

What We See Online:
A Forerunner or Echo of the Traditional Media Messages?

Yu Won Oh^{*}, Rebecca Yu

University of Michigan

^{*}Corresponding author. Address: Department of Communication Studies, University of Michigan, 105 S. State St., Room 5341, Ann Arbor, MI 48109, United States. Tel.: +1 734 478 3495; fax: +1 734 764 3288.

E-mail addresses: ywoh@umich.edu (Y.W. Oh), rpyu@umich.edu (R. Yu)

Abstract

The emergence of online channels, where individuals can create, share, and disseminate content transcending social networks and spatial boundaries, facilitate people's expectations about the possibility of online spaces as another or alternative agenda-setter. This study tracked how 631 frequently-appearing online phrases were covered by traditional news media to investigate whether the online venue really played a role in setting or developing an agenda. In addition to the percentage of top online phrases that were covered by traditional media, the time of first mention of each of these phrases, and peak time in both online spaces and traditional news stories were examined. The findings of this study indicated that online spaces might fill a unique position in terms of developing issues. These venues seemed to be particularly good at first raising issues. The presence of a certain number of the most frequent phrases that were seen and talked of exclusively online suggests that online spaces also have the potential to advance their own original topics. It, however, tends to be after traditional media has devoted the most attention to the phrases when these phrases appeared more than ever online. In this sense, what is seen online might be the forerunner of what will eventually be covered by the mainstream media, but at the same time, it is likely to continue on much like an echo of traditional media messages because the chance of seeing the issue mentioned online becomes much higher after peak attention by mass media.

Keywords: agenda-setting, online spaces, traditional media, most frequent phrases, online communication, general public

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How individual topics become public issues has been widely studied as one of the major concerns in mass communication research. Although conflict (Cobb & Elder, 1972/1983) or contention (Lang & Lang, 1981) evolving around issues, to some degree, creates the ground on which public attention grows, mass media coverage has been considered to play an essential role in elevating problems to the national agenda (Dearing & Rogers, 1996). Topics or stories that are covered by the mass media gain competitive advantages in public attention and awareness. The mass media, in this sense, has been assumed to have influence over the public agenda in society (McCombs & Shaw, 1972), telling people “what to think about” (Cohen, 1963, p. 13).

While some individuals – such as media professionals, policy elites (Dearing & Rogers, 1996), or opinion leaders (Lazarsfeld, Berelson, & Gaudet, 1944) – are somewhat involved in setting and disseminating the issues, the general public has generally been viewed as the passive receivers of media messages, exerting little influence on issue evolution. Individual-level communication among people has had limited success proposing new public issues or amplifying the importance of topics that fail to gain media attention. Indeed, an agenda – “a set of issues that are communicated in a hierarchy of importance at a point in time” (Dearing & Rogers, 1996, p. 2) – has rarely been set by general people.

What makes these previously passive audiences of the mass media come into the spotlight is the emergence of online channels such as blogs, online debate sites, community bulletin boards, Internet chat rooms, or social networking sites. These online spaces facilitate people’s expectations of how they would reshape, or even revolutionize (Neuman, Bimber, &

Hindman, 2011) the ways in which individuals express their opinions, communicate, coalesce, and exert social influence. Structural arrangements or technical aspects of the new communication sphere – which enhance interactivity, connection, autonomy, and openness (Haythornthwaite, 2005; Neuman, Bimber, & Hindman, 2011; Rafaeli, 1998; Walther, 1996; Wellman, 2001) – are expected to create a distinctive environment in which people can assume a new role in the communication process (Jensen, 2003; Johnson, 2011; Kim & Lee, 2006).

Among others, (seemingly expanded) message-producing opportunities that have come in various forms, including commenting on other's posts, posting one's own material or opinion piece, tagging content, and Tweeting about a certain topic (Purcell, Rainie, Mitchell, Rosenstiel, & Olmstead, 2010), give rise to expectations about issues and topics individuals create, share, or deal with online. Since these behaviors oftentimes occur beyond the realm of personal interaction, transcending social network and spatial boundaries, content that is produced or reproduced in this communication process is not limited to personal matters, but also includes social or public issues. Indeed, recent cases where some issues, which might not have received attention in the past, developed through online communication enough to be covered by the traditional mass media (e.g., Escher, 2008; Kim & Lee, 2006; Williams & Delli Carpini, 2011) seem to suggest the possibility of online spaces as another or alternative agenda-setter.

Then, has the online venue really played a role in setting or developing, and thus, affecting an agenda? Can what is seen or talked of frequently in online spaces predict what will appear in the traditional media, which has been assumed to have influence over the public agenda in society (McCombs & Shaw, 1972)? Or, does it tend to be a mere rehashing or echo of the traditional media messages? In this vein, this study investigates the dynamics between online communication and traditional media coverage by tracking how the most frequently appearing

phrases online are dealt with by the traditional news media. In addition to the percentage of top online phrases the traditional media covered, the time when each of these phrases was first mentioned as well as the time when it reached its peak in online spaces and traditional news stories are examined. This comparison is aimed at providing empirical evidence to understand the status of online venues as a place for agenda development and to assess the role of the mainstream news media in agenda-setting under the new media environment.

Agenda-setting in the Traditional Media Environment

Having a public agenda is crucial for society in the sense that it tells members of society what problems they are currently facing and which ones they need to deal with first (Dearing & Rogers, 1996). Issues on this agenda, oftentimes, are brought into conversation, discussed frequently, and regarded as something important and salient by people. Yet, ironically, general people – who think and talk about these public issues – have had a restricted role in setting what they should think about – that is, the agenda itself. In this context, even strong “suspicions about the ability of typical citizens to comprehend and decide complicated public issues” (Price, 2006, p. 2) has been expressed.

Many studies on the agenda-setting process suggest that the mass media, connecting “the world outside and the pictures in our heads” (Lippmann, 1922, p. 3), play a key role in formulating the agenda in society. Information shared in interpersonal communication primarily flows from media news coverage (McCombs & Shaw, 1972). Despite discrepancies in focus and interest, a series of notions evolving in this field – from McCombs and Shaw’s (1972) initial concept of agenda-setting to agenda-building (e.g., Cobb & Elder, 1983), and agenda-melding (e.g., Shaw, McCombs, Weaver, & Hamm, 1999) – always included the mass media as an integral part of the agenda-setting process.

The general public, even when considering differences in degree, has been conceived as being relatively passive in initiating or diffusing public issues. According to McCombs and Shaw (1972), individuals tend to accept “the media’s composite definition of what is important” (p. 184). As research on agenda-setting progresses, of course, not only individuals’ characteristics such as ‘need for orientation’ (Weaver, 1977), namely, personal relevance and uncertainty, but also comprehension (e.g., agenda-building), and personal agendas (e.g., agenda-melding) have been taken into account. However, it was not until the emergence of new communication technology that individuals broke out of their images as somewhat passive participants in the process of agenda-setting (Escher, 2008; Kim & Lee, 2006).

New Platforms and New Possibilities for Agenda Evolution

Clearly, new media technology is expected to induce changes in the formation and development of the public agenda. Agenda-setting, formerly perceived as a zero-sum game due to the limits of resources (Zhu, 1992), seems to enter upon a new phase in that the Internet has seemingly unlimited space, thus affecting the amount, type, and range of circulated agendas as well as competition among issues. In this context, whether and how the Internet (e.g., Roberts, Wanta, & Dzwo, 2002) or online newspapers (e.g., McCombs, 2004; Wang, 2000) intertwine with the agenda-setting process have become one of the major concerns among scholars investigating agenda-setting in the new media environment.

Among the various research-inspiring expectations about the agenda-setting process in the new media age, the possibility of individuals empowered and content they create (or share) online as a counter or alternative to the mainstream media (Escher, 2008) is something on which discussions are centered. Unlike in the traditional interpersonal interaction modes individuals have customarily employed, messages produced in online communication are not only circulated

within personal networks but also have the potential to reach the anonymous mass of the people, producing effects at the national level. Therefore, in some respect, as Castells (2007) pointed out, any message in this new communication, “regardless of the intention of its author, becomes a bottle drifting in the ocean of global communication, a message susceptible of being received and reprocessed in unexpected ways” (p. 247). Of course, individuals sometimes use online spaces with the clear intention of distributing messages to as many people as possible and hope to raise awareness of the topics (Escher, 2008) – for example, they try to report what they witnessed happening, assuming a role of a citizen journalist (Allen, 2007), to voice their discontent and induce political mobilization, or to develop and spread issues that have not yet received attention (Escher, 2008; Kim & Lee, 2006; Johnson, 2011).

Kim and Lee’s study (2006) focused particularly on these changes in the role of general people. Following a series of internet-mediated agenda evolution cases where anonymous individuals initiated or disseminated issues for the public agenda online, they discussed how general people serve as active participants in issue evolution and development. Sometimes, these issues – especially when numerous people participated in disseminating them by leaving comments or delivering posts here and there online – are covered by the online news media or the traditional mass media as major public issues – thus, indicating the possibility of the reversed agenda-setting process (Kim & Lee, 2006). In this sense, some researchers (e.g., Kim & Oh, 2003) argue that research on agenda-setting in the new media environment needs to focus more on how people affect media coverage and agendas, rather than vice versa.

However, although it is undeniable that individuals’ participation in raising and spreading social issues has considerably expanded compared to their past engagement (Kim & Lee, 2006), some studies still also show that the Internet – or more broadly, new communication technology

– does little to decrease the impact of the mass media and media professionals (e.g., Johnson, 2011; McCombs, 2004; Park, 2002; Roberts, Wanta, & Dzwo, 2002). In particular, a number of studies, which analyzed blog posts and the mass media news reports, found that blogs did not succeed that much in bringing up new issues but were highly dependent on the traditional media (e.g., Murley & Roberts, 2005). In the case of blogs, indeed, it seems that “instances of blogs setting the agenda of media are the exception rather than the rule” (Escher, 2008, p. 5).

In the situation where the cases of citizen-led agenda evolution, which have been suggested and sometimes witnessed after the emergence of online venues, and some previous research findings tell different stories about the role of online spaces in setting an agenda, what is needed is a more thorough picture of what we talk about and see online and its relation to traditional media coverage. Admittedly, previous studies in this area have limitations in fully grasping what is happening online in that they tend to focus on a certain number of blogs or electronic bulletin boards and specific topics discussed there (e.g., Murley & Roberts, 2005, Roberts, Wanta, & Dzwo, 2002). This study, by starting with the data about the most frequent phrases that appear in 1 million online sites during one year, tries to provide a larger picture of the situation. Whether these hot phrases are exclusively online, and which one, online spaces or the traditional media, leads the issues will be examined to diagnose the current status of online spaces as a place for agenda development.

Research Question 1: Do online spaces establish original topics?

Research Question 2: Do online spaces lead the agenda online?

Research Question 2-1: Do the most frequent phrases online appear in online spaces before traditional media mention them?

Research Question 2-2: Do the most frequent phrases online gather attention before traditional media focus on them?

Research Question 2-3: Do the most frequent phrases online gather attention before traditional media deal with them as important items?

Methods

Hot Online Issues

In order to assess whether issues that are cited frequently online seem to affect what is covered in traditional media, or vice versa, comprehensive information about which topics were hot in online spaces, taken as a whole, needs to be obtained first. This study, by using data collected by Yang and Leskovec (2011), which tracked phrases and their variants, or “memes” in their terminology, that resonated most frequently across online venues through a media analysis technology called MemeTracker, sought to overcome the methodological shortcomings of previous studies such as a narrow focus (e.g., sample blog coding) and reliance on qualitative interpretation. This dataset includes a list of the 1,000 most frequent (i.e., the highest total volume) phrases among more than 343 million phrases that were extracted from one million online venues from September 1, 2008 through August 31, 2009 (Yang & Leskovec, 2011). It also offers information about the date when each phrase first appeared online as well as the date when phrase-mentions reached a peak online. Out of 1,000 top phrases, 631 phrases and data about these phrases were used for a comparison with traditional news media coding data collected by the researchers of this study.

Traditional Media Coverage

To examine how these phrases were dealt with by traditional media, and further our understanding of the interplay between online spaces and the mass media in developing issues,

counterpart data about traditional media coverage was gathered. Two main sectors of mainstream media, newspapers and television, were subjects of this inquiry.

For newspaper coverage coding, four newspapers, the Wall Street Journal, USA Today, the New York Times, and the Washington Post, were chosen for analysis. These four outlets were categorized as Tier 1 newspapers during 2008 and 2009 (which includes the reference period of this study) by Pew Research Center's Project for Excellence in Journalism due to their national reputation and distribution (Pew Research Center, 2009). Among five newspapers in Tier 1 at that time, only the Los Angeles Times was excluded from the analysis because of access restrictions on old news articles through the database. Since the Wall Street Journal, USA Today, and the New York Times are the top-three daily newspapers based on circulation and the Washington Post has a huge influence on the national media agenda as a source of other news outlets (Pew Research Center, 2009), these four newspapers are expected to represent issues and news raised in newspapers. For the television news coding, the largest three television networks, ABC, CBS, and NBC, and the three major cable television channels, CNN, Fox News, and MSNBC, were selected.

All news stories of these four newspapers and six television channels between September 2008 and August 2009 which mentioned the 631 most frequent phrases (either full, part, or variants of the phrase) were retrieved from Factiva (for the Wall Street Journal) and LexisNexis Academic (for all other news outlets) databases, which offer full-text news articles or a broadcast transcript service. Two coders were responsible for performing these searches and recording factors of interest. They were trained extensively and coded the 10 same phrases to check initial agreement and concerns about the coding process before participating in full-scale coding. Several variables, including phrase ID, news outlet, date of reporting, and whether the phrase

appeared on the front page (newspapers) or during prime time (television; broadcast between 8pm and 11pm), were coded, and all of these coded data were entered into MATLAB. The total number of relevant news reports analyzed, which contained the phrases, was 13,741.

Data Mining

From the traditional media coding data compiled in MATLAB, the dates when each phrase first appeared, when it was mentioned the most, and when front page or prime-time coverage about it had its peak volume were calculated. For each phrase, this information was organized in terms of each media outlet, newspapers (4 newspapers in aggregate), television (6 networks in aggregate), and traditional media as a whole, respectively. Later, each of these dates was compared to the date when the phrase was first mentioned online or when a phrase mention reached its peak online to compute the mean time lags between online spaces and mainstream media.

Results

Whether online spaces can lead the agenda was first examined by looking at how many of the hot phrases online were mentioned exclusively in online spaces (Research Question 1). The originality of the topics dealt with in the online world was expected to provide initial insights into the possibility of online venues as an independent place for raising or developing issues.

As shown in Table 1, 87.32% of the most frequently appearing phrases online were also covered by traditional media. As such, about 13% of the phrases were popular in online spaces only. When subdivided into two major media sectors, newspapers and television, coverage rates were down a little to 76.55% (newspapers) and 75.75% (television), respectively. Individual media outlets differed much in the level of phrase mentions. Among the four major newspapers

analyzed, the Washington Post was shown to report the phrases the most (59.75%), followed by the New York Times (55.63%), the Wall Street Journal (36.93%), and USA Today (33.44%). In the case of television, the percentage of top online phrases that CNN mentioned (68.62%) was considerably higher than those of other channels, such as Fox News (41.20%), ABC (40.89%), NBC (38.83%), MSNBC (35.02%), and CBS (33.28%). Overall, these coverage rates of individual media outlets, as well as the traditional media in aggregate, indicate that while a substantial number of the most frequent phrases online were topics of mutual interest with the mainstream media, there were certainly issues that developed and became popular mainly or even exclusively in online spaces.

When the top phrases encountered online are also found in mass media coverage, several follow up questions to ask to understand the agenda-setting process online might be who first brought up the issue, or who first paid attention and gave salience to a phrase. Tables 2, 3, and 4 show the time lags between online spaces and the mass media regarding these questions.

First, Table 2 presents whether or not the most frequent online phrases appeared in online spaces before traditional media covered them (Research Question 2-1). Here, the time lag represents the date when online spaces first mentioned the phrase minus the date when the traditional media first reported it. Thus, the mean negative time lag indicates that top phrases were likely to be mentioned online before they appeared in media coverage. As Table 2 details, in every case – either individual or aggregate or either newspapers or television – mean negative lags were found, thus suggesting the mass media lagged behind online spaces in raising an issue. Specifically, the traditional media tended to report on a related story 36 days after it was first seen in online venues. Both newspapers (38-day delay) and television (40-day delay) did not

diverge that far from this overall picture. Of the ten media outlets, USA Today (64-day delay) and ABC (56-day delay) were shown to be particularly slow in mentioning a phrase.

Interestingly, when it comes to the question of which platform, online spaces or the mainstream media, first focused on a phrase (Research Question 2-2), the tendency becomes completely different. Although online communication might bring up an issue earlier, it was traditional media that first reached its peak in attention to a phrase. Table 3 lists the mean time lags between when a phrase mention reached its peak in online spaces and when traditional media coverage had its peak volume. The results suggest that, in general, phrase mentions online had the highest volume after traditional media coverage of the phrase was at its zenith (i.e., positive lags). The peak of mass media attention of a phrase typically came 15 days earlier than the peak attention of online venues. When looking at two media sectors separately, newspaper coverage reached its peak earlier than television news coverage, but both happened 23 days and 12 days before the phrases received the most attention online, respectively. At the level of individual news outlets, while all the media sources were shown to pay attention to the phrases prior to the peak attention in online spaces, the number of mentions by The Wall Street Journal (among the newspapers) and by ABC (among the television channels) reached their own peaks the latest. In particular, the ABC peak shortly preceded the phrase peak time online (i.e., 4 days).

Lastly, to examine whether the most frequent phrases online became popular before the mass media substantially dealt with them (Research Question 2-3), a comparison was made again between the peaks of attention in online spaces and in the traditional media, but this time with a focus on front page (newspapers) or prime-time (television) coverage. The time lag here was defined as the mean number of days between when a phrase mention reached its peak online and when front page or prime-time coverage had its highest volume. As shown in Table 4, the

phrases tended to be mentioned most online 22 days after peaks in front page or prime-time coverage by traditional media. This was 23 days after the peak front-page coverage volume (newspapers), and 17 days after the peak prime-time coverage volume (television). Individual news outlets, regardless of whether they were newspapers or television, also showed similar results (i.e., positive lags) except for ABC; ABC was the only news media which produced a negative time lag (i.e., -2 days), indicating that its prime-time coverage was at highest intensity about two days after the phrases appeared at a peak in online spaces.

Discussion

Overall, the findings imply that online spaces might fill a unique position in terms of developing issues. These venues, in particular, seemed to be good at first bringing up issues. In addition, the presence of a certain amount of the highest total volume phrases that were seen and talked of exclusively online suggests that online spaces also have the potential to advance their own original topics. It, however, tends to be after traditional media has devoted the most attention to the issues (from either coverage volume or top coverage side) when these issues were encountered more than ever online. In this sense, indeed, what we see online might be the forerunner of what will eventually be covered by the mainstream media, but at the same time, it is likely to continue on much like an echo of traditional media messages because the chance of seeing the issue mentioned online becomes much higher after peak attention by mass media. Although it is rather premature to conclude which platform has an impact on which, admittedly, both online spaces and the traditional media seem to take part in agenda-setting, assuming a distinctive role over the issue development process.

The results of this study open up a new discussion about online venues as a place where issues develop and evolve. This is in contrast to the concerns of previous studies and perspective

that mainstream media messages are just reiterated online. Future studies should move forward to examine which topics (e.g., politics, economy, technology, entertainment) tend to originate from online spaces and which from mass media coverage. These investigations would allow researchers to identify the subjects which individuals are interested in versus that of the mass media. This would also enable researchers to examine the possibility of online spaces as an alternative or complementary agenda-setter for certain topic areas.

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Table 1

Percentage of Top Phrases Covered by the Traditional Media

| | Coverage rate (%) | | Coverage rate (%) |
|---------------------------|-------------------|------------|-------------------|
| The New York Times | 55.63 | ABC | 40.89 |
| USA Today | 33.44 | NBC | 38.83 |
| The Wall Street Journal | 36.93 | CBS | 33.28 |
| The Washington Post | 59.75 | CNN | 68.62 |
| | | MSNBC | 35.02 |
| | | Fox News | 41.20 |
| Newspapers | 76.55 | Television | 75.75 |
| Traditional media (total) | | | 87.32 |

Note. Entries are rounded off. The total number of top phrases analyzed was 631.

Table 2

Time Lag Between Online Spaces and the Traditional Media on First Mentioning a Phrase

| | Time lag (day) | | Time lag (day) |
|---------------------------|----------------|------------|----------------|
| The New York Times | -46 | ABC | -58 |
| USA Today | -64 | NBC | -43 |
| The Wall Street Journal | -47 | CBS | -55 |
| The Washington Post | -44 | CNN | -43 |
| | | MSNBC | -47 |
| | | Fox News | -40 |
| Newspapers | -38 | Television | -40 |
| Traditional media (total) | | | -36 |

Note. Time lag = The number of days between the time a phrase first appeared in online spaces and the time the traditional media first reported the phrase; a negative time lag means that the phrase was mentioned in online spaces before the traditional media reported it and vice versa.

Table 3

Time Lag Between the Peaks of Attention in Online Spaces and in the Traditional Media

| | Time lag (day) | | Time lag (day) |
|---------------------------|----------------|------------|----------------|
| The New York Times | 21 | ABC | 4 |
| USA Today | 21 | NBC | 16 |
| The Wall Street Journal | 16 | CBS | 11 |
| The Washington Post | 22 | CNN | 8 |
| | | MSNBC | 8 |
| | | Fox News | 18 |
| Newspapers | 23 | Television | 12 |
| Traditional media (total) | | 15 | |

Note. Time lag = The number of days between the time a phrase mention reached its peak in online spaces and the time traditional media coverage had its peak volume; a positive time lag means that the phrase reached its peak online after traditional media coverage of the phrase was at its height and vice versa.

Table 4

Time Lag Between the Peaks of Attention in Online Spaces and in Front Page/ Prime Time Coverage of Traditional Media

| | Time lag (day) | | Time lag (day) |
|---------------------------|----------------|------------|----------------|
| The New York Times | 25 | ABC | -2 |
| USA Today | 16 | NBC | 8 |
| The Wall Street Journal | 27 | CBS | 5 |
| The Washington Post | 22 | CNN | 15 |
| | | MSNBC | 7 |
| | | Fox News | 16 |
| Newspapers | 23 | Television | 17 |
| Traditional media (total) | | 22 | |

Note. Time lag = The number of days between the time a phrase mention reached its peak in online spaces and the time front page (newspapers) or prime-time (TV) coverage had its peak volume; a positive time lag means that the phrase reached its peak online after the peaks in front page or prime-time coverage and vice versa.