Wallsten, 2007), there are no previous studies of the intermedia agenda setting effect of Twitter on the *New York Times* to rely on in making this determination. A likely reason for this void is the relative newness of Twitter in the world of journalism and the timely process of conducting academic research.

It can be argued that if *New York Times* reporters are monitoring the blogosphere and the blogosphere is having an agenda setting effect on the *New York Times*, that it follows that reporters at the *New York Times* also will monitor Twitter and that Twitter will have an agenda

setting effect on the *New York Times*. However, more evidence is needed than to simply draw such a connection based on the premise that *New York Times* reporters' journalistic norms have inevitably followed the evolution in popular forms of participatory online media from blogs to Twitter.

In the face of a lack of research demonstrating a reliance on Twitter in reporting, there are numerous pieces of evidence that strongly suggest the probability that *New York Times* reporters are influenced by the Twitter agenda. The behavior of the *New York Times* as a news organization and its individual reporters indicates that the organization pays attention to the Twitter agenda and uses Twitter in its reporting.

In spring 2009, the *New York Times* hired its first “social media editor,” Jennifer Preston (Oliver, 2009). An internal memo sent to New York Times employees indicates that part of her job is to:

work closely with editors, reporters, bloggers and others to use social tools to find sources, track trends, and break news as well as to gather it. She will help us get comfortable with the techniques, share best practices and guide us on how to more effectively engage a larger share of the audience on sites like Twitter, Facebook, Youtube, Flickr, Digg, and beyond. (Seward, 2009, 6)

The memo also states that “more of us are using social networks to find sources, contacts and information,” mentioning reporter Brian Stellar as an example via a reference to his Twitter account (Seward, 2009, 5). A look at Stellar's Twitter account shows the reporter seeking to engage the Twitter community with posts asking questions, messages sent to other Twitter users, and posts retweeting posts from other users (Stellar, n.d.). An ethnographic study by a student at the University of Wisconsin supports the memo's claim (Smith, 2009). The study which

explored how *New York Times* reporters use Twitter, noted email communication the student had with reporters at the online publication discussing how they use Twitter to engage audiences as well as specific examples in which the reporters have sought information by posing questions on Twitter (Smith, 2009).

According to the *New York Times* website, there are currently over 200 Twitter accounts affiliated with and promoted by the *New York Times* (“The New York Times on Twitter,” 2009). This list includes accounts of individual reporters and of specific beats and sections of the paper as well as a main account for the online publication. The Twitter service publishes how many other Twitter users a particular Twitter account follows. Thus, we can determine what Twitter users a particular *New York Times* reporter gets a live stream from when using the Twitter service (“The New York Times on Twitter,” 2009). The number of Twitter users each *New York Times* Twitter account follows varies, ranging commonly between 100 and 1,000 (“The New York Times on Twitter,” 2009).

The *New York Times* also publishes on its website a list of Twitter lists that the news staff follow (“The New York Times on Twitter,” 2009b). Lists are a part of the Twitter service and are programmable collections of Twitter users that any Twitter account holder can create (Cashmore, 2009c). This service allows account holder the ability to organize other Twitter users by a common theme and enables the account holder access to users beyond their list of followers (Cashmore, 2009c). Twitter lists are public and any Twitter account holder can follow the lists created by the *New York Times*. Lists have gotten attention recently as tools news organizations are using to curate sources for specific topics or when a newsworthy event such as the Fort Hood shooting occurs (Lavrusik, 2009).

The *New York Times* lists and the array of Twitter users reporters follow provides some insight into the types of Twitter users that may be influencing the news staff. Of course, just because a *New York Times* reporter on Twitter user follows other Twitter users or creates a list of Twitter users does not necessarily mean that the reporter pays attention to the posts of those users. But, it makes sense that the *New York Times* as an organization would not bother to curate Twitter list and their reporters would not bother to be discerning in who they follow if *New York Times* news staff had no intention of at least occasionally monitoring the activities of these Twitter users. Otherwise, these practices would serve no purpose and there would be no reason to perform them.

It can be argued that having lists and specific followers enables reporters to selectively expose themselves to only those Twitter users they care to stay current with. However, the open structure of Twitter creates a shared, public conversation wherein Twitter users are surrounded by conversation whether or not they are directly engaging in it (Boyd, Golder & Lotan, 2009). For example, Twitter automatically inserts into a user's Twitter stream retweets from followers of users the reporter follows widening the reporters exposure. Also, because there is a culture of information exchange the individuals the reporter's follows are likely to have retweeted posts from their followers exposing the reporter to information from beyond the user's the reporter follows. There is also the Trend list. The Trend list is displayed on a user's account page and indicates the top 10 most popular terms from Twitter posts across all users in real time. Trends give users a sense of what is popularly being discussed on Twitter at a given time. And, Twitter search enables any user to search the Twitter conversation in real time across key terms, specific geographic regions, etc, opening users to the Twitter community.

Individually these pieces of evidence do not prove that the *New York Times* reporters are exposing themselves to the Twitter agenda and do not take the place of research evidence. However, the behavior of the *New York Times* as an organization and its reporters coupled with the anecdotal cases available provide strong reason and evidence that indeed it is likely that the *New York Times* is aware of and attentive to the Twitter agenda.

## **Summary**

Agenda setting is no longer a process by which the public passively has its agenda set. In the interactive media environment of today the news media could guide and be guided by the public. In an increasingly mediated world, agenda setting scholars must rely on intermedia agenda setting research to gain insight into the interplay between the news media and the public. Intermedia agenda setting studies are useful for assessing user-generated participatory media.

Scholars interested in intermedia agenda setting between traditional news media and online media forms have not explored social media platforms that harness the collective intelligence of many such as the micro-blogging service Twitter. This study tests the theoretical notion that the public has the ability to impact the news media, advancing the vein of research proposed by Chafee and Metzger (2001) by testing for agenda setting effects of the Twitter agenda on the news media. Specifically, this study examines the relationship between the online news publication of the *New York Times* and Twitter.

The mainstream media has begun taking cues from social media as a way to attempt to adapt to the change in the producer/consumer landscape. When we consider the reactionary posture of the news media in the changing media landscape wherein the individual has achieved an elevated status as content producer, it is clear there is a greater need to clarify the role of the public in influencing the news media agenda. The public has been empowered through such

social media tools as real time micro-blogging services like Twitter that deliver a centralized pulse of the contributions of an aggregate of many individuals. The news media agenda is set in part by the public through the avenue of social media as a result of the conscious journalistic practices of the news media. In this regard, social media exerts a direct influence on the traditional news media agenda.

The fragmented media world of today is not well understood. The rise in adoption of social media coupled with the declining audience share of the news media leaves room for questions about whether the news media today has lost its influence. This study seeks to help fill the gap in our understanding. Issue agenda setting effects, the focus of the present dissertation, focus on the influence of what people think about: the transfer of salience of an issue. The extent to which the news media impact the social media issue agenda, then, is a test of the influence the mainstream news media has today in the social media world. Conversely, the extent to which social media is able to impact the news media issue agenda indicates the importance of social media in the news environment of today.

## **Hypotheses**

The trend in intermedia agenda setting research between traditional media and online media forms indicates bi-directional intermedia agenda setting influence. Ku Kaid and Pfau (2003) investigated intermedia agenda setting between candidate websites and news media. These researchers found some evidence of reciprocity in agenda setting between candidate websites and the news media. Sweetser and colleagues (2008) studied intermedia agenda setting between candidate blogs and the news media, finding significant correlations indicating evidence of some agenda setting in both directions. However, the influence from broadcast news to blog posts was greater indicating the influence was stronger from the news to the blogs.

Further, evidence suggests that news media can set the agenda for participatory online media and that participatory online media can set the agenda for the news media. Roberts and colleagues (2002) tested for agenda setting from the news media to online discussion boards. These scholars found evidence of agenda setting effects from news media on discussion on an electronic bulletin board. They did not test for agenda setting effects in the opposite direction. A study by Lee and colleagues (2005) supported these findings. They found intermedia agenda setting effects of the news media issue agenda on the online discussion issue agenda at a later time. They also found evidence of attribute agenda setting from online discussion to the news media. Wallsten (2007) investigated intermedia agenda setting between user-created blogs and traditional media over time. He found overwhelming support for a bi-directional intermedia agenda setting influence between blogs and the news media. Of the 35 issues under study, there was evidence of a bidirectional relationship between popular blogs and news coverage on 19 issues and bi-directional intermedia agenda setting between amateur blogs and the news media on 22 issues.

Given that the intermedia agenda setting relationship between the news media and online media has been shown to exist in both directions and that studies focusing on participatory online media also show evidence that intermedia agenda setting occurs in both directions, this study proposes that there exists both issue agenda setting from the news media to social media and from social media to the news media. There should be significant bi-directional agenda setting between online news media and the Twitter agenda.

Agenda setting on the Internet occurs much more quickly than traditional agenda setting (Lee, Lancendorfer & Lee, 2005; Roberts, Wanta, Dzwo, 2002; Wallsten, 2007). Currently, the *New York Times* updates its websites multiple times a day. Twitter is a real time service that is



constantly being updated by its users. Scholarship has indicated that agenda setting online could occur within a single day over the course of several hours (Lee, Lancendorfer & Lee, 2005). It is likely that the content posted on one media in the morning influences the post on the other media in the evening. The panels designed for testing relationships between traditional media and social media are shown in Figure 1 and Figure 2. Based on the seven panels designed for testing relationships within a single day from morning to evening over the course of the seven days in this study (see Figure 1), the following seven hypotheses are made. Each hypothesis asserts that there is bi-directional intermedia agenda setting between online news media and Twitter from the morning to the evening for the day being analyzed.

H1: There is significant mutual intermedia agenda setting between M1 and T2 and T1 and M2

H2: There is significant mutual intermedia agenda setting between M3 and T4 and T3 and M4

H3: There is significant mutual intermedia agenda setting between M5 and T6 and T5 and M6

H4: There is significant mutual intermedia agenda setting between M7 and T8 and T7 and M8

H5: There is significant mutual intermedia agenda setting between M9 and T10 and T9 and M10

H6: There is significant mutual intermedia agenda setting between M11 and T12 and T11 and M12

H7: There is significant mutual intermedia agenda setting between M13 and T14 and T13 and M14

There should also be significant mutual agenda setting effects between online news media and Twitter for between day panels. Roberts Wanta and Dzwo (2002) showed that agenda setting can occur between online user-generated content and news media in just one day. Based on the six panels designed for testing relationships between two day periods over the course of the seven days in this study (see Figure 2), the following six hypotheses are made. Each hypothesis asserts

that there is a bi-directional intermedia agenda setting influence between online news media and Twitter from the evening for the first day being analyzed in the panel to the morning of the second day being analyzed in the panel.

H8: There is significant mutual intermedia agenda setting between M2 and T3 and T2 and M3

H9: There is significant mutual intermedia agenda setting between M4 and T5 and T4 and M5

H10: There is significant mutual intermedia agenda setting between M6 and T7 and T6 and M7

H11: There is significant mutual intermedia agenda setting between M8 and T9 and T8 and M9

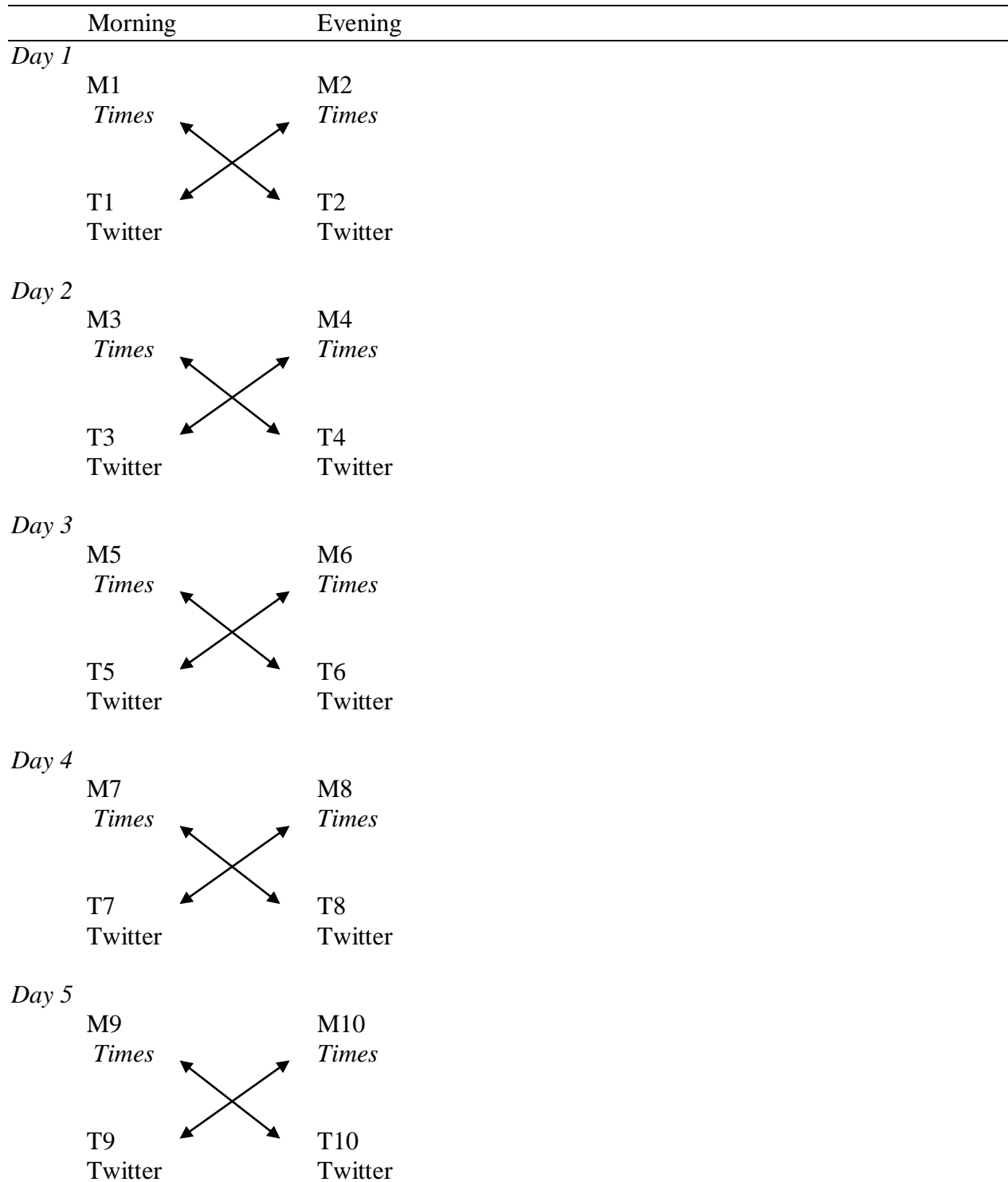
H12: There is significant mutual intermedia agenda setting between M10 and T11 and T10 and

M11

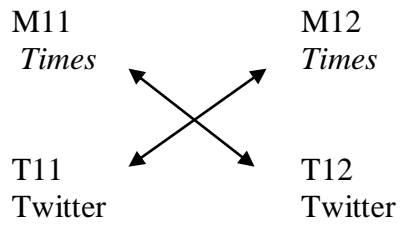
H13: There is significant mutual intermedia agenda setting between M12 and T13 and T12 and

M13

Figure 1: Hypothesized Within Day Relationships



*Day 6*



*Day 7*

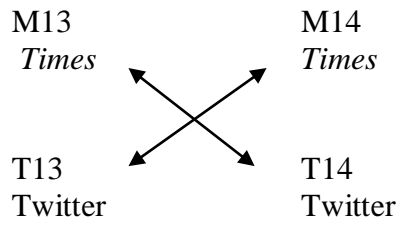
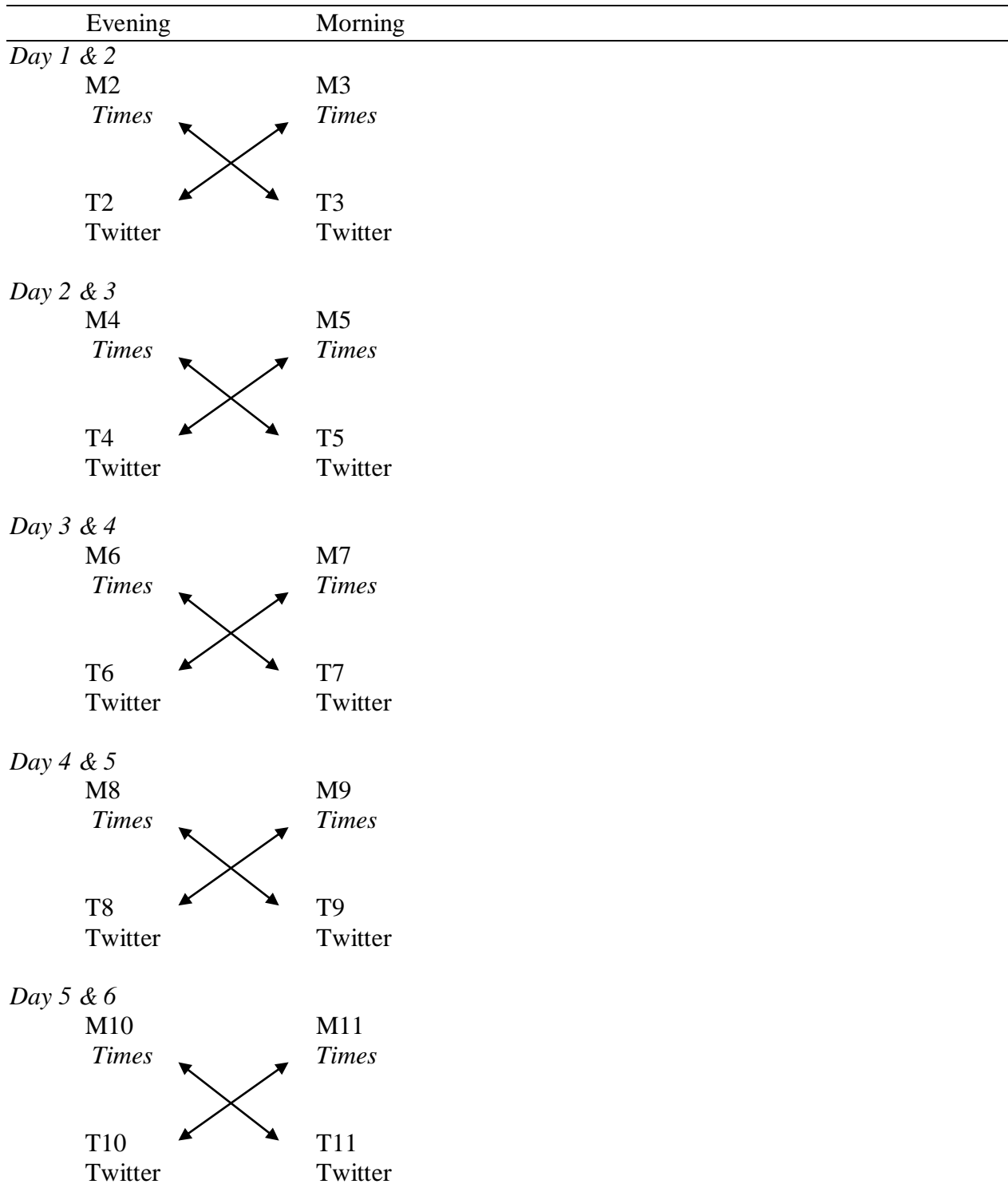
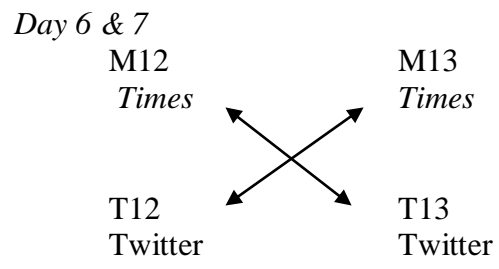


Figure 2: Hypothesized Between-Day Relationships





## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

The purpose of this study was to analyze whether or not mainstream media drive the social media agenda or whether or not social media drive mainstream media agenda. If the latter is true, a new model of agenda setting is needed in the age of social media. This study tested hypotheses that there is mutual intermedia agenda setting between mainstream news media and social media by sampling a national newspaper in online form and the social media site Twitter. A codebook was created to allow for measurement of the frequency of topics receiving attention both in a national newspaper in online form and in posts on Twitter. This codebook was used to conduct a computer-assisted content analysis of a national newspaper in online form and a computer-assisted content analysis of Twitter posts. Resulting data were analyzed using cross-correlations and the Rozelle-Campbell baseline. In this chapter I discuss in detail the sampling method, the data collection procedure I used, the content analysis I conducted, and the analysis procedure I employed to test hypotheses.

#### **Sample Selection**

This study sampled a national newspaper, the *New York Times*, in online form and social media posts on the micro-blogging service Twitter.

Purposive sampling was used. A purposive sampling technique is a nonprobability based sampling method (Baxter & Babble, 2004). It is appropriate for agenda setting research because it allows the researcher to sample from media which are believed and have been shown in previous research to have an agenda setting role. This strategy stands opposed to the researcher attempting to produce a representative sample of all news media, many of which may or may not

have a strong agenda setting role. The *New York Times* was chosen to be purposively sampled because it is one of the United States' elite newspapers and has been shown in previous studies to be a leader of intermedia agenda setting, acting as a beacon for other U.S. news outlets (Gilbert, Eyal, McCombs & Nicholas, 1980; Mazur, 1987; Winter & Eyal, 1981). Because of its prominence and known influence, The *New York Times* has been the focus of intermedia agenda setting studies (Wallsten, 2007; Sweester, Golan, Wanta, 2008). Further, previous research into the agenda setting impact of the *New York Times* on participatory online media has shown the newspaper has a strong agenda setting impact on online discussion (Roberts, Wanta & Dzuo, 2002). In fact, compared with the other news outlets tested in their study – the AP, Reuters, Time Magazine, and CNN - Roberts and colleagues found that, “*The New York Times* notably had the strongest agenda setting influence in our study” (2002, p. 463).

The *New York Times* is a traditional news outlet with both a large print and online circulation that offers its content for free online. The online form of the *New York Times* will be studied because the public increasingly gets their news from Internet news sources (“Internet overtakes,” 2008; “Key Findings,” 2009; “Newspapers face,” 2009). Also, research reports show that many Twitter media users elect to get their news from online news sources as opposed to print news sources (“Twitter and,” 2009).

The sampling frame for the online version of the *New York Times* was the news stories accessible on the landing page of the *New York Times* Internet website: <http://www.nytimes.com>, with the following conditions. In line with previous agenda setting research, opinion articles highlighted on the landing page of the *New York Times* were collected and analyzed (Dunn, 2005). Similarly, the *New York Times*' blog content on the landing page was analyzed. The blog format emerged as an amateur tool but in recent years has been adopted by mainstream news



media on the Internet including the *New York Times*. Although the blog format is different than the traditional inverted pyramid news-writing format, use of blogs has become part and parcel of mainstream media online and thus a part of the news media agenda. Blogs run by campaigns as well as blogs unaffiliated with mainstream media news have been the focus of intermedia agenda setting research and have been shown to have an agenda setting impact (Wallsten, 2007; Sweetser, Golan & Wanta, 2008). However, mainstream media blogs have not been examined for an agenda setting role.

Articles from the “City Desk,” which are specific to the New York City area, were excluded because this investigation was interested in the agenda setting surrounding the Obama Administration as it operates at the national level. Previous research has shown that agenda setting is stronger for issues at the national level than at the local level (Palmgreen & Clarke, 1977). Content in the lower part of the home page under the section header “Inside NYTimes.com” was also not analyzed. This section of the page is devoted to providing an overview of and promoting additional available sections of the site but does not contain any featured news stories. Only articles mentioning “Obama” anywhere in the article were kept. The resulting content comprised the sample for the online national newspaper media agenda.

Purposive sampling was also used to derive the social media sample. The sampling frame for social media was all data available through the search tool on Twitter.com that contained the search term “Obama.” The sample for social media was the resulting Twitter posts. Each Twitter post contains no more than 140 characters of text (“Why do,” 2009). Twitter is a popular social media platform that has grown exponentially during 2009 (“Twitter’s Tweets,” 2009). Twitter has received a great deal of attention in the media and is used by many in the news industry (Maul, 2009).

**Strengths and weaknesses of sampling method.** Purposive sampling is useful for studying specific populations of interest (Baxter & Babble, 2004). Such studies can provide important insight into the relationship between variables, can be instrumental in early theoretical development and can serve as groundwork for further study (Baxter & Babble, 2004). Past intermedia agenda setting research purposively sampled specific media of interest in order to test the relationship between these media. Purposive sampling is also useful when accompanied by theoretical reasoning for selecting the best sample to study when a probability based sample is not logistically possible (Baxter & Babble, 2004). The theoretical reasoning for purposively sampling the *New York Times* for the study of agenda setting was two-fold. First, the *New York Times* has been demonstrated in previous research to play a powerful agenda setting role for the public and newspapers across the United States (Gilbert, Eyal, McCombs & Nicholas, 1980; Mazur, 1987; Winter & Eyal, 1981). Second, the newspaper has been shown to have an agenda setting impact on discussion (Roberts, Wanta & Dzuo, 2002). A major drawback to the purposive sampling technique is that a purposive sample is not representative of the population at large (Baxter & Babble, 2004; Singletary, 1994; Stacks & Hocking, 1992).

### **Data Collection Procedure**

Two computer assisted content analyses were done to help test hypotheses. The time frame for the study was one week. One week was chosen because previous findings indicate that it is adequate time for agenda setting effects to occur given the immediate nature of Twitter and the rapid news cycle that has developed in the Internet age. As previous agenda setting research has shown, agenda setting on the Internet occurs much more quickly than traditional agenda setting (Lee, Lancendorfer & Lee, 2005; Roberts, Wanta, Dzwo, 2002; Wallsten, 2007). In fact, there is evidence that agenda setting can occur between online user-generated content and news

media in just one day (Roberts, Wanta, Dzwo, 2002). Further, it has been argued that agenda setting online could occur within a single day over the course of hours (Lee, Lancendorfer & Lee, 2005).

Data collection occurred twice per day on a set schedule, once in the morning and once in the evening. Data were collected in the morning between 7am and 9am EST and in the evening between 7pm and 9pm EST from January 3 to January 9. Data were collected more than once per day because the content of both the *New York Times* and Twitter changes over the course of the day. In the contemporary media environment, the *New York Times* and other online news outlets update their website throughout the day. This means that content changes between morning and evening, unlike the print newspaper examined in older agenda setting research. It is thus possible, and very likely, that intermedia agenda setting effects occur both between days as well as within 1 day in today's immediate media environment. For example, a person consuming the *New York Times* in the morning could be commenting about what they read on Twitter in the evening. Likewise, what the staff at *The New York Times* observes via Twitter in the morning could impact their news coverage in the evening. This directional issue is a critical part of the present investigation.

Because the *New York Times* actively updates its website throughout the day, morning articles were collected at 7am, 8am and 9am EST and evening articles will be collected at 7pm, 8pm and 9pm EST. All redundant posts were removed. Similarly, the content on Twitter changes throughout the day. Because Twitter is a real time service it allows users to instantly post comments at any time. Twitter's search engine limits searches to the most recent 1,500 posts. Because President Obama is a popular subject of news coverage and interest among the public, this researcher determined that it was likely that there were thousands of posts per hour

on Twitter containing the term “Obama”. To deal with this limitation, one must frequently collect data from Twitter in real time as the data is streaming in to ensure that data are not missed. To ensure all data for the morning and evening three-hour time spans were collected, Twitter data were collected at twenty minute intervals. All redundant posts were removed.

**Implications of data collection process.** Collecting data on Twitter was challenged by one major drawback that has had implications on the planning of this investigation. In 2009 Twitter ceased keeping record of all of the posts made to its service. Twitter does not have a clearly defined company policy for purging data but preliminary analysis indicates that Twitter purges data after approximately seven to 10 days. Because Twitter is purging its data one cannot search the Twitter archives further back than seven to 10 days. This means that I could not follow the traditional agenda setting steps of 1) identifying a topic or event, 2) conducting a literature review of agenda setting research into similar topics or events, 3) establishing a code book based on this research, and, 4) going back and searching Twitter's archives for posts to analyze. This data collection challenge posed larger challenges and limitations to the overall plan for conducting this study. These challenges meant that I had to 1) Collect data live as it occurred during the course of the data collection period, as opposed to going back and collecting archived data. And, 2) create a code book based on preliminary analysis of the data I collected using previous agenda setting research codebooks only as a guide as opposed to adopting existing code books. Further, I had to identify a topic to study ad-hoc and allow for the events to occur as opposed to identifying a subject of study post-hoc and going back to study it. I identified the national newsworthy topic of the Obama Administration which receives news media attention continuously and which my preliminary analysis shows is a continuous topic of discussion on Twitter.

## **Method and Rationale**

Once the data were collected two computer-assisted content analyses were performed. One was a content analysis of the *New York Times* in online form and the other a content analysis of Twitter posts. Content analysis is the initial step in agenda setting research and is useful in helping to identify the agendas presented in the media of interest within a chosen time frame. The procedure allowed this researcher to establish and quantify categories in the communication messages within the sample. The result of the content analysis could therefore be subject to statistical analysis in order to test hypotheses drawn from theory.

**Strengths and weaknesses of method.** Content analysis offers a systematic way to assess the content of communication messages (Singletary, 1994; Stacks & Hocking, 1992). The procedure is an adaptable method that can be used to analyze all kinds of communication messages as long as a record of the messages can be obtained (Singletary, 1994; Stacks & Hocking, 1992). As such, content analysis is amenable to studying news in online form as well as Twitter posts, which can both be downloaded and stored. There are a number of weaknesses associated with such content analysis. First, content analysis itself is descriptive in nature and must be used in tandem with other methods in order for conclusions to be drawn (Stacks & Hocking, 1992). Another weakness of content analysis is that with content analysis the meaning of a message being coded can be ambiguous (Singletary, 1994). Performing a content analysis can involve the need for interpretation of content by the coder in order to attempt to understand the intended meaning of the content (Singletary, 1994; Stacks & Hocking, 1992). In this respect, content analysis is subject to criticism for not being objective or systematic. To mitigate these issues, coding protocol and operational definitions can be established (Singletary, 1994). However, these steps cannot ensure an objective and systematic study.

## **Data Analysis**

In agenda setting research, codebooks are created by identifying common themes that are likely to emerge as agendas within the text (Dunn, 2005). Key terms likely to be associated with these themes are identified and then collapsed into categories (Dunn, 2005). In line with previous research, the codebook for this study was constructed based on preliminary analysis of the online national newspaper articles and social media posts (Wallsten, 2007). A subset of the samples of both media was analyzed to identify themes commonly associated with the Obama Administration. Themes that emerged during this process were checked against themes in previous agenda setting research into participatory online media (Dunn, 2005; Wallsten, 2007). Next, a list of terms was created by identifying key terms within the sample subset. These key terms were collapsed into categories. If themes in the present dissertation matched those of previous studies (Dunn, 2005; Wallsten, 2007), the researcher used the previous studies as key term guides in helping construct categories for those themes.

Next, the key terms for each category were modified where necessary so as to account for the gamut of potential variations in terms that may be present and to circumvent terms that could appear in contexts other than in reference to that category (Dunn, 2005). The goal of this process was to construct an exhaustive list of key terms that comprise each category. The key terms organized into categories were then entered into a computer file called a “dictionary file.” The dictionary file was then loaded into the computer assisted content analysis software. The dictionary file is the codebook in computer form.

There were three steps to analyzing the data. To conduct the computer-assisted content analysis I first needed to construct a codebook. This codebook was used to determine the presence and frequency of the agendas both in the online form of the *New York Times* and in

social media on Twitter. The next step in the analysis was to conduct the computer-assisted content analysis. Finally, the agendas identified through the use of content analysis were treated as dependent variables which were tested for statistical significance using cross-lagged correlation.

The content analysis software analyzed the dictionary file against the online national newspaper media and social media samples. The content analysis software I used is Yoshikoder, a free software program developed for the Identity Project at Harvard's Weatherhead Center for International Affairs ("Yoshikoder," n.d.). Content analysis software is often employed in agenda setting research (e.g., Tedesco, 2005a; Tedesco, 2005b; Wallsten, 2007). The Yoshikoder software analyzed the text of both samples to check for the presence of all key terms. The software recorded the frequency of every term present in both samples including key terms that have been placed into categories in the dictionary file. Because the key terms are organized by category in the dictionary file, the software enables the researcher to rank each category in terms of its frequency within each sample. Ranking each category by frequency allowed for the possibility that multiple categories were identified within one online news story or Twitter post (Dunn, 2005). This approach also weighed the presence of categories within the entire sample, affording more salient issues within the sample greater prominence. Dunn (2005) summarizes the benefits of this approach:

Calculating the total number of times each category is mentioned is preferable to using a binary coding scheme, which would only count the number of [units of analysis] that mention each category at least once. Calculating frequencies accounts for how salient an issue, strategy, or audience is within a piece of campaign discourse. [If a story or post] focuses on one issue for most of its length, then briefly mentions another issue, these

differences in salience are more accurately reflected by frequency counts. A binary approach would simply count each issue as present, thereby treating the two issues as equally salient. (p. 29)

As a post-hoc step to ensure a comprehensive codebook the researcher examined the list of all terms identified in the computer assisted content analysis for both samples. If new terms were identified with a frequency of greater than 10, the researcher explored the need for adding additional categories that captured these terms. Because Twitter is an informal communication medium, slang terms such as “nuke” for nuclear bomb were also identified post-hoc. On Twitter people sometimes misspell words and sometimes shorten them purposefully to fit within the 140 character limit of Twitter. Therefore, incorrect spellings of key terms in the categories were also included post-hoc when discernable.

**Content analysis: Strengths and Weaknesses of analysis method.** There are benefits and drawbacks to the codebook construction procedure discussed above. Because of the challenges to conducting this study presented by the data collection limitations of Twitter discussed above, in this instance the present researcher could only rely in part on the applicability of codebooks developed in previous research. Constructing my own codebook for this study had advantages and drawbacks. I did not have the advantage of relying entirely on a vetted list of agendas that I would have likely come across in my research built from prior theoretical work. In this respect, I did not have the same guards against threats to reliability and validity that I would have had if I had relied completely on a validated measure of agendas. Unfortunately, this was a necessary limitation of my study. The primary advantage of constructing my own codebook was that while developing it I was able to get a handle on issues contemporary to the time period under study. Further, I avoided using an inaccurate



measure built from previous research that may have comprised of agendas not pertinent to my sample thereby reducing threats to reliability. The codebook was tailored to ensure I captured the array of agendas present which allowed me to maximize the likelihood of accuracy.

### **Cross-correlation**

Once the data were analyzed via content analysis this researcher tested hypotheses by analyzing the relationship between the media agendas established in the content analysis. Many scholars investigating intermedia agenda setting have employed the cross-correlation method, or cross-lagged panel correlation, for this process (Dunn, 2005; Lopez-Escobar, McCombs & Lennon, 1998; Roberts & McCombs, 1994; Sweetser, Golan & Wanta, 2008; Tedesco, 2001; Tedesco, 2005). Seven cross-correlation panels were set up to compare the agendas of both the online national newspaper media and Twitter in the morning and evening for each of the seven days in the weeklong time frame (as shown in Figure 1). These seven cross-correlations tested the within day agenda setting hypotheses. Six additional cross-correlation panel designs were set up to compare the intermedia agenda setting between days such that the evening agendas of Day X compared with the morning agenda of Day X+1 (as shown in Figure 2). These six cross-correlations allowed a significance test between day agenda setting hypotheses.

Cross-correlation is a measure between two variables separated by the appropriate amount of time lag for variable 1, which is believed to have an effect on variable 2, the proposed effect (Shadish, Cook, Campbell, 2002). This model produces two pairs of three different sets of correlations totaling six correlations (See Figure 3) (Shadish, Cook, Campbell, 2002). The first set is the synchronous correlation, the correlation between variable 1, cause, and variable 2, effect, measured at concurrent times (PX1Y1 and PX2Y2). The second set of correlations is the autocorrelation which is the correlation between the same variable at two different times

(PX1X2 and Y1Y2). The third set is the cross-lagged correlation and is the correlation between variable 1 and variable 2 at different times (PX1Y2 and PY1X2). The logic behind using this model in its origin is that if the model has been built with the correct cause and effect identified then the correlation between variable 1, cause, and variable 2, effect, over time (PX1Y2) should be greater than the correlation between variable 2, effect, and variable 1, cause, over time (PY1X2) (Shadish, Cook, Campbell, 2002). The two relationships of interest to scholars then are the cross-correlations as they indicate the level of influence between variable 1 and variable 2.

The cross-correlation model was conceived for comparing competing causal hypotheses (Rosenthal & Rosnow, 2008). Modifications have been made to the original model. The modification most often made in intermedia agenda setting research is the application of the Rozelle-Campbell baseline (Dunn, 2005; Lopez-Escobar, McCombs & Lennon, 1998; Roberts & McCombs, 1994; Tedesco, 2005, Tedesco, 2001). The Rozelle-Campbell baseline was conceived by Rozelle & Campbell (1969) to deal with a potential weakness of the cross-correlation panel design in which significant statistical cross-correlation are relied on for interpretation alone without consideration of other relationships. The Rozelle-Campbell baseline compares the cross-correlations to the expected autocorrelation and the synchronous correlation to establish a threshold below which a significant cross-correlation statistic would indicate no effect (Lopez-Escobar, McCombs & Lennon, 1998; Dunn, 2005). In doing so, this baseline takes into consideration the likelihood that both variables are impacted by a third variable not taken into consideration by the proposed panel design as well as the expected change in each variable over time. The formula for calculating the Rozelle-Campbell baseline is (Roberts & McCombs, 1994; Lopez-Escobar et al, 1998):

$$[(PX1Y1 + PX2Y2)/2]\{[(PX1X2)^2 + (PY1Y2)^2]/2\}^{1/2}$$

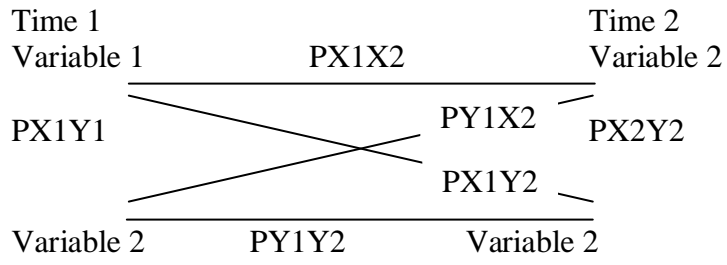
In this procedure cross-correlations are evaluated against the Rozelle-Campbell baseline as a threshold for significance. If the cross-correlations for both online national newspaper media agenda to Twitter agenda (PX1Y2) and Twitter agenda to online national newspaper media agenda (PY1X2) exceeded the Rozelle-Campbell baseline, this suggested reciprocal influence between agendas. This investigator would then have conclude that there is a bidirectional influence between the online national newspaper media agenda and the Twitter agenda. If the cross-correlations for online national newspaper media agenda at Tx to Twitter agenda at Tx + 1 (PX1Y2) was above the baseline but the reverse was not, then there would be evidence for influence from online national newspaper media agenda on Twitter. Conversely, if the cross-correlations for Twitter agenda at Tx and online national newspaper media agenda at Tx+1 (PY1X2) was above the baseline and the reverse was not, this indicated influence of the Twitter agenda on the online national newspaper media agenda. There is however a caveat to this analysis. In order for me to have concluded that there was a clear intermedia agenda setting effect, the autocorrelations in the analysis of interest must fall below the baseline statistic (Dunn, 2005; Tedesco, 2005). That is, if the autocorrelation of the hypothesized effect variable was above the baseline then the hypothesized effect variable had not undergone substantial change for the hypothesized causal variable to have caused the change over time. For example, I would conclude that online national newspaper media agenda had an intermedia agenda setting effect on the Twitter agenda (PX1Y2) in a given panel if PX1Y2 was above the baseline, PY1X2 was below the baseline and Y1Y2 was below the baseline. The above-described analysis was conducted for each of the 13 panels to assess each of the 13 proposed hypotheses.

**Cross-correlation: strengths and drawbacks of analysis method.** The cross-correlation data analysis method with the Rozelle-Campbell baseline offers a number of advantages. At the most basic level, cross-correlations allow comparison of two points in time. Panel data analysis methods enable the researcher to deal with the problem of direction in a correlation and determine the direction of relationship between points in time (Rosenthal & Rosnow, 2008). Another advantage of using cross-correlations is that it allows for two competing hypotheses, that A causes B and that B causes A, to be examined simultaneously (Lopez-Escobar et al., 1998). As Lopez-Escobar et al. (1998) note: “Not only do we learn whether the hypothesized independent variable at Time 1 is correlated with the dependent variable at Time 2; we also can assess the strength of the hypothesized relationship vis-à-vis a hypothesis asserting exactly the opposite” (p. 233). Further, we could assess if neither A causes B nor B causes A, but rather that both A and B mutually influence one another, which was the proposed relationship in my study (Rosenthal & Rosnow, 2008). Because we achieved this analysis with one test as opposed to 2 or 3, we reduced Type 1 Error caused via family-wise error. Lastly, because the baseline statistic accounts for the synchronous correlations and autocorrelations it controls for confounding variables that could exert an impact on the proposed agenda setting relationships under study. (Dunn, 2005; Lopez-Escobar et al., 1995) These benefits make cross-correlation the preferred method in comparison with other procedures used to analyze agenda setting hypotheses.

The primary weakness of a cross-lagged panel design is that scholars do not agree as to whether or not a directional correlation over time can be used to make statements about causality (Rosenthal & Rosnow, 2008). It is possible that there may be other causes that explain the identified relationship. Therefore, in the present study I would not be fully certain that Twitter agenda caused the online national newspaper media agenda and vice versa or if there was a third

confounding variable influencing both. In this respect, a cross-lagged panel design is subject to threats of internal validity. Similarly, this design may have missed a causal relationship that is present leading to a Type II error. As Rosenthal & Rosnow (2008) state, the “cross-lagged panel design miss[es] a causal relationship that is transient, transitional, elusive, obscured by measurement biases, or just hard to pin down” (Rosenthal & Rosnow, 2008, p. 243). Thus, the lack of correlation in cross-lagged designs does not rule out the possibility that causation is present (Rosenthal & Rosnow, 2008). The threat of specification error and measurement error are also drawbacks of the cross-lagged panel design (Shadish, Cook & Campbell, 2002). In regard to specification error, it is possible that a mistake was made in specifying the proposed causal model. It is very difficult to determine if such a mistake was made and the only guard I had against making such an error was to derive my model from sound theoretical reasoning. With regard to measurement error, if the measuring instruments, in this case the code book, which was used to assess the agendas of both the online national newspaper media agenda and the Twitter agenda had systematic error then this could have impacted the accuracy of the cross-correlation analysis.

Figure 3: Cross-Lagged Panel



## CHAPTER FOUR

### RESULTS

#### **Issues: Type and Frequency**

This study tested the intermedia agenda setting between the online publication of the *New York Times* and Twitter. The sample comprised of data collected over the course of one week of both the *New York Times* website and Twitter from Sunday to Saturday in the Spring semester, 2010, January 3, 2010 to Saturday, January 9, 2010. Issues present in the content analyses of both the *New York Times* and Twitter included such international issues including terrorism, the military, foreign affairs, interrogation techniques and relations with other countries such as China and Iran. The sample also included domestic issues including the economy, education, health care, immigration, the federal budget, welfare and taxes. Issues related to personal freedoms and rights were also present including gun rights, gay rights, race, and abortion. Some issues contemporary to the time of the data collection were also prevalent including the recent financial crisis, 2010 elections, and the country of Yemen which was the origin of the individual who enacted the failed bombing attack on a Detroit bound flight from Amsterdam on Christmas day, 2009.

According to the data, the most frequent issues represented across the *New York Times* online publication and Twitter were (in alphabetical order) the economy, the federal budget, health care, national security, taxes, terrorism and issues related to the United States military such as the Afghanistan and Iraq wars. There was significant overlap in what issues were covered most prominently in the two media. While both media gave significant attention to issues of national security, terrorism, the military and the economy, the *New York Times*

prominently featured content dedicated to the federal budget while Twitter featured health care issues very prominently.

Table 1 shows the issue frequency for the *New York Times* online publication. The five most popular issues on the *New York Times* were terrorism ( $N = 938$ ), national security ( $N = 871$ ), military issues ( $N = 617$ ), the economy ( $N = 509$ ), and the federal budget ( $N = 353$ ) (see Table 1). On the *New York Times*, the issue of terrorism received a great deal of attention during the first few days of the sample, peaking in frequency in the morning of Day 2, Monday ( $N = 155$ ). The related issue of national security also received heavy coverage in the early days of the sample, receiving its greatest coverage also on the morning of Day 2, Monday ( $N = 173$ ). Similarly, military issues received a great deal of coverage in the early days of the sample also peaking on the morning of Day 2 ( $N = 160$ ). Coverage of the economy and the federal budget was distributed more evenly over the course of the week than was coverage of terrorism, national security and military issues. The economy received the most coverage in the *New York Times* on the morning of Day 7, Friday ( $N = 103$ ). The federal budget received the greatest attention on the morning of Day 4, Wednesday ( $N = 64$ ).

Table 2 shows the issue frequency for Twitter. On Twitter the five most popular issues were terrorism ( $N = 3464$ ), national security ( $N = 1630$ ), health care ( $N = 1618$ ), the economy ( $N = 1327$ ) and military issues ( $N = 1046$ ) (see Table 2). It is interesting to note that terrorism received significantly more attention than any other issue on Twitter. The issue of terrorism received the most attention on Twitter on the evening of Day 3, Tuesday ( $N = 596$ ). The related issue of national security was also high the evening of Day 3 but received the most attention on the evening of Day 5, Thursday ( $N = 359$ ). Similarly, military issues also received the greatest attention on the evening of Day 5, Thursday ( $N = 173$ ). Health care received the greatest



coverage on Twitter on Day 7 morning, Saturday ( $N = 361$ ). The economy received the most attention on Twitter the evening of Day 6, Friday ( $N = 433$ ).

Issues that were least frequent in the sample were (in alphabetical order) abortion, China, gay rights, guns, immigration, and welfare. The five issues that received the least attention on the *New York Times* were gay rights ( $N = 6$ ), welfare ( $N = 17$ ), abortion ( $N = 32$ ), guns ( $N = 34$ ), and immigration ( $N = 44$ ) (see Table 1). On Twitter, the five least popular issues were abortion ( $N = 34$ ), welfare ( $N = 43$ ), China ( $N = 93$ ), gay rights ( $N = 94$ ), and immigration ( $N = 98$ ) (see Table 2). There was significant overlap between the *New York Times* and Twitter in terms of what issues received the least attention in the sample. Both Twitter and the *New York Times* gave little attention to abortion, gay rights, immigration and welfare. The *New York Times* gave very little attention to gun issues while Twitter gave very little attention to China. It is important to note however that guns and China were unpopular on both media. Together, these findings are a strong indicator that both media concentrated much of their attention on similar issues and gave little attention to another group of similar issues.

### **Media Correlations**

Table 3 displays the correlations between the *New York Times* and Twitter over the course of the week under study. The morning of Day 3 on the *New York Times* had all three of the highest correlations with Twitter. The correlation between the *New York Times* on the morning of Day 3 and Twitter was highest on the evening of Day 2 ( $r = .953, p < .01$ ) and also very high on the evening of Day 5 ( $r = .950, p < .01$ ) and the morning of Day 3 ( $r = .918, p < .01$ ). The lowest positive correlation between the *New York Times* and Twitter was between the evening of Day 5 of the *New York Times* and the evening of Day 7 on Twitter ( $r = .019, p = NS$ ). There were negative correlations between the *New York Times* and Twitter. There were negative

correlations between the evening of Day 7 on Twitter and the morning ( $r = -.114, p = \text{NS}$ ) and evening ( $r = -.010, p = \text{NS}$ ) of Day 1 of the *New York Times*. Negative correlations also existed between the morning of Day 7 on the *New York Times* and the morning of Day 3 on Twitter ( $r = -.016, p = \text{NS}$ ).

The correlations within the *New York Times* across time are represented on Table 4. The highest correlation within the *New York Times* were between Day 2 morning and Day 2 evening ( $r = .947, p < .01$ ), and between Day 3 morning ( $r = .935, p < .01$ ) and Day 3 evening ( $r = .900, p < .01$ ). The lowest correlation within the *New York Times* was between Day 2 morning and Day 7 morning ( $r = .042, p = \text{NS}$ ). There were negative correlations within the *New York Times* between Day 1 morning and Day 7 morning ( $r = -.067, p = \text{NS}$ ) and between Day 5 morning and Day 6 morning ( $r = -.102, p = \text{NS}$ ).

The correlations within Twitter across time are represented on Appendix E. The highest correlations within Twitter were between Day 5 evening and Day 2 evening ( $r = 9.63, p < .01$ ), and between Day 5 evening and Day 3 morning ( $r = .956, p < .01$ ). The lowest correlation within Twitter were between Day 1 morning and Day 7 evening ( $r = .077, p = \text{NS}$ ).

Table 1: Issue Frequencies in The New York Times Online Publication

	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
	Morn (N= 897)	Eve (N= 511)	Morn (N= 753)	Eve (N= 426)	Morn (N= 593)	Eve (N= 485)	Morn (N= 527)	Eve (N= 230)	Morn (N= 258)	Eve (N= 111)	Morn (N= 146)	Eve (N= 218)	Morn (N= 389)	Eve (N= 133)
'10 Elections	11	3	20	2	21	33	21	61	42	4	14	7	66	16
Abortion	0	0	1	0	6	1	0	2	20	0	1	0	1	0
Budget	8	7	12	11	7	12	64	4	4	0	0	3	23	15
China	22	0	3	2	2	1	11	0	6	0	4	0	0	0
Economy	20	29	40	30	37	51	44	26	19	1	6	97	103	6
Education	44	0	10	2	8	7	2	9	6	1	1	2	4	3
Energy	32	2	2	8	5	5	12	0	5	14	8	1	3	1
Environment	7	6	5	18	4	5	4	11	6	28	18	1	5	0
Finance Crisis	3	51	4	2	17	35	29	7	3	0	10	15	10	4
Foreign Affair	15	1	6	5	7	2	4	1	2	0	0	1	5	0
Guns	2	5	4	3	3	3	1	5	5	0	0	0	1	2
Health Care	7	3	8	3	38	19	18	14	33	4	3	6	27	13
Gay Rights	0	0	1	0	1	1	0	1	1	0	0	0	1	0
Immigration	0	0	2	2	0	0	10	12	0	0	0	1	1	16
Iran	117	5	3	1	0	0	93	0	0	0	0	0	0	0
Judicial Issues	10	1	17	11	8	6	0	4	1	1	4	4	22	0
Military	70	46	160	58	75	58	53	8	47	1	8	5	11	17
Security	127	134	173	91	113	96	31	21	8	17	23	27	5	5
Nuclear Issues	80	16	28	15	35	16	39	2	2	12	3	3	2	0
Race	0	2	4	26	22	1	0	2	0	0	0	0	0	1
Taxes	4	3	7	6	8	15	35	6	13	1	1	4	58	6
Terrorism	150	106	155	76	130	82	48	26	30	27	34	34	13	27
Yemen	167	88	55	40	27	16	4	6	5	0	7	7	26	0
Interrogation	0	2	31	12	15	18	1	2	0	0	1	0	1	0
Welfare	1	1	2	2	4	2	3	0	0	0	0	0	1	1

Note. Morn = Morning; Eve = Evening.

Table 2: Issue Frequencies on Twitter

	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
	Morn (N=786)	Eve (N=618)	Morn (N= 567)	Eve (N=1103)	Morn (N= 621)	Eve (N=1625)	Morn (N= 873)	Eve (N=1298)	Morn (N= 804)	Eve (N=1487)	Morn (N= 731)	Eve (N=1273)	Morn (N= 963)	Eve (N= 831)
'10 Elections	13	17	33	28	9	63	77	141	35	39	20	35	17	70
Abortion	2	0	2	3	6	0	0	2	1	3	3	2	3	7
Budget	9	8	2	9	5	21	7	18	49	24	8	15	2	5
China	6	4	4	4	9	9	0	18	6	5	9	5	9	5
Economy	35	49	24	51	22	99	57	41	25	53	122	433	213	103
Education	3	5	4	3	9	16	33	66	46	12	8	13	3	6
Energy	0	3	8	2	8	14	10	19	4	2	8	81	36	18
Environment	6	6	5	7	5	7	15	15	9	14	4	27	6	8
Finance Crisis	14	7	6	8	5	15	14	14	12	30	10	10	8	3
Foreign Affair	4	7	4	20	8	9	8	4	2	19	9	15	0	2
Guns	40	27	16	6	2	1	0	15	4	4	2	5	1	7
Health Care	15	51	17	76	26	112	164	274	123	140	27	42	361	190
Gay Rights	2	2	5	8	4	6	1	11	6	11	2	11	2	23
Immigration	4	2	4	5	7	22	7	24	7	2	5	0	6	3
Iran	16	24	15	66	12	31	14	9	14	14	10	10	3	9
Judicial Issues	0	3	3	17	11	11	6	11	6	8	10	13	7	3
Military	33	43	91	103	42	65	42	89	35	173	84	139	71	36
Security	86	67	43	244	137	227	125	89	48	359	111	51	24	19
Nuclear Issues	42	9	11	45	15	26	6	5	7	4	2	8	0	0
Race	4	18	4	6	15	12	11	26	1	18	5	3	9	150
Taxes	9	25	6	17	8	14	17	205	105	72	19	109	51	88
Terrorism	280	201	215	287	228	596	212	152	224	430	225	228	119	67
Yemen	159	23	37	51	17	85	22	9	14	6	12	7	9	6
Interrogation	3	16	6	37	9	156	21	38	18	28	16	10	3	2
Welfare	1	1	2	0	2	8	4	3	3	17	0	1	0	1

Note. Morn = Morning; Eve = Evening.

Table 3: Correlations for The New York Times from Day 1 Morning to Day 7 Evening

<i>Times</i>	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve
Day 1 Morn	1	0.777**	0.675**	0.698**	0.648**	0.539**	0.441*	0.119	0.139	0.390	0.538**	0.191	-0.067	0.196
Day 1 Eve		1	0.843**	0.891**	0.849**	0.847**	0.270	0.281	0.222	0.454*	0.750**	0.410*	0.050	0.333
Day 2 Morn			1	0.947**	0.935**	0.900**	0.349	0.318	0.488*	0.444*	0.705**	0.355	0.042	0.510**
Day 2 Eve				1	0.921**	0.865**	0.280	0.272	0.329	0.533**	0.738**	0.424*	0.058	0.401*
Day 3 Morn					1	0.929**	0.341	0.403*	0.509**	0.551**	0.786**	0.442*	0.095	0.577**
Day 3 Eve						1	0.400*	0.536**	0.526**	0.462*	0.781**	0.593**	0.300	0.557**
Day 4 Morn							1	0.143	0.263	0.106	0.198	0.303	0.246	0.420*
Day 4 Eve								1	0.645**	0.272	0.555**	0.430*	0.615**	0.584**
Day 5 Morn									1	0.163	0.417*	0.261	0.446*	0.680**
Day 5 Eve										1	0.823**	0.160	-0.102	0.256
Day 6 Morn											1	0.364	0.108	0.492*
Day 6 Eve												1	0.704**	0.248
Day 7 Morn													1	0.284
Day 7 Eve														1

\*Pearson product moment correlations reveal significance at the  $p < 0.05$  level.

\*\*Pearson product moment correlations reveal significance at the  $p < 0.01$  level.

*Note.* Morn = Morning; Eve = Evening.

Table 4: Correlations for Twitter from Day 1 Morning to Day 7 Evening

	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve
Twitter														
Day 1 Morn	1	0.864**	0.871**	0.791**	0.841**	0.864**	0.665**	0.238	0.669**	0.719**	0.766**	0.366	0.185	0.077
Day 1 Eve		1	0.933**	0.889**	0.934**	0.955**	0.861**	0.500*	0.857**	0.888**	0.925**	0.554**	0.445*	0.351
Day 2 Morn			1	0.831**	0.886**	0.898**	0.746**	0.380	0.760**	0.824**	0.880**	0.484*	0.275	0.179
Day 2 Eve				1	0.956**	0.894**	0.836**	0.424*	0.698**	0.963**	0.879**	0.405*	0.321	0.188
Day 3 Morn					1	0.943**	0.820**	0.377	0.753**	0.951**	0.901**	0.408*	0.254	0.170
Day 3 Eve						1	0.847**	0.425*	0.807**	0.873**	0.891**	0.458*	0.344	0.222
Day 4 Morn							1	0.737**	0.848**	0.866**	0.792**	0.438*	0.670**	0.537**
Day 4 Eve								1	0.778**	0.541**	0.396	0.286	0.710**	0.721**
Day 5 Morn									1	0.770**	0.721**	0.419*	0.558**	0.478*
Day 5 Eve										1	0.882**	0.418*	0.378	0.280
Day 6 Morn											1	0.745**	0.435*	0.284
Day 6 Eve												1	0.561**	0.398*
Day 7 Morn													1	0.773**
Day 7 Eve														1

\*Pearson product moment correlations reveal significance at the  $p < 0.05$  level.

\*\*Pearson product moment correlations reveal significance at the  $p < 0.01$  level.

Note. Morn = Morning; Eve = Evening.

Table 5: Correlations for Issue Agenda Relationships Between Media

		<i>New York Times</i>													
		Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve	Morn	Eve
Twitter															
Day 1	Morn	0.783**	0.792**	0.674**	0.718**	0.758**	0.626**	0.235	0.284	0.275	0.510**	0.722**	0.339	0.060	0.481*
Day 1	Eve	0.577**	0.673**	0.717**	0.718**	0.855**	0.745**	0.369	0.390	0.469*	0.551**	0.753**	0.458*	0.157	0.661**
Day 2	Morn	0.621**	0.660**	0.774**	0.720**	0.833**	0.714**	0.355	0.387	0.558**	0.527**	0.764**	0.327	0.071	0.706**
Day 2	Eve	0.721**	0.838**	0.886**	0.874**	0.953**	0.872**	0.413*	0.364	0.403*	0.577**	0.788**	0.390	0.031	0.538**
Day 3	Morn	0.641**	0.787**	0.814**	0.826**	0.918**	0.808**	0.300	0.346	0.350**	0.636**	0.830**	0.370	-0.016	0.576**
Day 3	Eve	0.586**	0.698**	0.719**	0.719**	0.845**	0.745**	0.272	0.396	0.376	0.576**	0.782**	0.406*	0.081	0.614**
Day 4	Morn	0.451*	0.598**	0.635**	0.613**	0.816**	0.744**	0.262	0.574**	0.604**	0.522**	0.722**	0.409*	0.242	0.676**
Day 4	Eve	0.071	0.173	0.292	0.214	0.435*	0.415*	0.189	0.486*	0.667**	0.188	0.311	0.137	0.413*	0.587**
Day 5	Morn	0.365	0.433*	0.488*	0.450*	0.659**	0.560**	0.347	0.368	0.515**	0.445*	0.580	0.264	0.241	0.724**
Day 5	Eve	0.561**	0.787**	0.869**	0.845**	0.950**	0.883**	0.341	0.385	0.480*	0.572**	0.793**	0.365	0.055	0.620**
Day 6	Morn	0.538**	0.716**	0.811**	0.803**	0.889**	0.867**	0.402*	0.448*	0.505**	0.511**	0.764**	0.676**	0.306	0.633**
Day 6	Eve	0.181	0.311	0.413*	0.432*	0.469*	0.570**	0.376	0.387	0.447*	0.227	0.377	0.905**	0.705**	0.393
Day 7	Morn	0.019	0.113	0.176	0.163	0.356	0.334	0.190	0.290	0.551**	0.113	0.167	0.501*	0.480*	0.417*
Day 7	Eve	-0.114	-0.010	0.054	0.124	0.264	0.203	0.078	0.346	0.483*	0.019	0.079	0.319	0.472*	0.348

\*Pearson product moment correlations reveal significance at the  $p < 0.05$  level.

\*\*Pearson product moment correlations reveal significance at the  $p < 0.01$  level.

*Note.* Morn = Morning; Eve = Evening.



### **Within Day Intermedia Agenda Setting**

Hypotheses one through seven predicted that there would be intermedia agenda setting in both directions between the *New York Times* and Twitter between the morning and evening of the same day. Each hypothesis examined a separate panel, with each panel analyzing the within-day relationship for an individual day in the week under study. The results, which are explicated below and can be seen visually in Table 6, did not support the first set of hypotheses.

As Table 6 shows, evidence of within-day intermedia agenda setting was found for three of the seven panels. There was evidence of intermedia agenda setting on Day 4, Wednesday, from Twitter to the *New York Times*. The cross-correlation from Twitter to the *New York Times* ( $r = .574, p < .01$ ) exceeded that of the autocorrelation of the *New York Times* ( $r = .143, p = \text{NS}$ ). This cross-correlation exceeded the baseline statistic while the autocorrelation fell below the baseline which is methodologically to be interpreted as intermedia agenda setting from Twitter to the *New York Times*. However, the cross-correlation from the *New York Times* to Twitter was below the baseline and the Twitter autocorrelation was high and above the baseline indicating no influence from the *New York Times* to Twitter.

There was also evidence of intermedia agenda setting from Twitter to the *New York Times* on Day 5. As shown in Table 6, the cross-correlation from Twitter to the *New York Times* ( $r = .445, p < .05$ ) was above the baseline statistic and the autocorrelation of the *New York Times* ( $r = .163, p = \text{NS}$ ). The autocorrelation of the *New York Times* was below the Rozelle-Campbell baseline. There was no evidence of intermedia agenda setting from the news media to social media as the cross-correlation from the *New York Times* to Twitter ( $r = .480, p < .05$ ) fell below

the Rozelle-Campbell baseline while the Twitter autocorrelation ( $r = .770, p < .01$ ) was strong and above the baseline.

Similarly, there was evidence of intermedia agenda setting on Day 6 from Twitter to the *New York Times*. Like the Day 4 and Day 5 panels, there was a significant cross-correlation from Twitter to the *New York Times* ( $r = .674, p < .01$ ) that exceeded the baseline statistic as well as the autocorrelation of *The New York Times* ( $r = .364, p = \text{NS}$ ). Similarly to the Day 4 and Day 5 panels, there was no evidence of intermedia agenda setting from the news media to social media given that the cross-correlation from the *New York Times* and Twitter ( $r = .377, p = \text{NS}$ ) did not exceed the baseline statistic and the autocorrelation of Twitter ( $r = .745, p < .01$ ) was above the baseline statistic.

The remaining four panels testing the within-day relationship resulted in no cross-correlations demonstrating clear agenda setting (see Table 6). The Day 1 panel autocorrelations for both the *New York Times* ( $r = .777, p < .01$ ) and Twitter ( $r = .864, p < .01$ ) were very strong indicating there was not a great deal of change for each media over time (see Table 6). The cross-correlation from the *New York Times* to Twitter ( $r = .577, p < .01$ ) and from Twitter to the *New York Times* ( $r = .792, p < .01$ ) were both significant. Only the cross-correlation from Twitter to the *New York Times* was above the baseline indicating influence from Twitter to the *New York Times*. However, the autocorrelations both exceeded the baseline statistic and therefore the evidence indicates that although there was influence from social media to the news media there was no clear agenda setting between the media over time.

The Day 2 panel showed significant, strong cross-correlations between media both from the *New York Times* to Twitter ( $r = .886, p < .01$ ) and from Twitter to the *New York Times* ( $r = .720, p < .01$ ). Both of these cross-correlations were above the baseline indicating influence

between media in both directions. The autocorrelations for both the *New York Times* ( $r = .947, p < .01$ ) and Twitter ( $r = .831, p < .01$ ) exceeded the baseline statistic indicating that although there was influence between media the panel failed to demonstrate clear agenda setting between media.

The Day 3 panel also resulted in significant, strong cross-correlations between media from the *New York Times* to Twitter ( $r = .918, p < .01$ ) and from Twitter to the *New York Times* ( $r = .808, p < .01$ ) that were above the Rozelle-Campbell baseline (see Table 6). The autocorrelations of the *New York Times* ( $r = .929, p < .01$ ) and Twitter ( $r = .943, p < .01$ ) were very high indicating very little change in the issue agenda over time. These results indicate some influence between the media but insufficient change for agenda setting to have occurred.

Similar to panels for Day 1, 2 and 3, The Day 7 panel failed to find evidence for agenda setting between media. While both the cross-correlations for the *New York Times* to Twitter ( $r = .472, p < .05$ ) and from Twitter to the *New York Times* ( $r = .417, p < .05$ ) were above the baseline, the autocorrelations for the *New York Times* ( $r = .284, p = \text{NS}$ ) and Twitter ( $r = .773, p < .01$ ) both exceeded the baseline.

Although there was evidence of agenda setting within days between social media and the news media for Day 4, Day 5 and Day 6 panels, none of the intermedia agenda setting found in the above-discussed panels was bi-directional. The intermedia agenda setting between days for panels Day 4, Day 5 and Day 6 was from Twitter to the *New York Times*. There existed some evidence of bi-directional influence between media for Day 1, Day 2, Day 3 and Day 7 panels but these relationships failed to meet the criteria for clear agenda setting. In summary, the results did not support the first set of hypotheses, H1 through H7, that there would be intermedia agenda setting in both directions between the *New York Times* online publication and Twitter.

### **Between Day Intermedia Agenda Setting**

Hypotheses eight through 13 predicted that there would be intermedia agenda setting in both directions between the *New York Times* and Twitter between days from the evening of the first day to the morning of the following day. Each hypothesis examined a panel. Each panel analyzed the between-day relationship for an individual day in the week under study. The results of the analysis are shown in Table 7. The results did not support the second set of hypotheses.

As Table 7 shows, none of the between day panels resulted in cross-correlations demonstrating agenda setting between the news media and social media. The Day 1 & Day 2 panel found evidence of significant cross-correlations from the *New York Times* to Twitter ( $r = .660, p < .01$ ) and from Twitter to the *New York Times* ( $r = .717, p < .01$ ) that were above the baseline statistic. The autocorrelations of the *New York Times* ( $r = .834, p < .01$ ) and Twitter ( $r = .933, p < .01$ ) were very strong indicating little issue agenda change over time. As the autocorrelations were above the baseline, the results indicate some influence between news media and social media but lack evidence of agenda setting.

The Day 2 & Day 3 panel found significant cross-correlations from *The New York Times* to Twitter ( $r = .826, p < .01$ ) as well as from Twitter to *The New York Times* ( $r = .953, p < .01$ ) (see Table 7). Because the autocorrelations for the *New York Times* ( $r = .921, p < .01$ ) and Twitter ( $r = .956, p < .01$ ) were above the baseline there is no evidence of agenda setting between media. Only the cross-correlation from Twitter to the *New York Times* was above the baseline statistic indicating influence from social media to the news media but no influence from the news media to social media.

The Day 3 & Day 4 panel found a significant cross-correlation from the *New York Times* to Twitter ( $r = .744, p < .01$ ) that was above the baseline. However, the autocorrelation for the effect variable Twitter ( $r = .847, p < .01$ ) was also above the baseline indicating influence but no agenda setting. The cross-correlation from Twitter to the *New York Times* ( $r = .272, p = \text{NS}$ ) was not significant and below the baseline indicating no influence from social media to the news media from the evening of Day 3 to the morning of Day 4.

The Day 4 & Day 5 panel showed a significant cross-correlation from Twitter to the *New York Times* ( $r = .667, p < .01$ ) surpassing the Rozelle-Campbell baseline along with an autocorrelation for the *New York Times* ( $r = .645, p < .01$ ) above the baseline. These relationships indicate influence but a lack of agenda setting. There was no significant cross-correlation from the *New York Times* to Twitter ( $r = .368, p = \text{NS}$ ) across time demonstrating a lack of influence from the news media to social media.

The cross-correlation from the *New York Times* to Twitter ( $r = .511, p < .01$ ) was significant but fell below the baseline statistic therefore indicating a lack of relationship between the *New York Times* in the evening of Day 5 and Twitter on the morning of Day 6. Both the cross-correlation from Twitter to the *New York Times* ( $r = .793, p < .01$ ) and the autocorrelation of the effect variable the *New York Times* ( $r = .823, p < .01$ ) were above the baseline statistic indicating influence from Twitter to the *New York Times* but failing to demonstrate evidence of agenda setting.

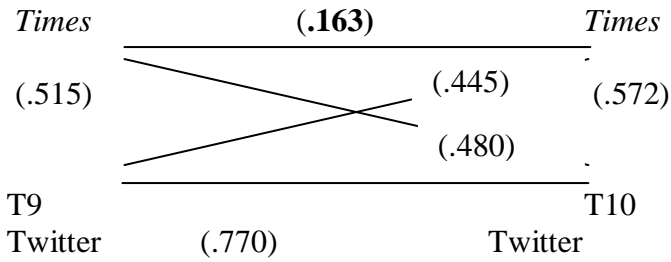
The Day 6 & Day 7 panel demonstrated significant cross-correlations from Twitter to the *New York Times* ( $r = .704, p < .01$ ) as well as from the *New York Times* to Twitter ( $r = .501, p < .05$ ) that were above the baseline statistic. However, the autocorrelations for the *New York Times*

( $r = .704, p < .01$ ) and Twitter ( $r = .561, p < .01$ ) were also above the baseline statistic indicating bi-directional influence but a lack of agenda setting between these media.

In summary, the results failed to support the second set of hypotheses, H8 through H13, that there would be bi-directional intermedia agenda setting between the *New York Times* online publication and the social media site Twitter. None of the between-day panels found significant agenda setting between the news media and social media. For some panels, there was evidence of influence from the news media to social media or from social media to the news media. But none of these relationships demonstrated clear agenda setting.

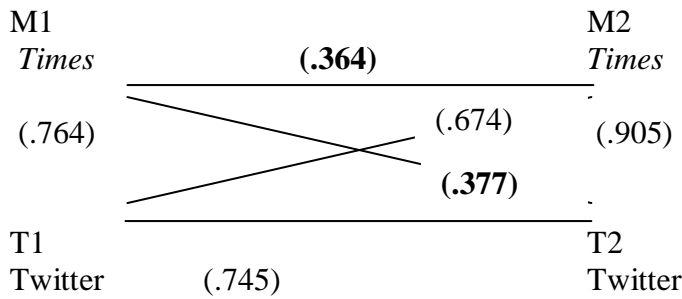
Table 6: All Issues: Cross-Lagged Within Day Panels Between Media

Morning		Evening		
<i>Day 1</i>				
M11 <i>Times</i>	(.783)	(.777)	M12 <i>Times</i>	(.673)
T11 Twitter	(.864)	(.577)	T12 Twitter	(.792)
				Rozelle-Campbell Baseline = .598
<i>Day 2</i>				
M3 <i>Times</i>	(.774)	(.947)	M4 <i>Times</i>	(.874)
T3 Twitter	(.831)	(.886)	T4 Twitter	(.720)
				Rozelle-Campbell Baseline = .734
<i>Day 3</i>				
M5 <i>Times</i>	(.918)	(.929)	M6 <i>Times</i>	(.745)
T5 Twitter	(.943)	(.918)	T6 Twitter	(.808)
				Rozelle-Campbell Baseline = .778
<i>Day 4</i>				
M7 <i>Times</i>	(.262)	(.143)	M8 <i>Times</i>	(.486)
T7 Twitter	(.737)	(.189)	T8 Twitter	(.574)
				Rozelle-Campbell Baseline = .198
<i>Day 5</i>				
M9			M10	



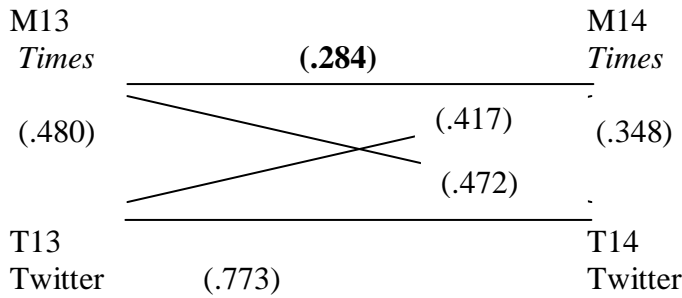
Rozelle-Campbell  
Baseline = .302

Day 6



Rozelle-Campbell  
Baseline = .489

Day 7



Rozelle-Campbell  
Baseline = .241

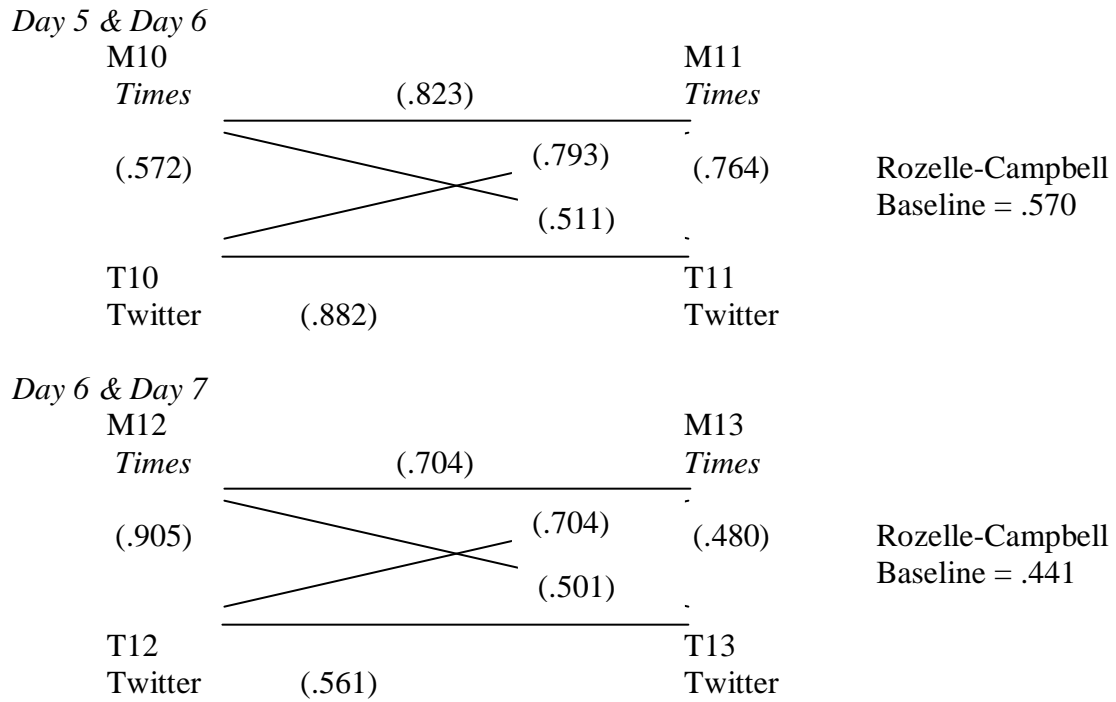
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Note: **bold type** indicates that the correlation is not statistically significant.



Table 7: All Issues: Cross-Lagged Between Day Panels Between Media

Evening		Morning		
<i>Day 1 &amp; Day 2</i>				
M2		M3		
Times	(.843)	Times		
(.673)		(.717)	(.774)	Rozelle-Campbell
		(.660)		Baseline = .643
T2		T2		
Twitter	(.933)	Twitter		
<i>Monday &amp; Tuesday</i>				
M4		M5		
Times	(.921)	Times		
(.874)		(.953)	(.918)	Rozelle-Campbell
		(.826)		Baseline = .841
T4		T5		
Twitter	(.956)	Twitter		
<i>Day 3 &amp; Day 4</i>				
M6		M7		
Times	(.400)	Times		
(.745)		<b>(.272)</b>	(.262)	Rozelle-Campbell
		(.744)		Baseline = .333
T6		T7		
Twitter	(.847)	Twitter		
<i>Day 4 &amp; Day 5</i>				
M8		M9		
Times	(.645)	Times		
(.486)		(.667)	(.515)	Rozelle-Campbell
		<b>(.368)</b>		Baseline = .358
T8		T9		
Twitter	(.778)	Twitter		




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Note: **bold type** indicates that the correlation is not statistically significant.

## Intermedia Agenda Setting for Specific Issues

Because the researcher failed to find support for intermedia agenda setting and thus a lack of support for the hypothesized relationship, the researcher sought to further clarify the relationship between the news media and social media by testing for intermedia agenda setting between media for the issues in the sample that were most frequent in both of the media under study: economy, military, national security, and terrorism. The researcher tested within day and between day intermedia agenda setting between the *New York Times* and Twitter for the most frequent issues in both media.

**The economy.** As shown in Table 8, one of the seven within-day panels demonstrated agenda setting between the *New York Times* and Twitter for the economy issue. The results of the Day 5 panel indicate intermedia agenda setting from Twitter to the *New York Times*. The cross-correlation from Twitter to the *New York Times* ( $r = .742, p < .01$ ) exceeds the baseline statistic while the autocorrelation for the *New York Times* ( $r = -.174, p = \text{NS}$ ) is below the baseline. The cross-correlation in the opposite direction is not significant indicating no relationship from the news media to social media.

The remaining panels failed to demonstrate intermedia agenda setting (see Table 8). The Day 1 panel cross-correlation from the *New York Times* to Twitter ( $r = .524, p < .05$ ) and the Twitter autocorrelation ( $r = .958, p < .01$ ) exceed the baseline indicating influence but no agenda setting. Conversely, the Twitter to the *New York Times* ( $r = .204, p = \text{NS}$ ) was not significant indicating no influence.

Like the Day 1 panel, the Day 2 panel cross-correlations from the news media to social media ( $r = .678, p < .01$ ) and the effect variable ( $r = .705, p < .01$ ) exceeded the baseline

indicating influence but no clear intermedia agenda setting. The reverse cross-correlation ( $r = .406, p = \text{NS}$ ) was not significant indicating no relationship from social media to the news media.

For the Day 3 panel the cross-correlations from news media to social media ( $r = .703, p < .01$ ) and social media to news media ( $r = .814, p < .01$ ) both exceeded the baseline (see Table 8). However, the *New York Times* effect ( $r = .891, p < .01$ ) variable and Twitter effect variable ( $r = .700, p < .01$ ) exceeded the baseline indicating bi-directional influence between media but no clear agenda setting for the economy issue.

The Day 4 Twitter to the *New York Times* cross-correlation ( $r = .703, p < .01$ ) and *The New York Times* autocorrelation ( $r = .612, p < .01$ ) exceeded the Rozelle-Campbell baseline indicating influence but no clear agenda setting. The cross-correlation from *The New York Times* to Twitter ( $r = .382, p = \text{NS}$ ) was not significant indicating no relationship.

The Day 6 cross-correlation from Twitter to the *New York Times* ( $r = .858, p < .01$ ) and the autocorrelation ( $r = .510, p < .01$ ) exceed the baseline indicating influence from social media to the news media. Conversely, the cross-correlation from the *New York Times* to Twitter ( $r = .221, p = \text{NS}$ ) was not significant which indicates no relationship in this direction.

The Day 7 panel found evidence of influence from the news media to social media as the cross-correlation from the *New York Times* to Twitter ( $r = .858, p < .01$ ) and the Twitter autocorrelation ( $r = .880, p < .01$ ) both exceeded the baseline. There was no relationship from Twitter to the *New York Times* because the cross-correlation ( $r = .347, p = \text{NS}$ ) was not significant.

As Table 9 shows, none of the six between day panels testing for intermedia agenda setting effects for the economy issue found evidence of intermedia agenda setting between media. The Day 1 & Day 2 panel cross-correlation from the *New York Times* to Twitter ( $r = .561,$

$p < .05$ ) and the Twitter autocorrelation ( $r = .739, p < .01$ ) both exceeded the baseline. Therefore, there was influence but no intermedia agenda setting from the news media to social media. The social media to news media cross-correlation ( $r = .478, p = \text{NS}$ ) was not significant indicating no relationship.

The Day 2 & Day 3 panel cross-correlation for the *New York Times* to Twitter ( $r = .539, p < .05$ ) and Twitter to *The New York Times* ( $r = .825, p < .01$ ) exceeded the baseline. Both the *New York Times* ( $r = .701, p < .01$ ) and Twitter autocorrelations ( $r = .830, p < .01$ ) also exceeded the baseline indicating bi-directional influence but no intermedia agenda setting.

The Day 3 & Day 4 panel indicated influence from the *New York Times* to Twitter but failed to show clear intermedia agenda setting as both the cross-correlation ( $r = .706, p < .01$ ) and autocorrelation ( $r = .818, p < .01$ ) exceeded the baseline. However, there was no relationship from Twitter to the *New York Times* ( $r = .307, p = \text{NS}$ ) as the cross-correlation was not significant.

Similar to the previous panel, the Day 4 & Day 5 panel resulted in a cross-correlation from the news media to social media ( $r = .745, p < .01$ ) and an effect variable ( $r = .901, p < .01$ ) that both exceeded the baseline. Also, like the previous panel, the Day 4 & Day 5 panel failed to find a relationship from Twitter to the *New York Times* ( $r = .312, p = \text{NS}$ ) as the cross-correlation was not significant.

The Day 5 & Day 6 panel resulted in the opposite relationship than the previous two panels. The cross-correlation from Twitter to the *New York Times* ( $r = .752, p < .01$ ) and the *New York Times* autocorrelation ( $r = .685, p < .01$ ) both exceeded the baseline. Therefore there was influence but no intermedia agenda setting from social media to the news media. The news

media to social media cross-correlation ( $r = .107, p = \text{NS}$ ) was not significant which indicates a lack of influence.

The Day 6 & Day 7 panel demonstrated evidence of bi-directional influence but no intermedia agenda setting. the *New York Times* to Twitter ( $r = .820, p < .01$ ) and Twitter to the *New York Times* ( $r = .849, p < .01$ ) cross-correlations exceeded the Rozelle-Campbell baseline. Also, the *New York Times* ( $r = .979, p < .01$ ) and Twitter ( $r = .947, p < .01$ ) autocorrelations exceeded the baseline.

**Military.** One of the seven within-day panels demonstrated agenda setting between the *New York Times* and Twitter for military issues (see Table 10). The Day 5 panel indicated intermedia agenda setting from Twitter to the *New York Times* but failed to show agenda setting in the opposite direction. The cross-correlation from Twitter to the *New York Times* ( $r = .911, p < .01$ ) was very strong and exceeded the baseline while the autocorrelation fell below the baseline. Conversely, the news media to social media cross-correlation ( $r = .166, p = \text{NS}$ ) was not significant indicating no relationship in this direction.

None of the remaining panels indicated within-day intermedia agenda setting for the military issue. The Day 1 panel autocorrelations for the *New York Times* ( $r = .938, p < .01$ ) and Twitter ( $r = .894, p < .01$ ) were very high and in exceeding the baseline negated any possibility for agenda setting. However, the *New York Times* to Twitter ( $r = .677, p < .01$ ) and Twitter to the *New York Times* ( $r = .693, p < .01$ ) cross-correlations also exceeded the baseline indicating some bi-directional influence between media.

The panel for Day 2 also had very high news media ( $r = .860, p < .01$ ) and social media ( $r = .958, p < .01$ ) autocorrelations above the baseline ruling out agenda setting. The cross-correlation from Twitter to the *New York Times* ( $r = .397, p = \text{NS}$ ) was not significant indicating

no influence in this direction for military issues. The cross-correlation from the *New York Times* to Twitter ( $r = .822, p < .01$ ) was significant and above the baseline indicating some influence.

The Day 3 panel indicated bi-directional influence but no agenda setting due to very high the *New York Times* ( $r = .986, p < .01$ ) and Twitter ( $r = .871, p < .01$ ) autocorrelations that were above the baseline. The cross-correlations from news media to social media ( $r = .956, p < .01$ ) and in the opposite direction ( $r = .956, p < .01$ ) were also very strong and above the baseline.

Similarly, the Day 4 panel indicated bi-directional influence but no clear agenda setting. The cross-correlations from the *New York Times* to Twitter ( $r = .492, p < .01$ ) and Twitter to the *New York Times* ( $r = .737, p < .01$ ) exceeded the baseline, with the stronger relationship from Twitter to the news media. However, the *New York Times* ( $r = .668, p < .01$ ) and Twitter ( $r = .794, p < .01$ ) autocorrelations also exceeded the baseline negating intermedia agenda setting.

The Day 6 panel had very strong autocorrelations for the *New York Times* ( $r = .902, p < .01$ ) and Twitter ( $r = .996, p < .01$ ) that were above the baseline. This indicated very little change in these media. The news media to social media ( $r = .803, p < .01$ ) and social media to news media ( $r = .742, p < .01$ ) cross-correlations were also above the baseline indicating bi-directional influence between media.

The Day 7 panel found no evidence of a relationship between media as both the *New York Times* to Twitter ( $r = -.033, p = \text{NS}$ ) and Twitter to the *New York Times* ( $r = .211, p = \text{NS}$ ) cross-correlations were not significant.

As shown in Table 11 shows, two of the six between day panels testing for intermedia agenda setting effects for Military issues found evidence of intermedia agenda setting. However, the two panels showing intermedia agenda setting were not bi-directional. The Day 2 & Day 3 panel found intermedia agenda setting from Twitter to the *New York Times* with a strong cross-

correlation ( $r = .966, p < .01$ ) above the baseline and an autocorrelation ( $r = .551, p < .05$ ) below the baseline. In the opposite direction, the cross-correlation from the *New York Times* to Twitter ( $r = .609, p < .01$ ) and the Twitter autocorrelation ( $r = .923, p < .01$ ) both exceeded the baseline indicating influence but no intermedia agenda setting.

The Day 5 & Day 6 panel also found intermedia agenda setting from Twitter to the *New York Times* with a cross-correlation ( $r = .822, p < .01$ ) above the baseline and a below-the-baseline autocorrelation ( $r = .773, p < .01$ ). The cross-correlation from the news media to social media was very high ( $r = .990, p < .01$ ) along with a very high autocorrelation ( $r = .999, p < .01$ ) indicating very little change in social media over time.

The remaining between day panels failed to show intermedia agenda setting. The Day 1 & Day 2 panel found influence with a cross-correlation from social media to news media ( $r = .819, p < .01$ ) and an autocorrelation ( $r = .853, p < .01$ ) both above the baseline. The cross-correlation in the opposite direction from the news media to social media ( $r = .563, p < .05$ ) was below the baseline indicating no influence.

The Day 3 & Day 4 panel found a cross-correlation from the news media to social media ( $r = .921, p < .01$ ) and a Twitter autocorrelation ( $r = .856, p < .01$ ) above the baseline indicating influence but no intermedia agenda setting. The cross-correlation from Twitter to the *New York Times* was not significant indicating no relationship.

The Day 4 & Day 5 panel demonstrated influence from the *New York Times* to Twitter with a significant cross-correlation ( $r = .861, p < .01$ ) and an autocorrelation ( $r = .900, p < .01$ ) both above the baseline. The cross-correlation ( $r = .403, p = NS$ ) in the opposite direction was not significant indicating no influence from Twitter to the *New York Times*.



Similarly, The Day 6 & Day 7 panel demonstrated influence from the news media to social media but no relationship from social media to the news media. Although the cross-correlation from news media to social media ( $r = .728, p < .01$ ) was above the baseline, the Twitter autocorrelation ( $r = .997, p < .01$ ) was very strong indicating very little change over time. The cross-correlation from Twitter to the *New York Times* ( $r = .001, p < .01$ ) was not significant indicating no relationship.

**National Security.** As Table 12 shows, two of the seven panels demonstrated within-day agenda setting between the *New York Times* and Twitter for the issue of national security. The Day 1 panel contained a significant cross-correlation from the *New York Times* to Twitter ( $r = .637, p < .05$ ) that was above the baseline statistic with a Twitter autocorrelation ( $r = .386, p = \text{NS}$ ) below the baseline. Therefore, there is evidence that the *New York Times* on the morning of Day 1 set the agenda for the issue of national security for Twitter that evening. The cross-correlation from Twitter to the *New York Times* ( $r = .341, p = \text{NS}$ ) was not significant indicating no relationship between Twitter in the morning and the *New York Times* in the evening.

The Day 2 panel demonstrated agenda setting in the opposite direction for the issue of national security. The cross-correlation from Twitter to the *New York Times* ( $r = .964, p < .01$ ) was very strong and surpassed the baseline statistic. The autocorrelation of the effect variable the *New York Times* ( $r = .710, p < .01$ ) fell below the baseline statistic indicating agenda setting from Twitter to the *New York Times* for the issue of national security on Day 2. The cross-correlation from the *New York Times* to Twitter ( $r = .637, p < .05$ ) fell below the baseline statistic indicating no relationship between the news media and social media on Day 2.

The remaining panels failed to find any within-day agenda setting between the news media and social media for the issue of national security. As Table 12 shows, the Day 3 panel

autocorrelations for the *New York Times* ( $r = .972, p < .01$ ) and Twitter ( $r = .993, p < .01$ ) were very strong and above the baseline statistic. These relationships indicate very little change for each media over time and rule out any agenda setting. The cross-correlation from the *New York Times* to Twitter ( $r = .638, p < .05$ ) was above the baseline indicating some influence from the news media to social media. The cross-correlation from Twitter to the *New York Times* was not significant indicating no relationship from social media to the news media.

The Day 4 cross-correlations for both the *New York Times* to Twitter ( $r = .988, p < .01$ ) and Twitter to the *New York Times* ( $r = .956, p < .01$ ) are above the baseline indicate influence. However, like the Day 3 panel, the Day 4 panel also demonstrated very high autocorrelations that were above the baseline for the *New York Times* ( $r = .938, p < .01$ ) and Twitter ( $r = 1, p < .01$ ) (See Table 12). These autocorrelations suggest very little change for both media and indicate a lack of agenda setting between media.

The cross-correlation for the Day 5 panel indicate influence from the *New York Times* to Twitter ( $r = .988, p < .01$ ) but a lack of agenda setting as the Twitter autocorrelation ( $r = .992, p < .01$ ) was above the baseline statistic. There was no influence from Twitter to the *New York Times* because the cross-correlation ( $r = .686, p < .01$ ) fell below the baseline.

Similar to the Day 3, Day 4 and Day 5 panels, the Day 6 panel featured autocorrelations for the *New York Times* ( $r = .841, p < .01$ ) and Twitter ( $r = .989, p < .01$ ) that were very strong and above the baseline statistic resulting in a lack of agenda setting between media for the issue of National Security. The cross-correlations for both the *New York Times* to Twitter ( $r = .834, p < .01$ ) and Twitter to the *New York Times* ( $r = .941, p < .01$ ) were also very strong and above the baseline indicating influence, but no agenda setting between media for the issue of national

security. The cross-correlations for the Day 7 panel were not significant indicating no relationship between media over time.

Two of the six between day panels testing for intermedia agenda setting effects for the issue of national security found significant intermedia agenda setting results between media (see Table 13). However, these panels did not demonstrate bi-directional intermedia agenda setting.

The Day 1 & Day 2 panel found significant intermedia agenda setting from Twitter to the *New York Times*. The cross-correlation from Twitter to the *New York Times* ( $r = .738, p < .01$ ) was above the baseline statistic while the autocorrelation for the effect variable the *New York Times* ( $r = .710, p < .01$ ) was below the baseline. Although the cross-correlation from the *New York Times* to Twitter ( $r = .964, p < .01$ ) was above the baseline, the Twitter autocorrelation ( $r = .960, p < .01$ ) was also above the baseline indicating influence but not agenda setting from the news media to social media.

The Day 3 & Day 4 panel also found significant agenda setting from Twitter to the *New York Times*. The cross-correlation from Twitter to the *New York Times* ( $r = .984, p < .01$ ) was very strong and above the baseline statistic while the *New York Times* autocorrelation ( $r = .553, p < .05$ ) fell below the baseline. Conversely, the cross-correlation from the *New York Times* ( $r = .448, p = \text{NS}$ ) to Twitter was not significant indicating no relationship.

The remaining panels failed to find any between-day intermedia agenda setting between the news media and social media for the issue of national security. The Day 2 & Day 3 panel indicated influence but no agenda setting from the news media to social media. The cross-correlation from the *New York Times* to Twitter ( $r = .982, p < .01$ ) and the autocorrelation of Twitter ( $r = .977, p < .01$ ) were both above the baseline indicating influence but no agenda

setting. The cross-correlation from Twitter to the *New York Times* ( $r = .637, p < .05$ ) fell below the baseline statistic indicating no relationship.

The Day 4 & 5 panel autocorrelations were very high and above the baseline statistic for both the *New York Times* ( $r = .953, p < .01$ ) and Twitter ( $r = .990, p < .01$ ) indicating little change in the media over time. There was no intermedia agenda setting for this panel. However, the cross-correlation from Twitter to the *New York Times* ( $r = .990, p < .01$ ) exceeded the baseline statistic indicating influence from social media to the news media.

The Day 5 & Day 6 panel autocorrelations also exceeded the baseline statistic for the *New York Times* ( $r = .730, p < .01$ ) and Twitter ( $r = .669, p < .05$ ) indicating there was no agenda setting between media. The cross-correlation from Twitter to the *New York Times* ( $r = .654, p < .05$ ) surpassed the baseline indicating some influence. The cross-correlation from the *New York Times* to Twitter ( $r = .438, p = \text{NS}$ ) was not significant indicating no relationship from the news media to social media.

Lastly, the Day 6 & Day 7 panel also failed to demonstrate intermedia agenda setting (see Table 13). The cross-correlation from the *New York Times* to Twitter ( $r = .828, p < .01$ ) and the Twitter autocorrelation ( $r = .939, p < .01$ ) were above the baseline indicating influence but no agenda setting. There was no relationship in the opposite direction as the cross-correlation from Twitter to *The New York Times* ( $r = .063, p = \text{NS}$ ) was not significant.

**Terrorism.** None of the seven panels demonstrated within-day agenda setting between the *New York Times* and Twitter for the issue of terrorism (see Table 14). The Day 1 panel cross-correlation from Twitter to the *New York Times* ( $r = .937, p < .01$ ) was very strong and exceeded the baseline. However, the effect variable autocorrelation ( $r = .977, p < .01$ ) was also very strong and exceeded the baseline indicating that there was influence from social media to the news

media but no clear agenda setting. Conversely, the *New York Times* to Twitter autocorrelation ( $r = .343, p < .05$ ) did not exceed the baseline indicating no influence.

The Day 2 panel showed high autocorrelations for the *New York Times* and Twitter ( $r = .739, p < .01$ ) that exceeded the baseline. The *New York Times* to Twitter cross-correlation ( $r = .473, p < .01$ ) exceeded the baseline indicating influence. The Twitter to the *New York Times* ( $r = .278, p < .01$ ) cross-correlation was not significant indicating no influence.

The Day 3 cross-correlations for both the news media to social media ( $r = .458, p < .01$ ) and social media to the news media ( $r = .600, p < .01$ ) both exceeded the baseline. However, the news media ( $r = .895, p < .01$ ) and social media ( $r = .596, p < .01$ ) autocorrelations also exceeded the baseline indicating influence but no clear agenda setting from one media to the other.

The Day 4 cross-correlation from the *New York Times* to Twitter ( $r = .233, p = \text{NS}$ ) was not significant indicating no influence. However, the Twitter to the *New York Times* cross-correlation ( $r = .447, p < .01$ ) and the autocorrelation ( $r = .861, p < .01$ ) surpassed the baseline indicating influence.

The Day 5 cross-correlation from the *New York Times* to Twitter ( $r = .579, p < .01$ ) and the Twitter to the *New York Times* ( $r = .405, p < .01$ ) were above the baseline. Similarly, the autocorrelations for the *New York Times* ( $r = .479, p < .01$ ) and Twitter ( $r = .841, p < .01$ ) indicating bi-directional influence between media but no agenda setting.

Similar to the Day 5 panel, the Day 6 panel found evidence of bi-directional influence. The cross-correlations for both the news media to social media ( $r = .599, p < .01$ ) and social media to the news media ( $r = .487, p < .01$ ) as well as the news media ( $r = .755, p < .01$ ) and social media ( $r = .901, p < .01$ ) autocorrelations exceeded the baseline.

For the Day 7 panel, the cross-correlation from social media to the news media ( $r = .019$ ,  $p = \text{NS}$ ) was not significant, demonstrating no influence. The cross-correlation from the *New York Times* to Twitter ( $r = .676$ ,  $p < .01$ ) and the Twitter autocorrelation ( $r = .747$ ,  $p < .01$ ) both exceeded the baseline indicating influence.

As shown in Table 15, none of the six panels demonstrated between-day agenda setting between the *New York Times* and Twitter for the issue of terrorism. The Day 1 & Day 2 panel cross-correlation from the news media to social media ( $r = .165$ ,  $p < .01$ ) was not significant indicating a lack of influence. The cross-correlation from social media to the news media ( $r = .566$ ,  $p < .01$ ) and the effect variable autocorrelation ( $r = .818$ ,  $p < .01$ ) both exceeded the baseline indicating influence over time.

The Day 2 & Day 3 panel demonstrated influence from Twitter and the *New York Times* with a cross-correlation ( $r = .709$ ,  $p < .01$ ) and autocorrelation ( $r = .901$ ,  $p < .01$ ) both exceeding the baseline. The *New York Times* to Twitter cross-correlation ( $r = .232$ ,  $p = \text{NS}$ ) was not significant indicating a lack of relationship in this direction.

The Day 3 & Day 4 panel demonstrated bi-directional influence between media. The cross-correlations from the *New York Times* to Twitter ( $r = .573$ ,  $p < .01$ ) and the Twitter to the *New York Times* ( $r = .562$ ,  $p < .01$ ) were both above the Rozelle-Campbell baseline. The Twitter ( $r = .951$ ,  $p < .01$ ) and *The New York Times* ( $r = .424$ ,  $p < .01$ ) autocorrelations were also significant ruling out agenda setting as an interpretation of the data.

Similar to the Day 3 & Day 4 panel, the Day 5 & Day 6 panel also demonstrated bi-directional influence for the issue of terrorism. The *New York Times* to Twitter ( $r = .418$ ,  $p < .01$ ) and Twitter to the *New York Times* ( $r = .409$ ,  $p < .01$ ) cross-correlations were above the baseline.

In addition, the *New York Times* ( $r = .566, p < .01$ ) and Twitter ( $r = .767, p < .01$ ) autocorrelations also exceeded the baseline.

The Day 6 & Day 7 panel showed no relationship between media in either direction. The news media to social media ( $r = .210, p = \text{NS}$ ) and social media to news media ( $r = .180, p = \text{NS}$ ) cross-correlations were both not significant.

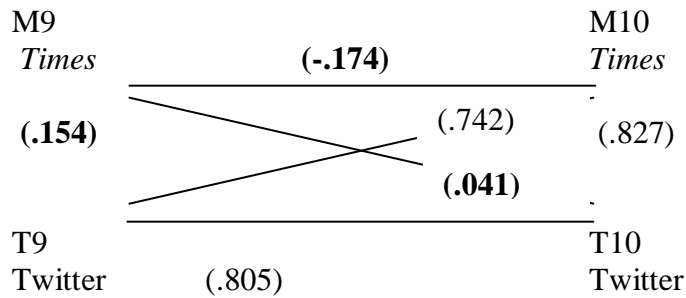
In summary, there was evidence of intermedia agenda setting for only one of the 13 panels testing the issue of the economy. The intermedia agenda setting was a within-day relationship from Twitter to the *New York Times*. For the issue of military, one of the seven within-day panels and two of the six between-day panels found significant intermedia agenda setting from Twitter to the *New York Times*. There was some evidence of intermedia agenda setting between the news media and social media for the issue of national security. Two of the seven within-day panels examining national security demonstrated intermedia agenda setting. One panel demonstrated agenda setting from the *New York Times* to Twitter and the second demonstrated agenda setting from Twitter to the *New York Times*. Two of the six between-day panels examining national security found intermedia agenda setting from social media to the news media. There was no evidence of intermedia agenda setting between media for the issue of Terrorism. Further, none of the panels showed bi-directional intermedia agenda setting.

Table 8: Economy: Cross-Lagged Within Day Panels Between Media

Morning		Evening		
<i>Day 1</i>				
M1 Times	(.958)	M2 Times		
(.261)		(.204)	(.389)	Rozelle-Campbell Baseline = .299
		(.524)		
T1 Twitter	(.879)	T2 Twitter		
<i>Day 2</i>				
M3 Times	(.970)	M4 Times		
(.561)		(.406)	(.626)	Rozelle-Campbell Baseline = .503
		(.678)		
T3 Twitter	(.705)	T4 Twitter		
<i>Day 3</i>				
M5 Times	(.891)	M6 Times		
(.940)		(.814)	(.595)	Rozelle-Campbell Baseline = .615
		(.703)		
T5 Twitter	(.700)	T6 Twitter		
<i>Day 4</i>				
M7 Times	(.612)	M8 Times		
(.472)		(.703)	(.873)	Rozelle-Campbell Baseline = .484
		(.382)		
T7 Twitter	(.812)	T8 Twitter		

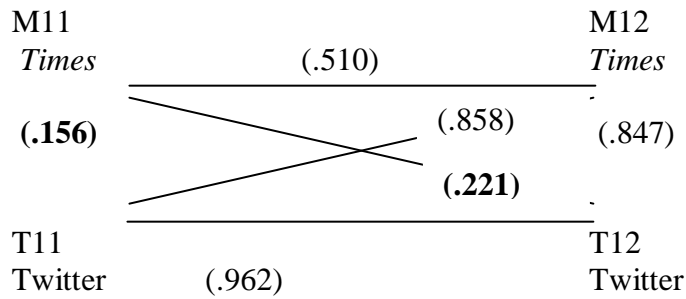


Day 5



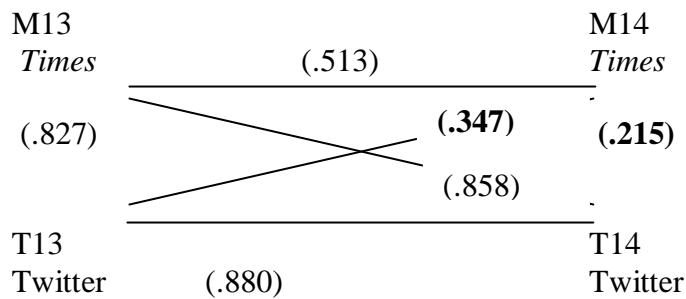
Rozelle-Campbell  
Baseline = .286

Day 6



Rozelle-Campbell  
Baseline = .386

Day 7



Rozelle-Campbell  
Baseline = .375

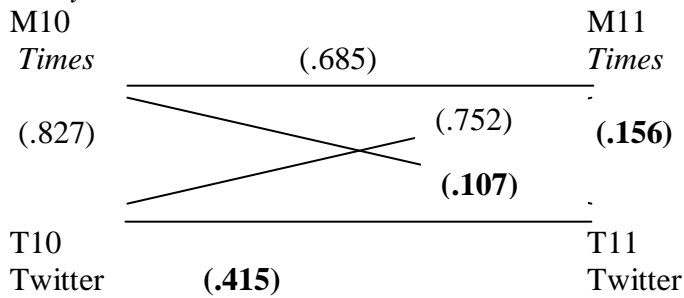
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Note: **bold type** indicates that the correlation is not statistically significant.

Table 9: Economy: Cross-Lagged Between Day Panels Between Media

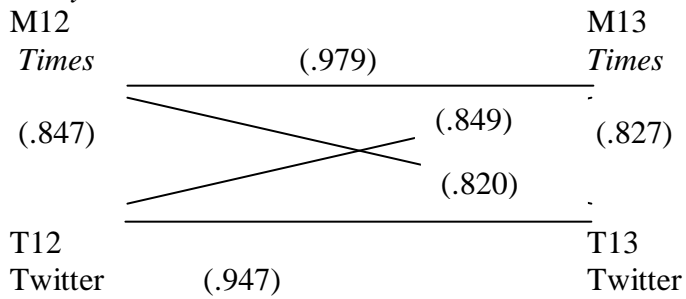
Evening		Morning		
<i>Day 1 &amp; Day 2</i>				
M2		M3		
<i>Times</i>	(.928)	<i>Times</i>		
(.389)		(.478)	(.561)	Rozelle-Campbell
		(.561)		Baseline = .398
T2		T3		
Twitter	(.739)	Twitter		
<i>Day 2 &amp; Day 3</i>				
M4		M5		
<i>Times</i>	(.701)	<i>Times</i>		
(.626)		(.825)	(.940)	Rozelle-Campbell
		(.539)		Baseline = .602
T4		T5		
Twitter	(.830)	Twitter		
<i>Day 3 &amp; Day 4</i>				
M6		M7		
<i>Times</i>	(.727)	<i>Times</i>		
(.595)		(.307)	(.472)	Rozelle-Campbell
		(.706)		Baseline = .413
T6		T7		
Twitter	(.818)	Twitter		
<i>Day 4 &amp; Day 5</i>				
M8		M9		
<i>Times</i>	(.572)	<i>Times</i>		
(.873)		(.312)	(.154)	Rozelle-Campbell
		(.745)		Baseline = .388
T8		T9		
Twitter	(.901)	Twitter		

Day 5 & Day 6



Rozelle-Campbell  
Baseline = .278

Day 6 & Day 7



Rozelle-Campbell  
Baseline = .806

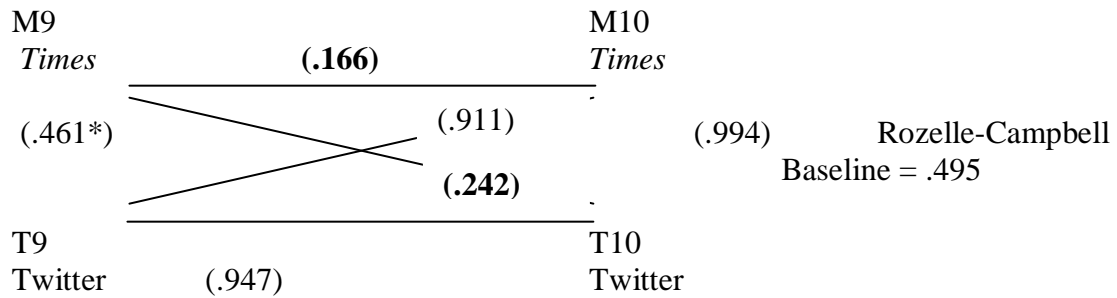
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Note: **bold type** indicates that the correlation is not statistically significant.

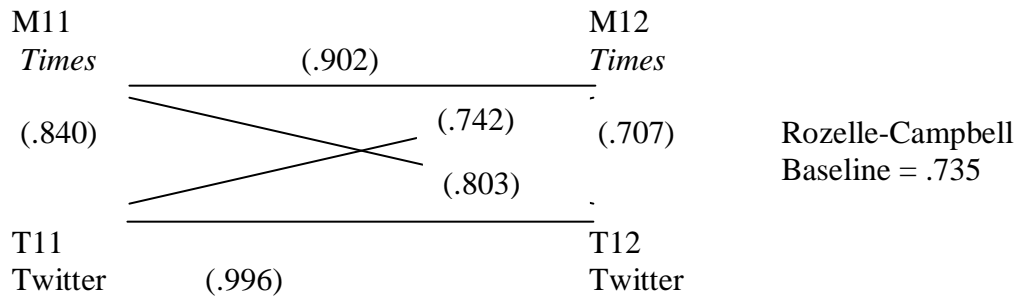
Table 10: Military: Cross-Lagged Within Day Panels Between Media

Morning		Evening		
<i>Day 1</i>				
M1 Times	(.938)	M2 Times		
(.580)		(.693)	(.761)	Rozelle-Campbell Baseline = .614
		(.677)		
T1 Twitter	(.894)	T2 Twitter		
<i>Day 2</i>				
M3 Times	(.860)	M4 Times		
(.678)		<b>(.397)</b>	(.619)	Rozelle-Campbell Baseline = .590
		(.822)		
T3 Twitter	(.958)	T4 Twitter		
<i>Day 3</i>				
M5 Times	(.986)	M6 Times		
(.916)		(.907)	(.925)	Rozelle-Campbell Baseline = .856
		(.956)		
T5 Twitter	(.871)	T6 Twitter		
<i>Day 4</i>				
M7 Times	(.668)	M8 Times		
(.474)		(.737)	(.818)	Rozelle-Campbell Baseline = .474
		(.492)		
T7 Twitter	(.794)	T8 Twitter		

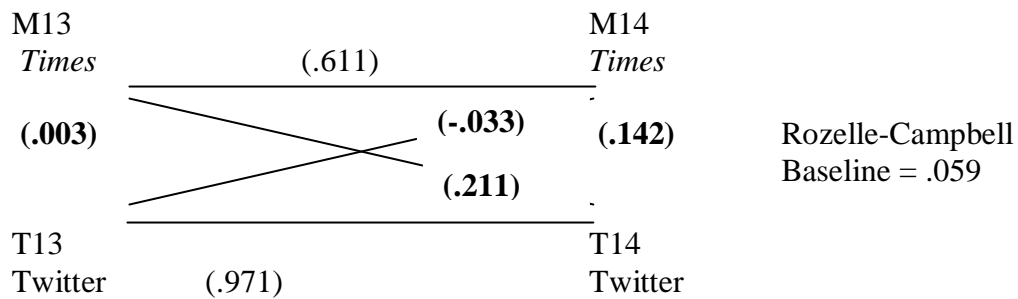
Day 5



Day 6



Day 7

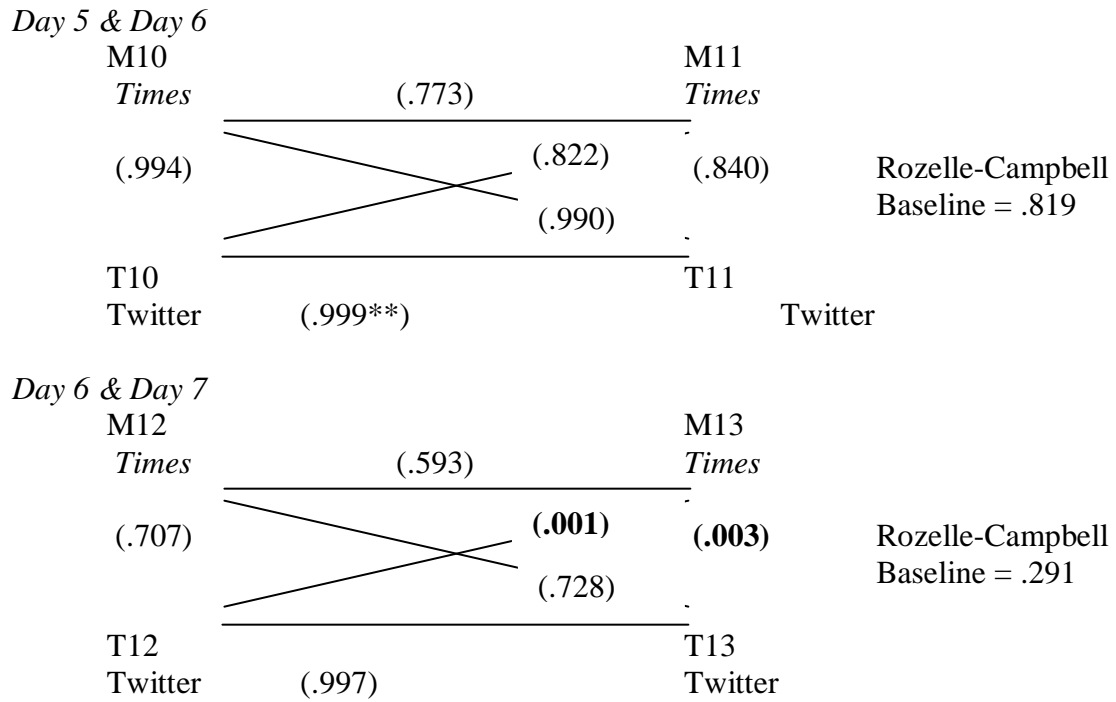



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Note: **bold type** indicates that the correlation is not statistically significant.

Table 11: Military: Cross-Lagged Between Day Panels Between Media

Evening		Morning		
<i>Day 1 &amp; Day 2</i>				
M2		M3		
Times	(.853)	Times		
(.761)		(.819)	(.678)	Rozelle-Campbell
		(.563)		Baseline = .630
T2		T3		
Twitter	(.898)	Twitter		
<i>Day 2 &amp; Day 3</i>				
M4		M5		
Times	(.551)	Times		
(.619)		(.966)	(.916)	Rozelle-Campbell
		(.609)		Baseline = .583
T4		T5		
Twitter	(.923)	Twitter		
<i>Day 3 &amp; Day 4</i>				
M6		M7		
Times	(.549)	Times		
(.925)		<b>(.299)</b>	(.474)	Rozelle-Campbell
		(.921)		Baseline = .503
T6		T7		
Twitter	(.856)	Twitter		
<i>Day 4 &amp; Day 5</i>				
M8		M9		
Times	<b>(.298)</b>	Times		
(.818)		<b>(.403)</b>	(.461)	Rozelle-Campbell
		(.861)		Baseline = .429
T8		T9		
Twitter	(.900)	Twitter		




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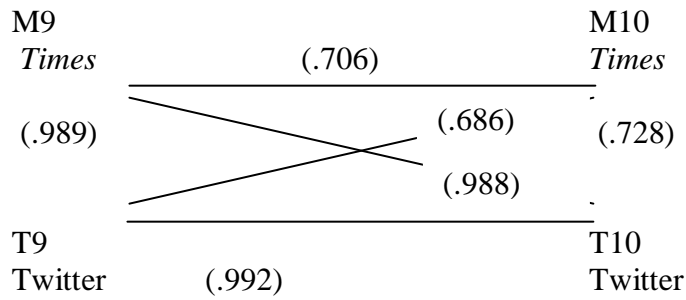
Note: **bold type** indicates that the correlation is not statistically significant.

Table 12: National Security: Cross-Lagged Within Day Panels Between Media

Morning		Evening		
<i>Day 1</i>				
M1 Times	(.615)	M2 Times		
(.575)		<b>(.341)</b>	(.938)	Rozelle-Campbell Baseline = .388
		(.637)		
T1 Twitter	<b>(.386)</b>	T2 Twitter		
<i>Day 2</i>				
M3 Times	(.710)	M4 Times		
(.796)		(.964)	(.967)	Rozelle-Campbell Baseline = .734
		(.637)		
T3 Twitter	(.941)	T4 Twitter		
<i>Day 3</i>				
M5 Times	(.972)	M6 Times		
(.665)		<b>(.480)</b>	<b>(.442)</b>	Rozelle-Campbell Baseline = .544
		(.638)		
T5 Twitter	(.993)	T6 Twitter		
<i>Day 4</i>				
M7 Times	(.938)	M8 Times		
(.986)		(.956)	(.959)	Rozelle-Campbell Baseline = .649
		(.988)		
T7 Twitter	(1)	T8 Twitter		

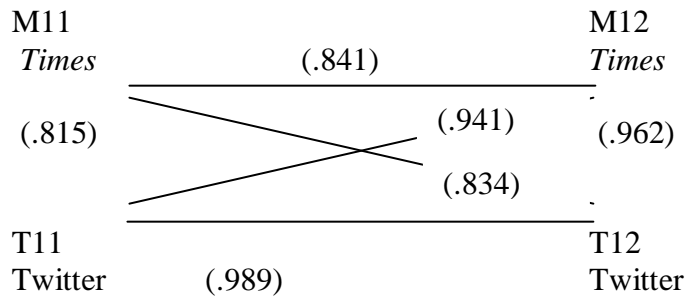


Day 5



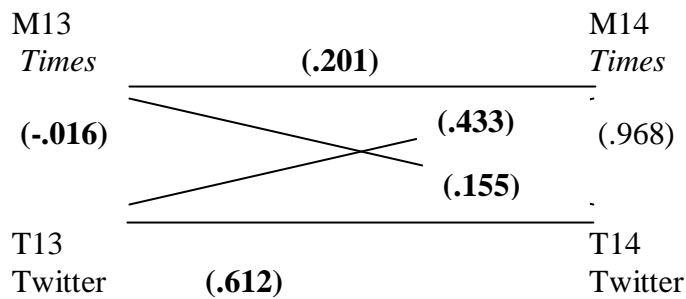
Rozelle-Campbell  
Baseline = .739

Day 6



Rozelle-Campbell  
Baseline = .815

Day 7



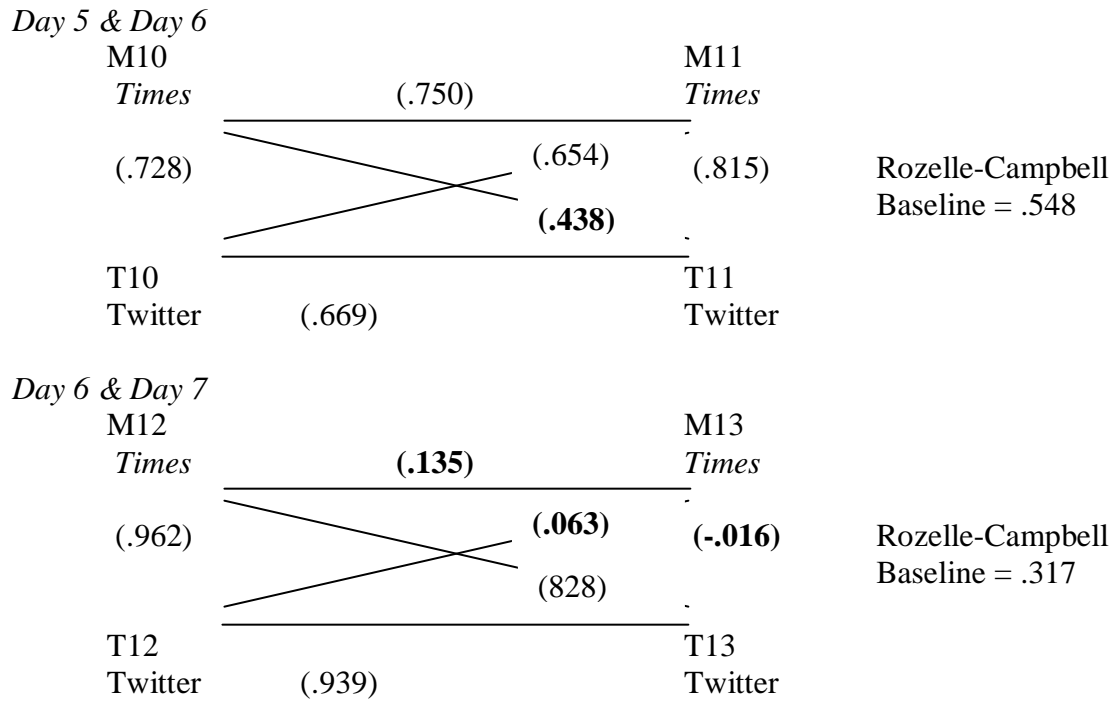
Rozelle-Campbell  
Baseline = .217

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Note: **bold type** indicates that the correlation is not statistically significant.

Table 13: National Security: Cross-Lagged Between Day Panels Between Media

Evening		Morning		
<i>Day 1 &amp; Day 2</i>				
M2 Times	(.710)	M3 Times	(.796)	Rozelle-Campbell Baseline = .732
(.938)	(.738)	(.796)	(.964)	
T2 Twitter	(.960)	T3 Twitter		
<i>Day 2 &amp; Day 3</i>				
M4 Times	(.684)	M5 Times	(.665)	Rozelle-Campbell Baseline = .688
(.967)	(.637)	(.665)	(.982)	
T4 Twitter	(.977)	T5 Twitter		
<i>Day 3 &amp; Day 4</i>				
M6 Times	(.553)	M7 Times	(.986)	Rozelle-Campbell Baseline = .576
(.442)	(.984)	(.986)	(.448)	
T6 Twitter	(.998)	T7 Twitter		
<i>Day 4 &amp; Day 5</i>				
M8 Times	(.953)	M9 Times	(.989)	Rozelle-Campbell Baseline = .946
(.959)	(.990)	(.989)	(.935)	
T8 Twitter	(.990)	T9 Twitter		



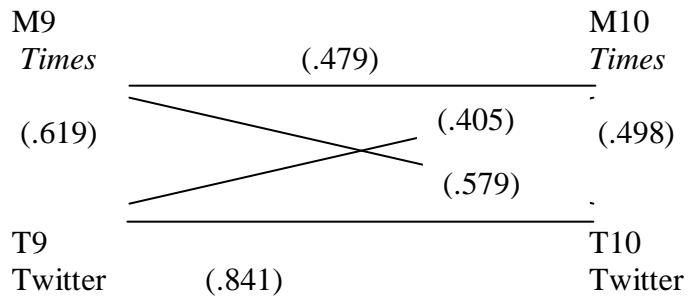

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Note: **bold type** indicates that the correlation is not statistically significant.

Table 14: Terrorism: Cross-Lagged Within Day Panels Between Media

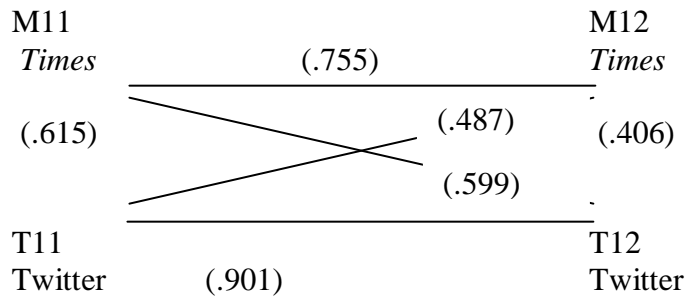
Morning		Evening		
<i>Day 1</i>				
M1 <i>Times</i>	(.977)	M2 <i>Times</i>	(.325)	Rozelle-Campbell Baseline = .473
(.931)		(.937)		
T1 Twitter	(.422)	T2 Twitter	(.343)	
<i>Day 2</i>				
M3 <i>Times</i>	(.838)	M4 <i>Times</i>	(.512)	Rozelle-Campbell Baseline = .386
(.466)		<b>(.278)</b>		
T3 Twitter	(.739)	T4 Twitter	(.473)	
<i>Day 3</i>				
M7 <i>Times</i>	(.895)	M8 <i>Times</i>	(.535)	Rozelle-Campbell Baseline = .355
(.400)		(.600)		
T7 Twitter	(.596)	T8 Twitter	(.458)	
<i>Day 4</i>				
M5 <i>Times</i>	(.861)	M6 <i>Times</i>	(.328)	Rozelle-Campbell Baseline = .337
(.496)		(.447)		
T5 Twitter	(.771)	T6 Twitter	<b>(.233)</b>	

Day 5



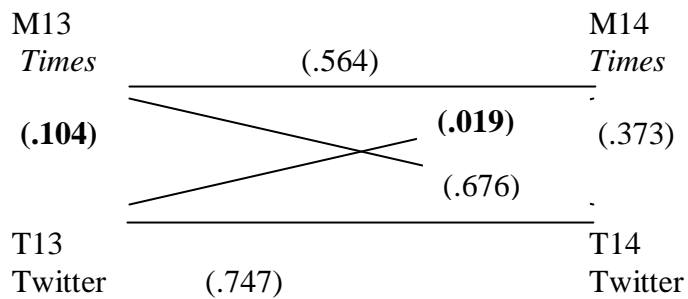
Rozelle-Campbell  
Baseline = .383

Day 6



Rozelle-Campbell  
Baseline = .424

Day 7



Rozelle-Campbell  
Baseline = .158

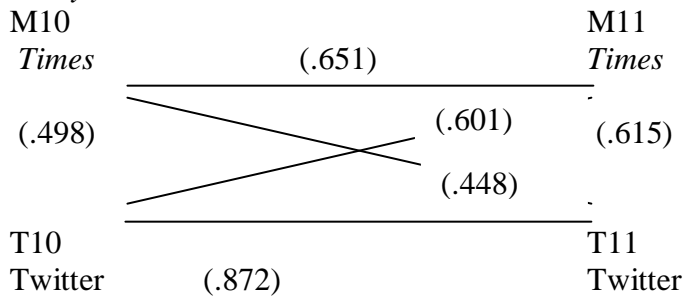
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Note: **bold type** indicates that the correlation is not statistically significant.

Table 15: Terrorism: Cross-Lagged Between Day Panels Between Media

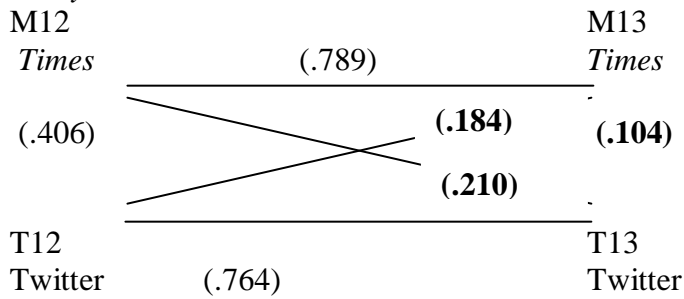
Evening		Morning		
<i>Day 1 &amp; Day 2</i>				
M2		M3		
Times	(.818)	Times		
(.325)		(.566)	(.466)	Rozelle-Campbell
		<b>(.165)</b>		Baseline = .329
T2		T3		
Twitter	(.845)	Twitter		
<i>Day 2 &amp; Day 3</i>				
M4		M5		
Times	(.901)	Times		
(.512)		(.709)	(.400)	Rozelle-Campbell
		<b>(.232)</b>		Baseline = .346
T4		T5		
Twitter	(.582)	Twitter		
<i>Day 3 &amp; Day 4</i>				
M6		M7		
Times	(.424)	Times		
(.535)		(.562)	(.496)	Rozelle-Campbell
		(.573)		Baseline = .380
T6		T7		
Twitter	(.951)	Twitter		
<i>Day 4 &amp; Day 5</i>				
M8		M9		
Times	(.566)	Times		
(.328)		(.409)	(.619)	Rozelle-Campbell
		(.418)		Baseline = .319
T8		T9		
Twitter	(.767)	Twitter		

Day 5 & Day 6



Rozelle-Campbell  
Baseline = .428

Day 6 & Day 7



Rozelle-Campbell  
Baseline = .198

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Note: **bold type** indicates that the correlation is not statistically significant.

## CHAPTER 7

### DISCUSSION

The purpose of this study was to examine whether or not there is intermedia agenda setting between social media and the news media. In the current media landscape, the traditional news media has struggled due to declining market share and the growing competition posed by increased media choices (“Economics,” 2008; “Key Findings,” 2009). The traditional agenda setting role of the news media has been called into question (Chafee & Metzger, 2001; McCombs, 2005; Takeshita, 2005). Concurrently, there has been a rise in popularity of social media websites such as Twitter. As a test of the relevance of the news media in the growing social media environment, this study tested for the influence of the online publication of the *New York Times* on the social media service Twitter. Conversely, this investigation also set out to test whether or not the news media has taken a reactionary posture to social media and is thus being influenced by social media this study tested for the influence of Twitter on the *New York Times* online publication. The present study sought to demonstrate that social media exerts a direct influence on the traditional news media agenda.

What is the nature of the intermedia relationship between the *New York Times* and Twitter for the sample under study? In summary, although infrequent, there was evidence of intermedia agenda setting between the two media under study for a number of within-day panels. There was very little evidence of intermedia agenda setting for the specific issues of: economy, military, and national security. Although there was evidence of intermedia agenda between these two media, the number of panels demonstrating intermedia agenda setting were very few. In support of the underlying argument put forward in this dissertation that social media exerts a direct influence on the traditional news media, the direction of influence between the two media



under study was predominantly from social media to the news media. There were some instances in which intermedia agenda setting occurred in the opposite direction from the news media to social media. The intermedia agenda setting between traditional news media and social media was always uni-directional for a given panel. However, as noted above, there were panels indicating influence in both directions.

## **Hypotheses**

This study predicted that there would be bi-directional intermedia agenda setting between social media and news media within the course of one day. This study also predicted that there would be bi-directional intermedia agenda setting between social media and news media between days.

The content of both the *New York Times* online publication and Twitter changed over the course of a single day. This study tested the likelihood that the content posted on one media in the morning influenced the post on the other media in the evening. However, results indicated that only three out of seven panels demonstrated clear intermedia agenda setting between media within a single day. All three of these panels demonstrated agenda setting from social media to the news media. The majority of within panel days, four of seven, found no clear intermedia agenda setting from one media to the other. In no case was there bi-directional intermedia agenda setting as was predicted in the first set of hypotheses, H1 through H7. Interestingly, this study found that none of the seven between-day panels displayed significant intermedia agenda setting between media, indicating a lack of support for the second set of hypotheses, H8 through H13.

In sum, this study failed to find support for the hypothesized bi-directional intermedia agenda setting relationship between Twitter and the *New York Times*. Theoretically there should be intermedia agenda setting between these two media based on past relationships showing

intermedia agenda setting between the news media and participatory online media (Lee, Lancendorfer & Lee, 2005; Roberts, Wanta & Dzwo, 2002; Wallsten, 2007). Further, this theoretical foundation is supported by numerous cases of anecdotal evidence discussed in the literature review that indicate the news media and social media influence one another. Despite the theoretical and other evidence supporting the probability of a relationship, these results indicate that either no intermedia agenda setting relationship between these two media indeed existed or the relationship is too weak for the analytical methods used. The panels which indicated intermedia agenda setting were overall too few to conclude there was intermedia agenda setting and may have been spurious relationships representing false positives. There are a number of possible factors that contributed to these results. These factors range from aspects of the methods employed, characteristics of the sample, demographics, aspects of the issues under study including the influence of historical factors, and other influences.

**Test of significance.** A major factor contributing to the results reported in this dissertation comes from the methods used to test significance for each panel. This study used the procedures employed by Dunn (2005) and Tedesco (2005) as the criteria to test for intermedia agenda setting. This approach states that as a test of significance, in order to conclude there is a clear intermedia agenda setting effect, the autocorrelations in the analysis must fall below the baseline statistic (Dunn, 2005; Tedesco, 2005). In other words, if the autocorrelation of the hypothesized effect variable is above the baseline then that effect variable has not undergone enough change for the proposed causal variable to have caused the change. This described procedure is a more stringent assessment than has been used in some intermedia agenda setting studies which have been published employing cross-lagged panels with the Rozelle-Campbell Baseline (e.g., Lee, Lancendorfer, Lee, 2005; Lee, 2006; Lopez-Escobar, McCombs &

Lennon, 1998; Roberts & McCombs, 1994). Such studies conclude that intermedia agenda setting between media occurs if the cross-correlation exceeds the baseline statistic despite whether the effect variable autocorrelation also surpasses the baseline. The test of significance used in the present study dictates that if the effect variable autocorrelation also surpasses the baseline statistic then there is evidence of some subtle influence between the two media, but not a strong enough relationship to conclude that one media caused the change in the other media.

Had the present study employed the less conservative method, this study could have concluded that there were many more cases of intermedia agenda setting between these two media. However, in order to control for possible external confounds influencing the content of each media in a fragmented media environment where various media contribute to the content of Twitter, it was important to use the most stringent evaluation method used by scholars. This way, the results of the present dissertation more confidently preclude outside media and information sources that are known contributors to the social media agenda on Twitter. The test of significance employed in this study controls to ensure that the proposed effect has undergone significant change and that the change in the media is not attributed to the expected change over time, increasing confidence that the proposed causal variable indeed caused the change seen in the results. While the less conservative test of significance is accepted in intermedia agenda setting research, the less conservative approach is of greater risk of possible threats of Type I error resulting in false positives. Relying on the test of significance employed in this study, there are a number of possible existing intermedia agenda setting relationships which were too weak for the methodological rigors employed.

The high autocorrelations for the effect variables in the panels were a factor in the test of significance that contributed to the lack of support for the hypotheses. As stated above, the test of

significance required that the autocorrelations fall below the baseline statistic, meaning a significant amount of change was needed for each media over time. As a result of the short time span between Time 1 and Time 2 for both the within-day and between-day panels, the agenda on each media often did not change substantially for many of the panels. For these panels with very high autocorrelations, the lack of substantial change precluded the possibility of intermedia agenda setting occurring. Therefore, low variance was an issue with the panel design used in this study.

The within-day panel autocorrelations for the *New York Times* were very high for the first three days (see Table 6). The reason for the very high autocorrelations for the first three days of the week was likely do to the heavy coverage on the failed Christmas Day bombing attempt. Table 1 corroborates this reasoning with the related issues of terrorism, national security and military all peaking in frequency on the *New York Times* during the second day of the sample. All three of the panels demonstrating significant intermedia agenda setting from social media to the news media occurred during the latter half of the week when the news media autocorrelations were low and news media focus was shifting away from the attempted bombing. Twitter autocorrelations remained high for each day within the sample and there was no intermedia agenda setting from the news media to social media.

The autocorrelations for the between-day panels from evening to the following morning for both the *New York Times* and Twitter tended to be high and in every panel were above the baseline statistic (see Table 7). Each media tended to not undergo much change from one day to the next. A likely reason for this is that the news day is just beginning between the times of 7am and 9am and the news stories on the *New York Times* website have themselves not undergone much change from the previous evening. Similarly, the buzz on Twitter tended to surround the

same topics that were dominating discussion the previous evening, with Twitter users picking up in the morning where they had left off the night before.

**Characteristics of the sample.** Other factors that may have contributed to the results found in this dissertation are an outcome of characteristics of the sample used in this study. The topic of focus in this study is the first aspect of the sample that may have impacted the study results. This study examined issues surrounding President Obama. Given the omnipresent nature of President Obama as a topic of discussion across the various media platforms from alternative media, to blogs, to mainstream media, and so forth, Twitter users may be virtually inundated with exposure to information about Obama. If such is the case, this exposure external to the news agenda may dilute any possible agenda setting effect. Had this study focused on a different topic that is less pervasive in the vast media landscape that inundates modern life it is possible that intermedia agenda setting effects would be more likely.

An aspect related to the topic of Obama that could have had an impact on the results is the makeup of the population on Twitter this study sampled from. This study did not collect demographic data of Twitter users given the very limited nature of Twitter profiles. However, during the preliminary analysis stage in which the researcher read portions of the Twitter sample to determine issues within the sample in constructing the issue categories, many characteristics of the posts were uncovered. It was noted that many of the posts were critical of the president and were focused on issues and opinions that align with the conservative and libertarian perspectives, including the emergent so-called “Tea Party movement.” A likely reason for this finding is that persons who are satisfied with the Obama administration have less cause to discuss Obama on Twitter. Persons who are dissatisfied with Obama have greater reason to

discuss Obama as a means of complaint. Therefore, dissatisfaction with Obama may fuel negative use on Twitter.

The so-called Tea Party movement is a recent phenomenon that emerged over the course of the year during which this dissertation was planned out, proposed, and conducted. The researcher was unable to predict the emergence of a backlash of strong negative sentiment towards the Obama Administration and the accompanying movement. However, the strong presence of individuals with negative perspectives towards the president may have biased the results and negatively impacted the possibility of finding intermedia agenda setting.

This population may have had a proclivity to use Twitter as a communication tool to express views and disseminate information consistent with or promoting the beliefs and opinions held by opponents of Obama. Twitter has been cited as a popular tool for expression, organization and sharing of information for the Tea Party movement (e.g., “Anti-stimulus tea parties,” 2009; Malkin, 2009) as it has been used in the recent past by others using the service for political expression and organization such as during the Iran protest and the Moldova protests of 2009 (Barry, 2009; Stone & Cohen, 2009). If such was the case, much of the Twitter posts about Obama would have been for interpersonal and organizational purposes and not discussion influenced by media exposure.

A further confound introduced by the population largely represented in this sample is that the Tea Party movement and the conservative movement are characterized by having a distrust of and holding strong anti-mainstream media viewpoints. This population may be purposefully avoiding exposure to mainstream media agendas for ideological reasons. That is, this particular population may be prone to atypically increased levels of selective perception and atypically low levels of exposure to mainstream media agendas.

Selective perception proffers that people try to avoid exposure to information contrary to their views while attempting to maximize exposure to information that supports their views (McCombs & Reynolds, 2002). The contemporary environment is a highly partisan political environment and there has been a popularization of partisan media outlets such as Fox News, MSNBC, and online outlets such as blogs and social networks where individuals have greater ability to insulate themselves from alternative perspective. Research examining political blogs and the websites of cable TV news demonstrates that these outlets tend to demonstrate partisan filtering in determining newsworthiness which researchers have suggested may contribute to heterogeneous media agendas (Baum & Groeling, 2008) which would be counter to the possibility of the media contributing to a common public agenda.

The growing ability of the individual to enact selective perception may pose a key threat to the viability of agenda setting in a heterogeneous media landscape. Although McCombs and Shaw's (1972) original study found evidence favoring agenda setting over selective perception, the media landscape has undergone dramatic change since that time and the debate between these two camps should be re-examined.

**Demographic differences between the two media.** There is yet another issue regarding demographics that may have contributed to the results of this study. There is a probable mismatch between the demographics of users for the *New York Times* and Twitter. The readership of the *New York Times* online publication (i.e., NYTimes.com) is primarily male, older and Caucasian ("nytimes.com," 2010). Readers tend to be adults without children at home, and the majority of readers are affluent with 38% of readers salaried at over \$100,000, and 58% of readers with graduate level education ("nytimes.com," 2010).

Contrasting the *New York Times* demographic with that of the Twitter demographic reveals key differences between these two populations. Recent reports show that young adults tend to be heavy users of the service, with one-third of U.S. adults under 30 using Twitter (“Twitter and status,” 2009). That percentage decreases as the population ages, with only 22% of 30 to 49 year-olds using Twitter and 10% of persons 50 and older using Twitter (“Twitter and status,” 2009). Also, Twitter users tend to be more evenly distributed across education and income levels than the *New York Times* readership. Twenty-one percent of college graduates and persons with some college education use Twitter. Seventeen percent of individuals with a high school education and 18% of persons who have not completed high school use the service (“Twitter and status,” 2009). Twenty-two percent of U.S. citizens making under \$30,000 use Twitter while 21% percent of persons making between \$30,000 and \$49,000 use Twitter (“Twitter and status,” 2009). Only 20% of U.S. citizens who make \$50,000 or more use Twitter (“Twitter and status,” 2009). Twitter is also more diverse in terms of race and gender. Nineteen percent of Caucasian U.S. citizens use Twitter, 26% of African American’s use Twitter and 18% of Hispanics use Twitter (“Twitter and status,” 2009). Seventeen percent of U.S. men use Twitter and 21% of U.S. women use the service (“Twitter and status,” 2009).

Because the Twitter and NYTimes.com user populations are demographically different, it may be that users of one media are not users of the other media. Twitter users may not be heavy readers of the *New York Times* and thus are not influenced by its content. And, because Twitter users may not be the bulk of NYTimes.com’s readership, the *New York Times* may not care too much to pay attention to the discussion on Twitter. Had this study examined an online publication that more closely resembles the demographics of Twitter, it is possible that there would have been greater intermedia agenda setting between the news media and social media.



**Prominent issues.** Another factor that may have contributed to the results of this dissertation is the issues that were prominent in the sample. The most popular issues across both the *New York Times* and Twitter were examined to explore for intermedia agenda setting effects. These issues were: the economy, military, national security and terrorism. When examining for intermedia agenda setting for these four issues, the overall evidence indicated a lack of intermedia agenda setting.

The obtrusiveness of the issue of the economy may explain why there was little evidence of intermedia agenda setting between Twitter and the *New York Times*. As Zucker (1978) proffered, issue obtrusiveness is the extent to which the public has direct experience with an issue. The public is less likely to have its agenda set for such obtrusive issues because it is less reliant on the news media and more reliant on personal experiences and interpersonal communication for knowledge and information about an obtrusive issue (Zucker, 1978). At the time of this study, the United States economy was and had been in a severe recession with the average monthly unemployment rate at 9.3% and an unemployment rate in December 2009 at about 10% (“Unemployment hovers at,” 2010). Many individuals were themselves out of work, were otherwise impacted by the poor shape of the economy or likely knew someone who was. In fact, Zucker (1978) found in his original study on issue obtrusiveness that there was no agenda setting from the media to the public for the issue of unemployment. Similarly, individuals on Twitter do not need prompting by the news media to be discussing the economy, an issue many have direct experience with. Interestingly though, the news media was influenced by social media but did not turn to social media to gauge the tenor of the public’s concern with the economy to the extent to have its agenda set by Twitter (see Table 8, 9). Although Twitter and

the news media were both giving attention to the issue of the economy, they were largely responding to different factors.

There was little evidence of intermedia agenda setting between social media and the news media for the related issues of national security, terrorism and the military which has been engaging for over eight years in an ongoing “War on Terror.” Historical events are a likely explanation both for the prominence of these issues within the sample as well as the overall lack of intermedia agenda setting for these issues between the two media. The week prior to the sample under study, on December 25, 2009, a Nigerian-born man named Abdulmutallab with links to Al Qaeda cells in Yemen attempted to blow up a Detroit-bound flight using a hidden explosive device in his underwear. This act of terrorism and threat to U.S. national security dominated much of the news in the sample week, particularly in the early days of the week. Many major events and actions followed the failed bombing during the sample week including closure of U.S. embassies in Yemen, probes into the status and effectiveness of national security including a meeting by the president with his national security team, public accusations by prominent conservatives including Rudolf Giuliani questioning whether Obama was adequately protecting the homeland, orders by the president to change how intelligent agencies shared intelligence to enhance national security, and a televised public address by the president from the State Dining Room.

This historical event may account for a lack of intermedia agenda setting in both directions. The nature of the event may have precluded the influence of Twitter resulting in an overall lack of intermedia agenda setting from Twitter to the *New York Times* for these issues. The president is considered America’s top news story (McCombs, 2004) and during a threat to the homeland journalistic norms would dictate that the news media focus its lens on the actions

of the administration of the commander in chief. In effect, the prominence and gravity of these events and the president's central role in them contributed to their high news value which would likely trump the role of social media in influencing coverage. This indicates that social media may have a stronger agenda setting potential for less prominent or severe issues for which the press does not tend to focus so heavily on the actions or responses of government agencies to events. Social media may also have greater agenda setting potential for slow news days during which the news media is looking for stories to cover and thus more porous to external influence.

The nature of the historical event may have also accounted for the lack of intermedia agenda setting from the *New York Times* to Twitter. A likely contributing factor is that issues of national security, terrorism and the military are issues that individuals tend to have strong opinions about. Roberts and colleagues (2002) argued that for issues individuals hold strong opinions about there is not necessarily a need to be exposed to news media coverage to evoke online discussion. There has been a strong divide between the political parties and their respective ideologies regarding stances on the related issues of national security, terrorism and the military.

Another possible explanation for these findings is, again, the role of partisan media and the selective perceptions that individuals may engage in when seeking information about issues they hold strong opinions about. Many in the sample may have selectively exposed to media that reinforced their ideological perspective about these issues. In effect, rather than the social media agenda being set by the mainstream news media, many on Twitter may have drawn upon their strongly held beliefs on these issues, their interpersonal networks, or may have engaged in selective exposure to partisan media that reinforced their beliefs.

Because economy, national security, military and terrorism were dominant issues for both the *New York Times* and Twitter, the historical events of the so-called underwear bomber attempt and the obtrusiveness of the economy may have been confounding factors that contributed to the results failing to support intermedia agenda setting for the panels testing for intermedia agenda setting across all issues.

**Other influences.** Lastly, it must be emphasized that there are an array of possible influences on the coverage of the *New York Times*. Journalistic norms are the closest layer of influence to the media agenda (McCombs, 2004). There are many traditions of newsgathering and reporting that pre-date the adoption of Twitter. The array of documented influences on news coverage is wide and includes prominent entities such as Government officials, the president and his administration, political campaign efforts, communication professionals' information subsidies such as press releases, (McCombs, 2004) as well as, more recently, the blogosphere (Wallsten, 2007). Given its newness and the fact that it is still being adopted into journalistic practices, Twitter may sit very low on the totem pole of competing influencers of the news media's agenda.

As noted in the literature review, there is a very wide array of information sources inundating Twitter from traditional news media, blogs, and alternative and niche media, to individual thoughts, experiences and conversation, to business and corporate communication efforts, ad infinitum. The influence of the news media may have become quite diluted in this environment.

In summary, there are a number of factors that offer greater understanding as to the results of this study failing to support the intermedia agenda setting relationship. These factors include the nature of the employed methods, sample characteristics, user demographics, the

issues under study and historical events, and external influences. Despite a lack of support for the hypotheses put forward in this study, there are a number of important findings that can be drawn from the present dissertation.

### **Beyond Agenda Setting: Other implications**

**Intermedia influence.** Interpretation of the cross-correlation panels indicates that there is influence between but rarely clear agenda setting between these two media. For the within-day planes for all issues, there was influence in at least one direction for all four of the panels that did not find intermedia agenda setting (see Table 6). Two of these panels showed bidirectional influence, three demonstrated influence from Twitter to the *New York Times* and one showed influence from the *New York Times* to social media. Table 7 shows that there was evidence of influence between the two media for each of the six between-day panels testing all issues. Two of these panels demonstrated bi-directional influence, three showed influence from Twitter to the news media and one showed influence from the news media to Twitter. Thus, although there was influence between these media in both directions, there was a greater likelihood that the *New York Times* would shift toward the Twitter agenda than the other way around.

While there is evidence that these two media had some influence on each other's coverage, the reasons discussed above as to why there was a lack of intermedia agenda setting appear to be overshadowing factors. Despite those factors, the relationships between these two media demonstrated an ability to influence one another. This is an important finding.

**Social media impact on the news media.** There is a seemingly limitless array of forces attempting to influence the news media today. Although social media may not be clearly setting the news media agenda, the influence of Twitter in this study is clearly important given the array of would-be-influences competing to influence media coverage.

The limited impact of social media on the news media found in this study can be explained within the context of changing news norms for a news industry attempting to adapt to the change in the producer/consumer relationship. News norms play an integral role in shaping the media and so how journalists practice news gathering has a very strong influence on the news agenda (McCombs, 2004). A growing body of research has shown that the public can impact the news media agenda through participatory online media (Lee, Lancendorder & Lee, 2005; Wallsten, 2007). Lee and colleagues (2005) proposed that online discussion has impacted news practices in that news media have taken on the task of monitoring and reacting to online discussion spaces. That social media are influencing what issues are covered in the news media, even if only somewhat, points to the likelihood that the *New York Times* is engaging in this monitoring behavior on social media to at least some extent.

There are many pieces of evidence discussed in the above literature review that, when looked at together, indicate a growing role of social media in news media practices (e.g., Farhi, 2009; Hirsch, 2008; "Latest Tweets," 2009; Maul, 2009; Oliver, 2009; Seward, 2009). The results of this study corroborate that evidence, indicating that Twitter may not only play a role in how journalists gather news, but may have a minor influence on what issues journalists choose to cover. News media practitioners are still in the adoption stages of social media. They are figuring out how to integrate social media into their journalistic practices, which may explain why the influence on the news media was small.

**Applicability of agenda setting.** The findings of this study provide support for the argument questioning the applicability of the agenda setting hypothesis (Chaffee & Metzger, 2001; McCombs, 1993; Shaw & Hamm, 1997; Takeshita, 2005), extending this argument to the social media age. According to this perspective, media fragmentation poses a challenge to the

media's agenda setting ability as the increase in media choices and decrease in audience size challenges the ability for a common public agenda to be constructed (Chaffee & Metzger, 2001; Takeshita, 2005). In the present study, the mainstream news media was able to influence the Twitter agenda but unable to clearly set the agenda on this social media service. The lack of agenda setting from the *New York Times* to the Twitter agenda indicates a weakened ability of the mainstream media to influence the public in the emergent social media environment. The results of this study provide evidence questioning the agenda setting ability of the news media in the social media age.

It appears that an issue is that the audience is spread across many media outlets. With the ever-growing array of media being shared on Twitter there is great competition for the individual's attention. Given the nature of the analysis, it is not possible to determine what percent of Twitter users in the sample turned to mainstream media for their news and what percent did not. However, the results suggest that the Twitter agenda is constructed from an array of influences, of which the *New York Times* is an important influence but an influence whose agenda setting capacity has been diluted.

**Media fragmentation.** However, despite what appears to be fragmentation of the audience across many media, the Twitter agenda itself is not remarkably different than that of the news media.

A key role of agenda setting is its ability to promote social consensus by offering a common agenda for the public to rally around (McCombs, 1993; McCombs, 1997; McCombs, 2004). As McCombs (1993) notes, "the key agenda-setting role of the media may be the promotion of social consensus on what the agenda is" (p. 64). This consensus building plays the social function of helping to create a sense of community (McCombs, 1993). However, as

McCombs noted in 1993, this function “is threatened by the expanding choice of information sources created by the plethora of new communication technologies” (p. 64).

Will social cohesion be a casualty of the decline of agenda setting? The collective intelligence that emerged on Twitter through the contributions of many individuals posting what they were interested in is not remarkably different from the news media agenda. Social cohesion by way of media use is perhaps not as under threat as has been assumed would be with the deterioration of news media’s agenda setting power. The high synchronous correlations in many of the within-day (Table 6) and between-day panels (Table 7) between the *New York Times* and Twitter indicate very strong consistency in the issues receiving the most coverage in both media at a given time. A recent investigation by Lee (2009) corroborates these findings, showing strong correlations between news media agendas and agendas on the Internet. Lee concluded that indeed the public is capable of learning a common agenda through new media use which he argued counters claims of a fragmented audience. The evidence of this study supports Lee’s claims of social cohesion despite a lack of reliance on the mainstream media. In doing so, the results problematize the implicit link that a major function of agenda setting is social cohesion (McCombs, 1993; McCombs, 1997).

There appear to be factors at play beyond the mainstream news media that contribute to the Twitter agenda. One possibility is that on Twitter the mainstream media may impact the public through a multi-step process. For example, many individuals on social media turn to non-mainstream news media to get their news. These non-mainstream sources may themselves be influenced by the mainstream news media. An example of this may be other Twitter users (interpersonal communication – such as the two-step flow) or blogs which tend to offer commentary on news media reporting. Another possibility is that the information sources



individuals are exposed to on social media are responding to many of the same cues as the mainstream media in determining what topics to cover.

### **Conclusions and Implications**

This study provides insight into the nature of the relationship between the news media and social media in a changing media environment. In the context of a news media industry struggling to remain relevant and a burgeoning social media environment, this study investigated the relevance of each media in influencing the other.

The findings of the present dissertation reveal that for the sample under study there was an overall lack of intermedia agenda setting between the news media and social media. The *New York Times* was by and large unable to set the Twitter agenda. Similarly, evidence of clear agenda setting from social media to the news media was scant. These results represent a relative split between these two types of media. These results may be emblematic of a larger cyst between the news industry and the new media community.

**Relevance of agenda setting.** The results of this study have implications for the traditional mass communication theory of agenda setting. The results presented in this study provide ammunition for scholars who question the relevance of the agenda setting theory in the contemporary media landscape. The agenda setting theory did not hold up in the social media paradigm. It can be argued that there are simply too many sources of information out there for one media to clearly set the agenda for another – the competition for attention has grown too great. As we continue to see more media choices, the agenda setting model will continue to face criticism.

The results of this study also have implications for the traditional perspective that the new media age has led to a fragmented public that may not gain social cohesion through a common

agenda (McCombs, 1993). The results of this study showed that the Twitter agenda and the *New York Times* agenda were not remarkably different. While clear agenda setting from one media to the other was not found in this study, there remained a strong relationship between the media's agenda and the agenda on Twitter indicating that questions of whether the audience has become fragmented are less clear. The social cohesion role ascribed to the mainstream media may still be occurring, whether directly or through secondary channels. Also, it is possible that Twitter may play a social consensus role through the exchange of information and the exposure individuals, who would otherwise be diffuse, gain to a common range of issues via the service. That is, Twitter may help build community which is central to social cohesion. These results support previous research that has found that individuals can still learn a common agenda through their use of new online media (Lee, 2009). The results of this study are informative to scholars continuing to explore the applicability of traditional mass communication theories in the emerging new media environment as they shed light into an inconsistency between a traditionally held maxim of mass communication, social cohesion, and the increasingly diffuse and active audience.

**Intermedia agenda setting.** McCombs (2005) argued that research investigating intermedia agenda setting is important in the current media environment due to the limited understanding scholars have of the influence between traditional news media and online media forms. Although this study did not find corroborating intermedia agenda setting results, these results contribute to the body of agenda setting research by exploring the role of a new type of participatory online media in shaping the news. To the author's knowledge, this was the first intermedia agenda setting study to explore for intermedia agenda setting effects on a real-time service such as Twitter that draws from the contributions of potentially millions of individuals.

Studies which have explored blogs (e.g., Wallsten, 2007) or online discussion (e.g., Roberts, Wanta & Dzwo, 2002; Lee, Lancendorfer & Lee, 2005) have been confined to studying contributions from much smaller groups. To this end, this study was a first step in contributing to scholars' understanding of who sets the social media agenda by demonstrating that the mainstream news media is not playing a major role, opening up possibilities of exploring other potentials such as partisan media and blogs.

The findings of this study reveal that the nature of the relationship between the two media under study is primarily one of influence between media and not clear agenda setting. As the number of media outlets grows and the audience becomes spread thinner across them, it appears unlikely that one media form can have as clear, direct and powerful of an impact on another in this environment.

The primary direction of influence between social media and the news media was from Twitter to the *New York Times*. These findings further indicate that, as proposed by Chafee and Metzger (2001), the news media should not be conceptualized as only a leader with the ability to contribute to the formation of what the public thinks is important, but a follower reactant to what issues the public tells the news media it wants to think about. In this case, it was the topics and trends popular on social media that influenced the news media. There are many pieces of evidence discussed in the literature review of this dissertation that point to an adoption of social media tools by journalists for news gathering process (e.g., Farhi, 2009; Hirsch, 2008; "Latest Tweets," 2009; Maul, 2009; Oliver, 2009; Seward, 2009). This study provides greater insight into that evidence, adding further understanding of how the way social media is being utilized for journalism impacts coverage. Twitter appears to be one tool, but not the major tool, that helps the news media determine what to cover.

**Implications for the news media and democracy.** Practically speaking, this study further questions the relevance of the news media in an age of new social media. This is a major problem for the news media industries. The demographic of newspaper readership is aging (“Audience”, 2008) and young adults are heavy users of new media such as Twitter (“Twitter and status,” 2009). Clearly the news media must continue to adapt to a media landscape that has shifted in order to maintain its relevance moving forward. The fate of the news media impacts the public immensely as it is an historic institution that is so tightly bound to American democracy.

While it is important to avoid alarmism, scholars and practitioners alike should closely monitor the health of the news media and continue to explore how the shift in the media landscape may have implications for the media’s role in society. These implications could be either positive or negative. For example, it is not difficult to see a connection between a healthy democracy and citizens who are knowledgeable and informed about public affairs. News media use is connected with gains in political knowledge by increasing an individual’s attention to public affairs (Chaffee, Ward & Tipton, 1970). News media use also predicts voting behavior (Pinkleton, Austin, & Fortman, 1998). A public that does not pay attention to the news media may be an uninformed public and potentially one that is disengaged. Conversely, if the news media becomes more porous to the influence of the public then individuals may be becoming empowered to have greater influence on the direction of the news media (Chaffee & Metzger, 2001), and through greater involvement they may become more engaged and invested in public life.

News media practitioners should take the results of this study as motivation to encourage greater social media integration in their news cycle rather than reading these results as reason to

despair. The challenge will be to balance incorporating new and social media fluently into news practices while maintaining journalistic standards. There is, though, reason for optimism.

Although there was a lack of evidence showing agenda setting from news media to Twitter, it must be said that the *New York Times* is not irrelevant on social media.

Mainstream media are increasing their social media presence and gaining stronger footholds in these emergent communities. To the extent that the mainstream media adapts to social media, they may be able to increase their influence on these communities. The news media is changing and scholars, practitioners, and the public alike would be wise to not rule out the news media.

### **Study Limitations**

As all studies do, this study faced a few limitations. Agenda setting research suffers from the use of purposive sampling and thus external validity threats. This study is limited in that the researcher investigated only one mainstream media form. Although the *New York Times* has been shown repeatedly to be a leader in setting the agenda for other news outlets (Gilbert, Eyal, McCombs & Nicholas, 1980; Mazur, 1987; Winter & Eya, 1981), conclusions drawn from this study about the relationship between the mainstream media and social media cannot be generalized to other mainstream media outlets such as other online publications, print publications and broadcast and cable news. Future studies should explore other forms of mainstream media including other mediums such as television and print. Additionally, this study only examined one social media service: Twitter. The results should be interpreted within the confines of the sample examined within the Twitter service. Lastly, this study focused on issues related to President Obama given the search confines of Twitter. While agenda setting research examines public affairs, the array of issues explored in this study were centered around the

president as opposed to political and public affairs generally. The findings of this dissertation should be interpreted keeping in mind the focus of this study was on only those public affairs news stories or Twitter posts that mentioned the president.

Aspects of the sample may have posed confounds to this study. This study was not able to test nor control for demographic variables or other characteristics of the Twitter sample. The Twitter sample may have been biased, over-representing users with a particularly negative predisposition towards President Obama.

There was also a limitation with the panel design used in this study. It appears that the reason for very high autocorrelations within the panels may have been that not enough time passed for both the within-day and between-day panels for significant change in the media to have taken place. This low variance restricted the power of this study to find significant results given the limited amount of change that occurred in the short time periods studied. Future study should continue to explore the possibility of intermedia agenda setting happening quickly in an online media environment, but scholars will need to address this issue of minimal change that hampered the present study.

Lastly, the field of intermedia agenda setting scholarship needs to settle on a standard procedure for evaluating intermedia agenda setting using cross-correlation with the Rozelle-Campbell Baseline. It appears to be parsing terms to state that one test shows only influence whereas the other shows clear intermedia agenda setting, which is defined as the influence of one media on a second media. Are these two different classifications of results not synonymous? Is it then with greater confidence that we report intermedia agenda setting effects, or a matter of degree to which the cause is having an effect? At present there are differences among scholars in the criteria for evaluating what constitutes intermedia agenda setting effects. For investigations

into intermedia agenda setting research to move forward with consensus and confidence in the results reported, the disparities in tests of significance need to be addressed. While it is possible that as a result of the rigors employed, this study was hampered by Type II error – or false negatives – scholars generally agree that research should lean toward Type II error over Type I as Type I poses greater threat. The present study balanced this tradeoff between Type I and Type II errors with preference to reducing Type I error.

With these limitations acknowledged, the present study contributed important groundwork for future research into the relationship between the longstanding institution of the news media and the emergent social media environment. This study helped further our understanding of how the content of each media impacts that of the other and has led to greater understanding of agenda setting in the new media age. Scholarship in this area will be strengthened by future research continuing to test the relationship between the mainstream media and Twitter across different mainstream media forms, time periods and issues. The results of the present study should be evaluated in the context of any future research in this area.

### **Suggestions for Future Research**

This study provided groundwork for future study, opening doors for future inquiry into the nature of the relationship between the news media and social media. Given the results of this study, below are a few possible research agendas or questions that are in need of further exploration.

It is said that a good theory stands testing and criticism. Now more than ever, there is a need for agenda setting research to investigate this long standing mass communication theory. The findings of this study showed that there is a lack of intermedia agenda setting between news media and Twitter. One possible explanation for these results is the audience is choosing to

engage in selective perception of news (McCombs & Reynolds, 2002). Research should investigate side-by-side whether partisan political blogs or mainstream news media have a larger agenda setting role to compare the relative influence of each on Twitter for a common set of issues. Such comparison will enable researchers to test agenda setting versus selective perception, or commonly also called selective exposure.

Audience fragmentation is another possible explanation for the lack of intermedia agenda setting in this study. Future study should investigate the intermedia agenda setting relationship between Twitter and alternative media forms such as blogs, alternative news, government websites, campaign or candidate websites and blogs and the like. This research would contribute to understanding what the key media forces are influencing discussion on Twitter. Alternatively, this study also found that the news media and Twitter agendas were often highly correlated. Further study into online media, particularly social media, and social cohesion is needed to expand our understanding of the traditional mass communication maxim of social cohesion as it does or does not manifest in audience-driven media such as Twitter. Clearly there is greater need to investigate what have been traditionally thought to be competing forces: audience fragmentation and social cohesion of agendas.

Another possible explanation for the results of this study may have been the issues under study. Future research should examine how various issues may impact intermedia agenda setting between the news media and social media services like Twitter. It appears that factors of the issues under study such as issue obtrusiveness (Zucker, 1978) may have an impact on their intermedia agenda setting ability. It is reasonable to expect that the news media is more porous to having its agenda set by Twitter for certain types of issues such as certain exigencies or protests



first emerging on Twitter. Investigation into what aspects of an issue make it more likely to have an intermedia agenda setting impact on the news media is needed.

Research should also examine for second-level agenda setting effects for intermedia agenda setting research between the news media and social media sites like Twitter. Past research has shown that discussion can influence the valence of coverage in the news media (Lee, Lancendorfer & Lee, 2005).

Lastly, agenda setting scholars have traditionally found that agenda setting is a slow process and that it can take weeks or months for agenda setting to occur (McCombs, 2004; Winter & Eyal, 1981). Scholars have repeatedly shown that agenda setting online occurs rapidly (Lee, Lancendorfer & Lee, 2005; Roberts, Wanta, Dzwo, 2002). This study tested intermedia agenda setting effects over short periods of time on the Internet. In particular, this study examined the possibility of intermedia agenda setting occurring within a single day and from one day to the next. There remains the need to continue to explore the variable of time, particularly with the rise of real-time Internet communication and the ever-quickening news cycle. Also, future study is needed to test the length of agenda setting effects, if any, in the rapid news cycle and real-time environment of today to identify the ideal time lag. Yet studying the variable of time in a media environment that only appears to be quickening is difficult. Hopefully, with the emergence of new analytic software and abilities in the future, our ability to analyze the Twitter population will be improved.

### **Final Thoughts**

With the emergence of the Internet age in the 1990s, scholars began questioning the viability of the agenda setting theory and began exploring ways in which the theory would have to adapt in the online age (Chafee & Metzger, 2001; Takeshita, 2005). The discussion was borne

of concern over whether or not mass media is a concept of the past in the new, increasingly fragmented media environment. Certainly, the original model of a public dependent on a select few news media outlets for their understanding of the world proffered by McCombs and Shaw (1972) in the Chapel Hill study no longer applies. The Internet has given us blogs and other media such as micro-blogs that have complicated the media landscape and impacted news gathering processes. McCombs (2005) argued that in the interactive Internet age where these potential influences on the media agenda are not well understood, intermedia agenda setting is a vein of research that scholars will be very interested in for the foreseeable future. At present, our understanding of intermedia agenda setting in the Internet age remains limited.

In closing, this study was motivated by an acknowledgement that there was room to enhance our understanding of who sets the media agenda in the complex media environment today. It was the goal of this study to offer insight into the intermedia agenda setting by demonstrating how the public has a growing role in setting the news media agenda. While the results of this study did not prove clear agenda setting, many important insights can be taken from this study. Altogether, there was influence from social media to the news media, indicating the growing import of social media in helping shape what issues are discussed in the news. To this end, my hope is that this dissertation contributed to greater understanding of the relationship between the news media and the real-time social media service Twitter – even if by showing that we have still so much to learn in these times of change.

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## APPENDIX A

### Issue Keywords

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<b>'10 Elections</b>	campaign, campaigning, candidate, candidate's, candidates, candidates', elected, electing, election, electoral, incumbent, incumbent's, incumbents, incumbents', re-elected, re-election
<b>Abortion</b>	abortion, abortions, anti-abortion, pro choice, pro life, pro-choice, pro-life, right-to-life
<b>Budget</b>	budget, budgets, debt, debts, deficit, deficits, fiscal, fiscally, surplus
<b>China</b>	Beijing, China, China's, Chinese, Chinese's
<b>Economy</b>	economic, economically, economics, economies, economist, economists, economist's, economists', economy, economy's, employment, employed, unemployed, job, jobless, joblessness, jobs
<b>Education</b>	education, school, schooling, teacher, teacher's, teachers, teacher's
<b>Energy</b>	energy, gas, gasoline, oil, petroleum, solar power
<b>Environment</b>	cap & trade, cap and trade, cap-and-trade, carbon emissions, climate change, environment, environmental, environmentalist, environmentalists, environmentalists', environmentalist's, environmentally, global warming, natural resources, nature, pollutant, pollutants, pollute, polluter, pollution, recycled, recycling, smog, trash
<b>Finance Crisis</b>	Bernanke, Bernanke's, TARP, Wall St., Wall Street, bailout, bankruptcies, bankruptcy, credit crisis, financial crisis, financial reform, financial regulation, foreclosed, foreclosure, housing bubble, housing market, real estate, recession
<b>Foreign Affair</b>	Hillary Clinton, Hillary Clinton's, Mrs. Clinton, Mrs. Clinton's, Secretary of State, diplomacy, diplomat, diplomats, foreign affairs, foreign policy
<b>Guns</b>	NRA, firearms, gun, guns, handgun, handguns, hunter, hunter's, hunters, hunters', hunting, rifle, rifles, sportsman, sportsmen, sportsmen's
<b>Health Care</b>	Medicare, Obamacare, Stupak Amendment, health bill, health care, health insurance, health record, healthcare, medical, medicine, patient, patient's, patients, patients', public option
<b>Gay Rights</b>	anti-gay, civil unions, domestic partner, domestic partnership, gay, homosexual, lesbian, prop 8, prop eight, proposition 8, proposition eight
<b>Immigration</b>	alien, alien's, aliens, aliens', day laborer, day laborers, day laborers', foreign worker, foreign worker's, foreign workers', foreign workers', immigrant, immigrants, immigrants', immigration, migrant worker, migrant worker's, migrant workers, migrant workers', noncitizen, noncitizen's, noncitizens, noncitizens', undocumented worker, undocumented worker's, undocumented workers, undocumented workers'
<b>Iran</b>	Ahmadinejad, Iran, Iran's, Iranian, Iranian's, Iranians, Iranians', Islamic Republic, Tehran
<b>Judicial Issues</b>	Constitutional, constitutionality, court, courts, courts', lawsuit, lawsuits, tort, torts, unconstitutional
<b>Military</b>	Afghan, Afghanistan, Iraq, Iraqi, air force, armed forces, army, marine, marines, military, missile, missiles, navy, security forces, troop, troop's, troops, war, wartime
<b>Security</b>	Brennan, Brennan's, Giuliani, Giuliani's, NSA, Napolitano, Napolitano's, counter-terrorism, counterterrorism, embassies, embassy, homeland, security
<b>Nuclear Issues</b>	Atomic bomb, atomic weapons, nuclear, nuke, nukes, weapons grade plutonium
<b>Race</b>	Profiling, racial, racism, racist, racist's, racists, racists'
<b>Taxes</b>	overtaxed, tax, taxation, taxed, taxes, taxing, taxpayer, taxpayer's, taxpayers, taxpayer's
<b>Terrorism</b>	9-11, 9/11, Abdulmatallab, Abdulmutalib, Flight 253, Hamas, Hamas', Northwest airlines, Northwest flight, Qaeda, Qaeda's, Qaida, Qaida's, Sept. 11, September 11, Taliban, Taliban's, airline plot, al-Qaeda, al-Qaeda's, bomb, bomber, bombing, explosive, explosives, flight plot, jihad, jihadist, jihadist's, jihadists', jihads, plane attack, terror, terrorism, terrorist, terrorist's, terrorists, terrorists', underwearbomb
<b>Yemen</b>	Yemen, Yemeni, Yemenis
<b>Interrogation</b>	Abu Ghraib, Gitmo, Guantanamo, Guantánamo, interrogation, prisoner abuse, torture, tortured, torturing, water boarding, waterboarding
<b>Welfare</b>	Medicaid, food stamps, foodstamps, poverty, welfare

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Note: Issues are in bold. Keywords used to identify issues are listed after each issue.