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## Agenda Setting and Issue Saliency Online

*This study examined the agenda-setting process and the role it may play on the Internet, specifically in electronic bulletin boards (EBB). Online media coverage of four issues from five news media were downloaded during the 1996 fall political campaign. The frequency of EBB discussions of each issue served as the surrogate for the public agenda. An ARIMA model cross-correlational test showed EBB discussions of three issues—immigration, health care, and taxes—correlated with news media coverage, with time lags varying from 1 day to 7 days. Only for abortion did the media have no apparent agenda-setting effect. Media coverage apparently can provide individuals with information they can use in their EBB specific-issue discussions.*

The Internet has drastically changed the ways in which some individuals receive news and information. It provides links to an endless list of news media. It allows individuals to receive messages electronically from other individuals via e-mail. And it provides open forums for discussion on a wide variety of topics through discussion lists, bulletin boards, and chat rooms.

The present study examines one aspect of the Internet: electronic bulletin boards (EBBs). The focus of this study is to investigate whether traditional news media sources have an agenda-setting impact on the discussions taking place on the EBBs.

The theory of agenda setting can be traced back to McCombs and Shaw (1972) who attempted to explain how and why people think about and rank different social issues. The researchers found a significant correlation between the amount of media coverage generated and the rankings of importance by media consumers. These findings led to the conclusion that issue saliency is greatly influenced by the news media.

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EBBs, meanwhile, offer Internet users the opportunity to openly discuss important topics, including topics covered in the news media. In other words, the news media could have an agenda-setting influence on EBB discussions. If the news media influence the perceived importance of issues held by the public, perhaps Internet users will take agenda-setting one step further. Internet users, thus, may use the news media as a guide to the important issues that need to be discussed in EBBs. Therefore, high media coverage of certain issues will not only make the issue appear to be important, it will also stimulate enough interest in the topic so that Internet users will feel compelled to bring the topic to EBBs for discussion.

This investigation, then, looks for a more powerful effect than previous agenda-setting researchers. This study goes beyond the cognitive effects of agenda-setting—McCombs and Shaw (1972) called agenda-setting “social learning”—to examine a behavioral effect: specifically, whether individuals take the issue information gained from the news media and pass information about this issue online to other EBB users.

Technological changes in information delivery systems such as the Internet are capable of disseminating messages instantly. This raises the question as to whether the agenda-setting theory is as relevant and applicable in the age of new media as it has been in the age of mainstream media. Because of the Internet’s dynamic characteristic of transmitting information from senders to receivers, researchers currently assume that our traditional theories of mass communication can directly apply to online communication. The purpose of the current study is to examine the agenda-setting process and the role it may play on the Internet.

As the Internet continues to grow in popularity, investigations of the content of information being sent online similarly will increase in importance. This study takes an important step in linking the Internet to a mainstream mass communication theory.

## Literature Review

The agenda-setting function of the mass media has evolved and continues to do so. Since the initial 1968 Chapel Hill study, the concept of agenda setting has become more refined and complex. The potency of agenda-setting influence is found to vary dramatically depending on certain contingent conditions of the receivers of that information and the issues themselves. Yet, as the world becomes a more global village and audiences learn more about the world outside and form “pictures in their heads” about issues, the power of the media to influence is not to be underestimated. However, how will the new online communication forms affect the agenda-setting process? Can we

assume that the transfer of salience still follows the original hypothesis? How does the condensed and compressed environment of online communication affect what we know about time frame effects? These are questions that we hope to initially explore in the current study.

Although the original agenda-setting studies reported a direct relationship between the media agenda and the public agenda, other research indicates the existence of intervening factors. Brosius and Kepplinger (1990) found that agenda-setting effects were most likely to occur when coverage was intense and when there was a significant variation in the coverage from month to month. Wanta and Hu (1993) found that press coverage, besides increasing public concern with certain issues, can also decrease concerns as a function of the recipient's self-involvement and interest in the issues.

Wanta and Wu (1992) also found that interpersonal communication can reinforce the media agenda-setting effects on the public agenda when the conversation deals with the same issue that the media have emphasized. This study, however, did not look at time order. Individuals, in fact, may have used the news media for cues regarding which issues they should discuss with others. Media coverage, then, may have led to subsequent discussion of issues in the media. This same scenario could be happening with EBBs. Internet users may use the media to uncover important issues that they will subsequently discuss in the EBBs.

As the Wanta and Wu (1992) study noted, research examining the role that interpersonal communication plays in the agenda-setting process has been extremely muddled. Studies have found that interpersonal communication can enhance agenda-setting effects (e.g., McLeod, Becker, & Byrnes, 1974), inhibit agenda-setting effects (see Atwater, Salwen, & Anderson, 1985; Erbring, Goldenberg, & Miller, 1980) or have no effect at all (Lasorsa & Wanta, 1990). Thus, examinations of the effects of interpersonal communication have produced mixed results.

### Agenda-Setting Time Lag

Another important question in agenda-setting research is how long an issue will remain salient in people's minds. One of the most essential considerations in testing the agenda-setting hypothesis is the time frame used by the researchers in their studies (Wanta & Hu, 1994). In general, time-lag selection is important because it demonstrates the time-varying causal effects.

Agenda-setting studies have to be concerned about the time frame over which media coverage has the most impact on public opinion. Winter and Eyal (1981) suggested that the "optimal effect span" is between 4 and 6 weeks. Stone and McCombs (1981) reported that it takes 2 to 6 months for

changes in the media agenda to be fully translated to the public agenda. Shoemaker, Wanta, and Leggett (1989) found that coverage that recurs in emphasis on a 3- or 4-month schedule may have the most influence on public opinion.

Wanta and Hu (1994) examined time lags for five news media. They found optimal time lags of 1 week for national network newscasts, 2 weeks for local newscasts, 3 weeks for a regional newspaper, 4 weeks for a local newspaper, and 8 weeks for a national news magazine. A combination of the five news media produced an optimal time lag of 3 weeks.

Of course, all previous research was concerned with the time lag of traditional news media. Little research exists regarding the time frame of EBBs and issue salience.

Logically, the time lag for traditional news media to affect online discussions should be relatively short. Individuals are not likely to discuss issues because of news reports they saw weeks earlier. A more likely case is that individuals will discuss issues within just a few days of seeing coverage in the news media. Thus, our analysis will trace the influence of news media coverage for time lags ranging from 1 day to 1 week.

## The Internet

Morris and Ogan (1996) suggested that mass communication researchers have tended to stay with the more traditional forms of communication research such as broadcast and print media. They wrote that print and broadcast fit “much more conveniently into models for appropriate research topics and theories of mass communication” (p. 39). Future studies may show that the existing theories of mass communication are not suited to the new medium. Communication researchers need to study the Internet and computer-mediated communication (CMC) as a new arena to reexamine mass communication structure and theory.

The Internet brings a new dimension of technology and communication that makes it different from other mass media. Newhagen and Rafaeli (1996) noted that the “reader-audience member-receiver” model has much more authority and responsibility when participating in online communication. Newhagen and Rafaeli also argued that almost any aspect of the Internet can be studied because the content of communications that occur by computer can be “easily observable, recorded, and copied” (p. 6).

Owen (1997) noted that the first researchers to study CMC were from the disciplines of education, management information science, and library science. Owen wrote, “CMCs were seen as interpersonal communication, with the computer used as a technological tool in order to communicate. Likewise,

researchers in communication placed CMCs in the division of traditional communication study and minimized the role of media and channel” (pp. 9-10).

Morris and Ogan (1996) stated, “Not only have theoretical models constrained research, but the most basic assumptions behind researchers’ theories of mass media effects have kept them from being able to see the Internet as a new mass medium” (p. 40).

Morris and Ogan (1996) defined four categories in which the Internet could be grouped. They were (a) one-to-one asynchronous communication (e-mail), (b) many-to-many asynchronous communication (EBBs), (c) one-to-one, one-to-few, one-to-many synchronous communication organized around a topic or object (i.e., role playing, chat rooms), and (d) asynchronous communication, which is characterized by the receiver’s need for information (i.e., Web sites).

The Internet has become a mass medium. One particular aspect of the Internet that is ripe for mass communication researchers is that of EBBs. James, Wotring, and Forrest (1995) stated five potential reasons that EBBs have become so popular: EBBs possess a large audience; are fast at sending and retrieving messages; have easy posting of messages (weak gatekeeper); many topics (issues) and interests; and are low cost.

Owen (1997) wrote that “a functional definition of EBBs is to conceptualize an actual bulletin board” (p. 12). Under a topic or special interest heading are various subheadings that ask for participants’ feedback on various issues of the day. Participants can post their responses to the official header or respond to the message of another “poster,” thus creating threads or conversations. Posted messages are then marked with the date and time of the posting so that it is visible to all (made public). There may be, at any given time, other participants in the EBBs who choose not to post a responding message but simply wish to observe or “lurk” on a specific topic or issue. There is also a mild gate-keeping function that is usually conducted by a systems operator to ensure that proper decorum or “netiquette” is maintained on the EBB.

Morris and Ogan (1996) discussed the degree of audience activity as a vital element of EBBs. They also suggested that the concept of audience activity should be included in the study of Internet communication. Owen (1997) suggested that EBBs do not research a mass audience; instead, they include a number of issues and special interests, which together have a mass appeal.

## Method

McMillan (2000) examined 19 studies that applied content analysis techniques to studies conducted on the World Wide Web. McMillan concluded that “the stable research technique of content analysis can be applied in the

dynamic communication environment of the Web” (p. 91). McMillan elaborated on the five primary steps taken to conduct content analyses and the challenges faced when applying them to new media. The first step imperative is that the researchers formulate the research question. The current study examines whether traditional news media sources have an agenda-setting impact on the discussions taking place on EBBs. Stated as a question, the researchers ask, “Do individuals take issue information gained from news media and pass information about this issue online to other electronic bulletin board users?”

The second step is selecting the sample. To examine EBBs for particular issues and media coverage, the researchers must choose an appropriate message board to download data that would become the surrogate for the public agenda. The second step also included determining which media to select to examine news coverage. For this study, it was determined that new online mainstream media coverage of issues would be used. The specific media selected were chosen due to their extensive examination in the traditional mainstream content analysis. The media outlets were *The New York Times*, the Associated Press, Reuters, *Time* magazine, and CNN.

The third step deals with defining categories, time frames, coding units, and context units. The America Online (AOL) service was chosen as the public channel because it was the most heavily subscribed service in 1996. The time frame of the study was the fall campaign period of the 1996 presidential election. The downloading began on Labor Day and ended the week after Election Day. McMillan (2000) stated that emphasis is placed on the time frame as changes on the Web sites often require rapid data collection. In the case of this study, the downloading and time frame of traditional political communication studies can be extended to the online environment.

The context unit for this study was data collected from AOL’s “Today’s News,” then choosing “Politics: In Depth” and finally clicking on “messaging” and under the category, “Timeless Issues.” Files for EBB discussions for many issues were contained in separate folders. The coding units selected from the issue folders for the study were immigration, health care, taxes, and abortion. These issues were selected for a variety of reasons. First, each had become part of the campaign dialogue. Second, they represented various levels of obtrusiveness. Third, they all appeared to be dynamic issues that the media had covered to varying levels of intensity.

In the fourth step of content analysis, McMillan (2000) stated that the focus should be on training coders and checking the reliability of the work. She noted that this step involves traditional challenges to content analysis, but the online environment creates new ones. She wrote, “If Web sites are checked at different times by different coders and/or if the context unit is not

clearly defined, false error could be introduced" (p. 93). To capture all of the online news coverage and media coverage, a regular weekly schedule and specific day were established to download data from the four issues and each of the selected media sites. This allowed for a continuous tracking of both media coverage of the issues and the level of EBB activity for each issue. Frequencies of the number of news stories and the number of messages posted to each of the issue folders were placed into Microsoft Excel spreadsheets, and data analysis was performed using Statistical Packages for Social Science (SPSS).

The final and fifth step of content analysis process is to analyze and interpret the data. The data were analyzed through a time series analysis using an ARIMA model cross-correlational test (McCleary & Hay, 1980). The ARIMA model test allows the data to be analyzed with several different time lags (see Gonzenbach & McGavin, 1997). Our time series analysis here examines media coverage and Internet discussions with time lags ranging from 1 day to 7 days. Although agenda-setting research suggests that the optimal time lag varies across media, ranging from 4 to 5 days for national network news to 8 weeks for news magazines (Wanta, 1997), we believe agenda-setting effects will be more immediate on Internet discussions. Indeed, media coverage provides information on current events that could lead Internet users to immediately post messages in reaction to the news stories. Because no previous studies have examined agenda-setting influences on Internet discussions, our initial study in this area will limit the time lags under examination to 7 days and fewer.

The time series analysis, then, essentially will produce two results. First, significant time series correlations will suggest whether the media examined here had an agenda-setting influence on Internet discussions for each of the four issues. Second, significant time series correlations will suggest the optimal time lag for agenda-setting effects to occur. Logically, optimal time lags for media influence on Internet discussions should vary across issues and across media.

## Results

The ARIMA model cross-correlational results for each of the four issues in the analysis are shown in Tables 1 through 4. The results are grouped by the individual media in Table 5. The results for both the issues and media demonstrate several differences in their agenda-setting effects.

*Issue Differences*

Immigration showed an agenda-setting effect after just a 1-day lag, as shown in Table 1. In other words, an increase in coverage of immigration led to an increase in Internet discussions of immigration 1 day later. Immigration also showed an agenda-setting influence after 2 days. No agenda-setting influence of the news media was found for Day 3 through Day 7. Thus, the agenda-setting influence of the news media on Internet discussions of immigration dissipated quickly.

*The New York Times* showed the greatest agenda-setting influence on discussion-list participants for immigration. The *Times* showed an agenda-setting influence for immigration on each day from Day 1 through Day 4. Reuters news service also showed an agenda-setting influence after a 5-day lag from coverage.

As Table 2 details, the media did not have an agenda-setting influence on the health care issue until Day 7. This cross correlation result ( $r = .3065; p < .001$ ) was the largest in our study.

*Time* magazine, meanwhile, had an effect on Internet discussions of health care after 1 day. *The New York Times*, Associated Press, and Reuters all showed an agenda-setting influence on Day 7. This was the only day in which three different news media correlated with Internet discussions for any of the issues.

Table 3 lists the results for the taxes issue. Media coverage of taxes correlated with Internet discussions only on Day 6. CNN correlated with Internet discussions after time lags of 4, 6, and 7 days. *The New York Times* negatively correlated with Internet discussions on Day 7.

The results for the abortion issue appear in Table 4. Here, news media content did not correlate with Internet discussions on any of the 7 days examined. *The New York Times* and Associated Press, in fact, both negatively correlated with Internet discussions.

Overall, three of the four issues examined here showed a clear agenda-setting relationship between media coverage and Internet discussions. In other words, media coverage provided a stimulus for discussion of issues on the Internet. The more coverage these issues received in the news media, the more messages that Internet users posted on AOL discussion lists.

Only for the abortion issue did media coverage not correlate with Internet discussions. In fact, two individual media, *The New York Times* and Associated Press, produced negative correlations with Internet discussions. The more *The New York Times* and Associated Press covered abortion, the less Internet users discussed the issue—the opposite of what would be predicted



Table 1  
*Cross-Correlational Time Series Analysis Results for the Immigration Issue*

|       | All Media | Significant Individual Media                   |
|-------|-----------|--|
| Day 1 | .2582*    | .3314** ( <i>NY Times</i> )                    |
| Day 2 | .2902*    | .3525** ( <i>NY Times</i> )                    |
| Day 3 | .1863     | .2317* ( <i>NY Times</i> )<br>.2475* (Reuters) |
| Day 4 | .1598     | .2240* ( <i>NY Times</i> )                     |
| Day 5 | .0352     | .2726* (Reuters)                               |
| Day 6 | .2189     |  |
| Day 7 | .0367     |  |

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

Table 2  
*Cross-Correlational Time Series Analysis Results for the Health Care Issue*

|       | All Media | Significant Individual Media                                   |
|-------|-----------|--|
| Day 1 | .0270     | .2268* ( <i>Time</i> )   |
| Day 2 | -.0051    |  |
| Day 3 | .0726     |  |
| Day 4 | .0062     |  |
| Day 5 | -.0615    |  |
| Day 6 | -.0091    |  |
| Day 7 | .3065**   | .3065** (AP)<br>.2858* ( <i>NY Times</i> )<br>.2357* (Reuters) |

Note. AP = Associated Press.  
 \* $p < .05$ . \*\* $p < .01$ .

Table 3  
*Cross-Correlational Time Series Analysis Results for the Taxes Issue*

|       | All Media | Significant Individual Media               |
|-------|-----------|--|
| Day 1 | .1222     |  |
| Day 2 | -.1149    |  |
| Day 3 | .1229     |  |
| Day 4 | .1834     | .2987** (CNN)                              |
| Day 5 | .1574     |  |
| Day 6 | .2281*    | .3165** (CNN)                              |
| Day 7 | .0087     | -.2589 ( <i>NY Times</i> )<br>.2530* (CNN) |

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

Table 4  
*Cross-Correlational Time Series Analysis Results for the Abortion Issue*

|       | All Media | Significant Individual Media |
|-------|-----------|------------------------------|
| Day 1 | -.0189    |                              |
| Day 2 | -.0210    |                              |
| Day 3 | -.0420    |                              |
| Day 4 | -.0592    |                              |
| Day 5 | -.0902    | -.2339* ( <i>NY Times</i> )  |
| Day 6 | -.1912    | -.2366* (AP)                 |
| Day 7 | -.1090    |                              |

Note. AP = Associated Press.

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

by the agenda-setting hypothesis. Several factors may have inhibited the agenda-setting impact of the news media for this issue.

First, abortion is an extremely controversial issue. Individuals hold strong opinions on both sides of the issue. Thus, individuals may want to discuss the issue on the Internet even when the issue is receiving little media attention. Media coverage, then, is not needed to stimulate discussion of abortion.

Second, abortion may need a longer time lag before the issue would show an agenda-setting effect. Perhaps only after extended coverage of this issue—perhaps as long as several weeks—would individuals feel compelled to discuss abortion.

Third, because abortion is such a controversial issue, perhaps individuals have sources other than the news media that they use to gain information to discuss on the Internet. In other words, the stimulus for Internet discussions could have been interpersonal communication, rather than media coverage. As Wanta and Wu (1992) found, interpersonal communication, in some cases, can interfere with the agenda-setting process of the news media by providing individuals with salience cues that conflict with media coverage.

In contrast, the immigration issue showed an almost immediate agenda-setting effect. Here, news media reports on immigration increased discussion of immigration on the Internet the day following the coverage and 2 days after the coverage. Individuals, in other words, needed news coverage to highlight the importance of the issue before they felt the need to discuss the issue on the Internet. Because immigration is an unobtrusive issue for most Internet users—and certainly is not an issue that normally ranks high on the public's agenda of the country's most important issues—media coverage of the issue led individuals to almost immediately respond to the coverage. Thus, the coverage stimulated Internet discussions by providing individuals with information that could be used in their postings.

Taxes and health care, meanwhile, demonstrated agenda-setting effects only after several days of coverage. Although these issues appear to have produced similar results, plausible explanations for the results are different.

On the one hand, taxes is an issue similar to abortion. Individuals typically have strong feelings about the issue and do not necessarily need media coverage to elicit discussions on the Internet. Here, an increase in media coverage of taxes did not elicit increased responses from Internet users until 6 days later.

On the other hand, health care had been a priority for President Clinton throughout his administration. Thus, individuals may have had a source of information outside normal media channels for information on this issue—namely, speeches by President Clinton. Although these speeches need media coverage to reach the public, an issue mentioned in presidential speeches may linger in the news media. Indeed, presidents hope for sustained coverage of issues that they stress in their speeches. Thus, President Clinton may have acted as a stimulus, igniting media coverage. Only after 7 days of coverage after a presidential speech about health care did individuals discuss the issue on the Internet.

The results here also point to the possibility of an outside source influencing the relationship between media coverage and Internet discussions. Three news media—Associated Press, *The New York Times*, and Reuters—all had an influence on Internet discussions. The fact that three news media all had an influence on 1 specific day could be due to an outside source, such as President Clinton, having an influence on the news media. Similar coverage patterns would be expected if the media were all reporting on events staged by an outside source, such as the president.

The health care issue also produced the largest time series correlation in our study, which is not surprising given the fact that three news media all correlated with frequency of Internet discussions. Again, this could be due to the influence of an outside force impacting the media-public relationship. Presidential speeches dealing with health care may have reinforced media coverage, thus making the impact of media coverage on the public appear even stronger.

### *Media Differences*

Significant results are grouped by the individual media in Table 5. Several trends are worth noting. First, *The New York Times* produced the largest number of significant cross-correlations results. Seven significant correlations were found for the *Times*, though one, for abortion, was negative.

Table 5  
*Significant Cross-Correlational Time Series Analysis Results for Individual Media*

| Medium                    | Immigration    | Health Care | Taxes       | Abortion     |
|---------------------------|----------------|-------------|-------------|--------------|
| <i>The New York Times</i> | Day 1, 2, 3, 4 | Day 7       | Day 7       | Day 5 (neg.) |
| Reuters                   | Day 3, 5       | Day 7       |             |              |
| AP                        |                | Day 7       |             | Day 6 (neg.) |
| CNN                       |                |             | Day 4, 6, 7 |              |
| <i>Time</i>               |                | Day 1       |             |              |

Note. AP = Associated Press.

Reuters produced three significant correlations, AP and CNN two each, and *Time* magazine one.

Second, Day 7 of our analysis produced the largest number of significant correlations. Five times, Internet discussion postings correlated with media coverage 7 days earlier. Time lags of 1 day, 3 days, 5 days, and 6 days all produced two significant correlations. Two- and 4-day time lags produced one significant correlation each.

Overall, then, *The New York Times* notably had the strongest agenda-setting influence in our study. This could show that Internet users also were heavy readers of *The New York Times*, perhaps even the *Times*' Web version. More likely, however, Internet users may have been high newspapers users. Because *The New York Times* has been shown to influence other news media, the *Times* may have had an indirect effect on Internet users by influencing the users' local newspapers.

Coverage in the two news services here, Associated Press and Reuters, also demonstrated several significant correlations with Internet discussions for multiple issues. Again, this could have been due to the indirect influence of the news services. AP and Reuters provide news articles to local newspapers, which in turn publish them. As Gold and Simmons (1965) found, wire services set the agenda for member papers. This certainly could have been happening here.

CNN, meanwhile, had an agenda-setting effect for only one issue: taxes. This could be due to the nature of the issue. Some issues, such as immigration and health care, may need a significant amount of background before a reader understands the issues' importance. Taxes, however, may be a more tangible issue—one in which individuals can readily understand the significance. Thus, even without a great deal of detail, individuals can become concerned about taxes. The broadcast media, then, serve a spotlighting function,

activating latent concerns about an issue with which individuals are typically concerned at many times throughout the year.

Finally, *Time* magazine produced only one significant correlation. This is not surprising given the fact that this is a weekly publication and our analysis was concentrated on daily coverage. Had our analysis grouped Internet discussions on a weekly basis, *Time* might have shown a stronger agenda-setting influence, although previous research has shown the relatively weak effects of weekly news magazines (Wanta & Hu, 1994).

## Conclusion

The results here demonstrate the usefulness of examining the role the Internet plays in the agenda-setting process. Media coverage apparently can provide individuals with information to use in their Internet discussions.

As the Internet continues to become an important source of information, it also will become an important area for mass communication researchers. Future research, then, should link other mass communication theoretical approaches with Internet usage.

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