SEARCHING FOR THE PRESIDENT: ANALYSIS OF SEARCH ENGINE RESULTS FROM THE 2008 PRESIDENTIAL ELECTION

By

ASHLEY MUDDIMAN

A Thesis Submitted to the Graduate Faculty of WAKE FOREST UNIVERSITY in Partial Fulfillment of the Requirements for the Degree of MASTER OF ARTS in the Department of Communication May 2009 Winston-Salem, North Carolina

Approved By:

Allan D. Louden, Ph.D., Advisor

Examinining Committee:

Randall G. Rogan, Ph.D.

Kathleen B. Smith, Ph.D.
ACKNOWLEDGMENTS

Many people have helped to make my experience at Wake Forest incredibly rewarding. First, I would like to thank Dr. Allan Louden. As my thesis advisor, he gave me the freedom to explore my topic and the advice to help me make my arguments clearer, stronger, and more interesting. He taught me to trust my instincts and calm down when I began to put too much pressure on myself. Thank you, Dr. Louden, for your friendship and encouragement throughout my tenure at Wake Forest.

Without the efforts of a number of individuals, my thesis could not have been completed. Dr. Randall Rogan and Dr. Kathy Smith contributed greatly to my project. Their critical questions and insightful advice helped me strengthen my method and clarify the implications of my research. I could not have completed my project without Sean Luechtefeld, who spent hours coding my data while he was out of the state for weeks at a time working with the debate team. I could not have completed my research alone, and I greatly appreciate the efforts of everyone who helped it come to fruition.

The faculty and staff at Wake Forest University deserve thanks as well. The classes I took from Dr. Alessandra Beasley Von Burg, Dr. Steve Giles, Dr. Michael Hyde, Dr. John Llewellyn, Dr. Allan Louden, Dr. Ananda Mitra, and Dr. Kathy Smith provided me with a solid theoretical foundation in communication, rhetoric, and politics. The public speaking classes I taught with Dr. Dee Oseroff-Varnell, Dr. Linda Petrou, and Nicole Rodriguez-Pastor helped me gain confidence teaching in the classroom. Because of these professors, I feel confident in my knowledge, my writing abilities, and my teaching skills as I continue with my education.
My acknowledgements could not be complete without thanking Beth Hutchens, Linda Powell, Jo Lowe, and Roz Tedford. Whether I needed a paper clip, a library book, a poster for a research presentation, or general advice about the department and academia, these women were always available.

Finally, I would like to thank my family and friends for supporting me. My entire family, from my parents and siblings to my grandma, aunts, and uncles, have always encouraged me. My friends, including the other graduate students in the department and Lee, Ashley, Kate, and Faith who are my links to the non-academic world, provided me with much needed distractions from class and research. Without the advice, support, and encouragement of everyone who has added to my experience in the past two years, my time at Wake Forest University would not have been as gratifying or as successful. Thank you!
# TABLE OF CONTENTS

INTRODUCTION .................................................................................................................. 1  

CHAPTER 1: LITERATURE REVIEW .................................................................................. 4  

- Political Hypermedia Campaigns ................................................................................. 4  
  - Direct Communication: Campaign Web sites .......................................................... 7  
  - Indirect Communication: Third-party Messages .................................................... 10  

- Internet and the Public Sphere .................................................................................... 12  

- Internet Structure: Search Engines ............................................................................ 15  
  - Search Engines and Politics .................................................................................... 16  
  - Search Engine History ............................................................................................ 17  
  - Structure and Workings of Search Engines ............................................................. 18  
  - Implication of Search Technology .......................................................................... 21  
  - Search Engines and the Market .............................................................................. 23  
  - Search Engines and the Public Good ....................................................................... 26  

- Online Representation: Search Engine Bias and Online Identity .............................. 27  

- Research Questions .................................................................................................... 29  

CHAPTER 2: METHOD ..................................................................................................... 34  

- Key Terms .................................................................................................................... 34  
- Search Engines .......................................................................................................... 36  
- Data Collection ........................................................................................................... 37  
- Data Analysis ............................................................................................................... 40  
  - Differing URL Results ............................................................................................. 40  
  - Differing Source Types ............................................................................................ 41  
  - Representation .......................................................................................................... 44  

CHAPTER 3: RESULTS ..................................................................................................... 46  

- URL Differences ......................................................................................................... 46
ILLUSTRATIONS

Tables
Table 1: Shared Search Engine URL Results ................................................................. 47
Table 2: Shared URLs in Top Three Results................................................................. 50

Figures
Figure 1: Average change in URL overlap ................................................................. 49
Figure 2: Percentage of Source Types (Both Candidates) .......................................... 52
Figure 3: Percentage of Source Types (<Obama> Searches) ....................................... 52
Figure 4: Percentage of Source Types (<McCain> Searches) ..................................... 54
Figure 5: Source Types in the Top-3 Search Results (<Obama> Searches) .................. 55
Figure 6: Source Types in the Top-3 Search Results (<McCain> Searches) ................. 55
Figure 7: Average Change in Source Type during Campaign (<Obama> Searches) ...... 57
Figure 8: Average Change in Source Type during Campaign (<McCain> Searches) .... 57
Figure 9: Average Change in Top-3 Source Type Results (<Obama> Searches) .......... 59
Figure 10: Average Change in Top-3 Source Type Results (<McCain> Searches) ....... 59
Figure 11: Representations of Candidate (<Obama> Searches) .................................... 61
Figure 12: Representations of Candidate (<McCain> Searches) ................................ 61
Figure 13: Representation of Candidate in Top-3 Results (<Obama> Searches) .......... 64
Figure 14: Representation of Candidate in Top-3 Results (<McCain> Searches) ......... 64
Figure 15: Average Change in Representation between Dates (<Obama> Searches) ..... 66
Figure 16: Average Change in Representation between Dates (<McCain> Searches) .... 66
ABSTRACT

More than half of the voting population reported using the Internet as a source of political information during the 2008 political campaign (Smith, 2009). Although past communication research has focused on the characteristics of messages presented on political candidate Web sites, it has not looked at third-party sources, such as newspaper sites, and scholars have not investigated the relationship between search engines and the types of Web page that result from candidate searches. The current study examined the URLs, sources, and representations of Barack Obama and John McCain generated by Web searches for the 2008 presidential candidates.

By examining the results of Google, Yahoo, and Ask.com searches, the study analyzed search engines as structural frameworks for online political information (Dahlgren, 2005) and examined the extent to which search engines acted as market-oriented information seeking services (see Goldman, 2008; Introna & Nissenbaum, 2000, etc.) or public sphere supporting softwares (see Keane, 2000, etc.). While the differences among the results were smaller than previous research has found, the URL and source type results illustrated structural variations among the search engines and depicted a market-based search engine system.
INTRODUCTION

We often view politicians as ‘performing’ their candidacies and minutely managing their public identities (Erickson, 2000; Erickson & Fleuriet, 1991). Photo-opportunities in strategic locations, structured press conferences, and speeches carefully crafted by speechwriters, among many other rhetorical messages and actions, give the allusion of identity control to presidential candidates. Despite these performances, the online presence of candidates calls this appearance into question and deserves study.

During the 2008 political campaign, 74% of American adult Internet users reported participating in online politics, either by seeking news and information about the campaign or sharing political information with others. Over 50% of the entire voting population, even those who do not use the Internet, participated in online politics in some manner (Smith, 2009). One-fourth of adult Internet users sought online information about politics daily (Daily Internet activities, 2008). Fortunately for individuals seeking online information, both Republican presidential nominee John McCain and Democratic nominee Barack Obama constructed online messages during the campaign. The campaigns each maintained official Web sites, as well as official Facebook, MySpace, YouTube, Flickr, Digg, Twitter, Eventful, and LinkedIn Web pages (Contact us, 2008; Country First, 2008). Obama also created narrowly targeted sites, including MiGente, MyBatanga, AsianAve, Faithbase and BlackPlante (Contact us, 2008).

Online advertising prevailed as well. Prior to the national conventions, the online advertisements placed by McCain’s campaign were viewed approximately 31.6 million times and Obama’s advertisements were viewed approximately 417.9 million times.
During the last week of August, just after the Democratic convention and just before the Republican convention, the number of viewers for the Obama and McCain Web sites totaled over 5 million combined (Online buzz, 2008). Use of political information on the Internet has exploded, allowing candidates to communicate their campaign messages directly to voters.

What this statistics do not reveal, however, is the pervasiveness of online messages beyond the candidates’ control. Traditional media has a presence online through Web sites for news, including MSNBC and CNN. Partisan groups and blogs, such as the liberal MoveOn.org and the conservative Redstate, also appear online, as well as social networking sites (e.g. Facebook, MySpace), non-partisan groups (e.g. FactCheck.org, Project Vote Smart), and anti-candidate pages (e.g. Stop-Obama, The Real John McCain). The amount of campaign controlled and uncontrolled information on the Internet for voters to find presents an interesting question: what messages can voters access and how do these messages portray the candidates?

Faced with the unfathomable size of the Internet, many users seek information through online search engines such as Google, Yahoo! and Ask.com. As of May 2008, 89% of Internet using Americans reported utilizing search engines to find information (Internet activities, 2008) and nearly half of all Internet using American adults use search engines once a day (Daily Internet activities, 2008). While the percentage applies to persons searching the Web for all types of information, not only politics, it does suggest that individuals could turn to search engines to seek political information during campaigns. Both Obama and McCain acknowledge the importance of search engines with their spending on advertisements and sponsored sites that appear when voters search
for specific keywords. The Obama campaign, for instance, spent an estimated $7.5 million on Google advertisements and sponsored keywords, which made up about 45% of the candidate’s online advertising spending (Kaye, 2009).

Search engines may help voters organize vast amount of information available at their fingertips. Even so, the impact of search engines on the messages voters receive has been largely ignored in the scholarly arena. Previous communication studies have focused on the features of candidate Web sites while overlooking the broader Internet landscape. The current research sought to remedy the paucity of data investigating search engines and their relationship to political information. After reviewing the development of online political campaigns, the relationship between the Internet and the public sphere, the structure of search engines, and the impact of search engine bias, the study will examine the interaction of political messages and online information seeking.
CHAPTER 1: LITERATURE REVIEW

Political Hypermedia Campaigns

At its foundation, a presidential campaign is “a process of communication” to voters (Bimber & Davis, 2003, p. 45). Candidates send messages to constituents through mediated sources such as newspapers, radio, and television, and through campaign controlled sources including advertisements, direct mail, email, and phone calls. Since the 1990s, candidates have increasingly engaged in hypermedia campaigns, which Howard (2006) explained as campaigns that implement “digital technologies for express political purposes” (p. 2). As the Internet’s prevalence continues to spread, it is essential to understand the communicative properties of the medium as well as its influence on the messages accessible to voters.

The Internet involves persuasion of words, images, advertising, and public address. Jones (1999) stressed the centrality of discourse online, describing the Internet as a public arena made possible by communication, and McManus (1999) highlighted the essential position of the Internet in political messaging. Almost ten years later, despite increasing online interaction, the use of communication “in new media environments has been understudied” (Warnick, 2007, p. 13). Messages controlled by the candidates and third-party sources abound online, at the fingertips of any user motivated to search for them. Communication scholars have ignored a panoramic view of the Internet landscape by focusing solely on official campaign Web sites.

Nineteen ninety-two marked the Internet’s debut in a presidential campaign, albeit on a minimal level. The Bill Clinton-Al Gore campaign utilized USENET and online
bulletin boards to distribute speech texts, commercials, life-stories, and other information to voters (Benson, 1996; R. Davis, 1999). Widespread emergence of campaign sites began during the 1996 presidential campaign when both the Bill Clinton and Bob Dole campaigns directly emailed voters, conducted public opinion polling, posted online governmental documents, and engaged online supporters in offline political activity (R. Davis, 1999; Dorsey & Green, 1997; Howard, 2006; Klinenberg & Perrin, 2000). By the midterm elections in 1998, two-thirds of the congressional candidates maintained official campaign Web sites (Endres & Warnick, 2004).

The 2004 presidential election drew the most attention to official campaign Web sites since the intersection of politics and the Internet in 1992. Howard Dean, in his failed bid for the 2004 Democratic presidential nomination, raised $40 million through his Web site (Dowd & Cahill, 2006). S. Davis (2005) described Dean as the first “internet candidate” (p. 241). Dean particularly appealed to young online voters who were comfortable with new technologies. The campaign raised over $50 million from just under 150,000 donors, with much of the money gained through online fundraising (Murray, 2005). “Blog for America,” the campaign’s Web journal, became popular enough to gain coverage in traditional media, which had previously given little airtime to Dean (Kerbel, 2005). Despite his online following, Dean failed to gain enough offline support to win the Democratic nomination.

The two eventual presidential nominees of 2004, George W. Bush and John Kerry, also utilized a variety of hypermedia techniques such as emailing voters, collecting data, personally tailoring messages, and encouraging offline participation (S. Davis, 2005; Howard, 2006). By the end of the election, Bush had collected 7 million email addresses.
Due to the Internet’s potential as an organizing, fundraising, and information distribution communication channel, Kerry campaign manager Mary Beth Cahill claimed that we should view hypermedia campaigning as the “biggest innovation” in the 2004 presidential election (p. 35). The same year, nearly 30% of adult Internet users (approximately 63 million people) received political information online, a 10% increase from the 2000 campaign (Rainie, 2007). Both politicians and voters had clearly increased their use of the Internet since its emergence in 1992.

Third-party non-candidate controlled sites have also gained in importance. Blogs and ideological leaning Web pages, such as the liberal MoveOn.org, emerged by 2004 (Howard, 2006). Every major newspaper had an online component by the same election, indicating that the growth of the World Wide Web affected the ‘old’ media as well (Kerbel, 2005). Online political information did not erase the need for radio, print, and television but rather acted as an “enhancement” to traditional media outlets (Murray, 2005). As one scholar concluded, “the Internet can help to shift the balance of political power in a long contest by organizing volunteers, boosting morale, influencing the spin in mainstream media, and of course raising money” (Kerbel, 2005, p. 103).

While hypermedia campaigns up to 2008 have not fundamentally changed the U.S. democratic process, they have witnessed a dramatic growth of online political activity, as more than half of the voting age population interacted with online political information in 2008 (Smith, 2009). The evolution of messages on the Internet, the Web’s relation to politics and hypermedia campaigns, and the prevalence of online information seeking demands attention. Previous communication studies investigating online political
messages have focused much of their attention on direct Internet communication of political campaigns.

**Direct Communication: Campaign Web sites**

Politicians traditionally favor controlled messages originating from their campaigns, utilizing unfiltered “campaign speeches, advertising, and debates” to their advantage (Johnson & Kaye, 2003, p. 14), as well as video news releases, pseudo-events, and pre-packed stories (Bennett, 2007). On television, over the radio, and in newspapers, the controlled messages distributed by campaigns are often altered and commented upon by media gatekeepers, that is editors, writers and broadcasters who “make choices about what to cover and how to report it” (Bennett, 2007, p. 5). As Benoit and Benoit, 2000 explained, “Press reports insert the journalist between the candidate … they filter information from interviews or political events” to the point that the message presented by the media is not entirely what the campaign intended (p. 8A). In contrast, the Internet provides an unlimited space for direct textual, audio, and visual contacts with voters. Political hypermedia campaigns in the past have attempted to manage voter opinions as “campaign managers do their best to constrain the stream of collective interest” (Howard, 2006, p. 171). The Web has provided candidates with a platform on which they can post an unbounded amount of information about their positions on issues, personal life stories and any other details they believe to be pertinent to voters.

Communication studies examining campaign Web sites emerged after the 1996 election cycle. McKeown and Plaowman (1999) explained that the Clinton/Gore and Dole/Kemp Web sites provided an overview of the campaign messages, and a second study of the same Web sites noted the candidates distributed information, presented
opinion polls, and engaged in get out the vote activities (R. Davis, 1999). McKeown & Plaowman (1999) concluded that both campaigns effectively communicated messages to voters directly on the sites “to avoid mediation” (p. 340).

More recent hypermedia campaigns have continued to present issue, image and biographical information without the filter of traditional media. Bimber and Davis (2003) analyzed the Web sites of 2000 presidential candidates George Bush, Al Gore, Ralph Nader, Pat Buchanan and John Hagelin, as well as candidates for U.S. Senate, governor and secretary of state in Missouri. They concluded that the sites portrayed candidate images on the official Web sites by posting biographical information and leadership ability, extensive issue stances not feasible in other media, and endorsements from third-parties such as newspapers. Studies of the 2002 House of Representatives, Senate and gubernatorial campaigns (Xenos & Foot, 2005) and the 2004 presidential campaign (Trammell, Williams, Postelnicu, & Landreville, 2006) further illustrated the extent to which candidates present themselves online.

At least to some degree, candidate Web sites reflected communication tactics used in older media. The majority of the information reflected similar position messages as those sent through the offline media, suggesting the role of the campaign sites as an unfiltered extension of traditional campaign communication through the mass media. Analyses examining the news releases posted on 2000 and 2004 presidential candidate discovered a similar pattern: approximately three-fourths of the posted releases attacked the opposing candidate, which was similar to the rate of attacks on the opposition on television (Souley & Wicks, 2005; Wicks & Souley, 2003). Candidate Web pages in
2002 involved minimal dialog with the opposing candidate, which also paralleled traditional media coverage (Xenos & Foot, 2005).

Campaign Web sites differed from traditional media as well through the employment of interactive text, which is language attempting to connect the viewer to the Web page through intimate language, first-and second-person voices, and a wide range of sources (Endres & Warnick, 2004). Benoit and Benoit (2000) rated the sites of presidential primary candidates in 2000 and found a large amount of text-based interactivity, as did Endres and Warnick (2004) when they studied the House of Representative elections in 2002. A content analysis of 2004 Democratic presidential candidates suggested that interactive language increased on candidate sites between the 2000 and 2004 political campaigns (Trammell et al., 2006).

Communication studies of campaign Web pages have reflected the growing importance of the Internet and its role in sending messages to voters. The landscape of candidate Web sites suggests that such sites allow for direct communication of biography, image, and issues with voters in a textually interactive manner. Despite the focus of research on these artifacts, candidate controlled campaign Web sites are not the only source of online political information. One Google index in July 2008 estimated that 1 trillion unique URLs (or more) existed on the Web (Alpert & Hajaj, 2008). While scholars have not studied political messages originating outside of campaigns to the extent they have researched candidate Web sites, there have been a few studies analyzing the topic that are worth reviewing.
Indirect Communication: Third-party Messages

Online communication not only fosters direct communication from candidates, it also opens the floodgates for communication from traditional media and other third-party sources (Bimber & Davis, 2003). R. Davis (1999) called the Internet “a range of mediums in one” because of its ability to combine print, television, radio, and even interpersonal communication (p. 36). Whispering campaigns can spread through email (e.g. chain-mails smearing Barack Obama’s religious affiliation), unofficial YouTube videos can become overnight sensations (e.g. Virginia Senate Candidate George Allen’s ‘Macaca’ incident), and every major news station, be it television, print, or radio, has an official Web site. A study in 2000 found that Internet users sought political information from online Web sites of traditional news media and search engines, not only candidate Web sites or other campaign communications (Margolis & Resnick, 2000). However, any time a person receives information from a third party, be it a journalist or a blogger, the campaign loses control of its message.

To take advantage of the full range of the Internet, candidates must expect and encourage an amount of unpaid – and less controlled – media to disseminate their messages. Use of blogs may illustrate the willingness of candidates to “relinquish significant control” to online journalists in an effort that contradicts the “structure of centralized, hierarchical campaigns” (Kerbel, 2005). Even the use of hyperlinks on candidate Web sites risks sending voters away from the campaign controlled messages to the less controlled messages on companion sites. Not all potential Internet features (ex. candidate chats with voters) have been utilized as of yet, partially for fear of loss of control (Howard, 2006). Blogging and online chats, as well as more traditional media
presence on the Internet in the form of print, radio, and television news sites, illuminate the potential for campaigns to utilize unpaid hypermedia but necessitate the loss of control over online messages.

Dahlgren (2005) discussed a wider view of the Internet by analyzing different online arenas that relate to digital democracy. The sectors Dahlgren (2005) delineated included only one top-down division – e-government – where government officials can communicate with constituents through constricted interactions. Arenas which experience less governmental control include the advocacy/activism domain (e.g. political interest groups, social movements), civic forums (e.g. discussion boards), the parapolitical domain (e.g. social and cultural forums with political potential), and the journalism domain (e.g. major news organizations, bloggers). While few scholars have explored Dahlgren’s (2005) sectors, the framework encourages a discussion of the many parties involved in online politics and a thorough examination of other sectors that may exist such as commercial and satiric Web pages.

The increasing role of the Internet in political campaigns, as well as the interaction between online political messages created by campaigns and by third-party sources, calls for examination. Communication studies have primarily focused on campaign controlled messages while giving other Web pages less attention. The sheer number of Web pages available to voters demands that researchers broaden their focus to a view of the wider Internet landscape. Political communication scholars, as well as politicians and voters, need to understand which of these millions of sites have the ability to reach the eyes and minds of citizens. Search engines, in particular, provide a way in which to organize the vast Internet landscape. An examination of the Internet’s relation
to politics and the public sphere and the role of search engines in the information seeking process will further build a foundation for a study.

*Internet and the Public Sphere*

The convergence of the Internet and politics in the 1990s was greeted with prophecies of a utopian public sphere where deliberative democracy based on open and equal communication could take root. Citizens would have previously unimaginable amounts of information at their fingertips, as well as an arena in which to discuss the information and help strengthen American democracy. Politicians could speak directly with voters and voters could hold politicians accountable for their actions. Whether these prophecies have come to pass is debatable.

The Internet began as the uncentralized communication system ARPANET, a network launched in 1969 by the U.S. Department of Defense Advanced Research Projects (ARPA) to connect the computer systems of ARPA, UC-Berkley, Systems Development Corporation and MIT. ARPA created a network without a central “control point” so that the network could not be interrupted in the event of a nuclear attack by the USSR (Rogers & Malhotra, 2000, p. 20).

As the Internet expanded and opened to the general public in the 1990s, discussion in the research community hoped that the World Wide Web would revive the Habermasian public sphere (Bennett, 2007; Dahlgren, 2001, 2005; Warnick, 2007). Habermas (1989) described the public sphere as a place where “private people come together as a public” to “debate over the general rules governing relations” (p. 27). In the public sphere, individuals put aside their private issues (i.e. family, etc.) to come together
as equals and freely discuss issues to create governing institutions rather than allow an elite class to force institutions upon the citizens.

Particularly emphasized in scholarship related to the Internet is the importance of an “unfettered flow of relevant information and ideas” to create a deliberative arena (Dahlgren, 2001, p. 33). Sassi (2000) went further when arguing that a strong “democracy presupposes a notion of the public sphere as a space where the diversified and critical conversations are conduced along with the notion of a communication public” (p. 90). The information available to citizens in a democratic society can affect the strength of the decisions citizens make (Klotz, 2001). Without the free exchange of ideas, public citizens cannot debate the pros and cons of issues, and, thus, they cannot make the best decision from all possible choices. The Internet assists democracy in this respect as it provides information seekers with an incomprehensible amount of political information. By seeking opposing viewpoints, clicking on hyperlinks and reading issue information posted by various sources, voters can expand their political knowledge. From this perspective at least, the Internet provides the ‘one-last-hope’ for a deliberative democracy in the public sphere.

The Internet’s uncentralized and accessible format theoretically allows any Internet user to employ listserves, email, chat rooms, Web pages, blogs, search engines, and other Web tools to discuss policy and public matters. Dahlgren (2001) noted the possibility of communicative action online due to the ability to speak freely about political topics. Warnick (2007) also argued, the “Web is a site for substantial social activism, political persuasion, commercial activity, and various forms of public
discourse” (p. 27). The loose structure of the Internet provided openness and promise for the regeneration of a public sphere.

The “openness” of the Internet may not be quite as “open” as utopian ideals of hypermedia contend. Other scholars lean toward a tempered view of the Internet as a public sphere. Hacker and van Dijk (2000) discussed digital democracy as “a collection of attempts to practice democracy without the limits of time, space and other physical conditions” that utilized communication technology as a supplement to conventional media and politics (p. 1). The public does not abandon traditional media to join a public forum online, nor can the Internet simply mirror the traditional media and still foster an open public sphere. Another criticism accurately notes that the open format of the Internet provides voters the option of engaging in the public sphere, but it also provides citizens the option of refusing to engage in online politics (Wilhelm, 2000). Other researchers have an optimistic, if not utopian, view that the Internet has provided multiple means through which individuals can participate in democracy, even though the virtual public sphere is not perfectly open (McKee, 2005). The Internet as a whole may contain the information necessary for an open public sphere, but the choices of individuals and their ability to access and interact with such information impacts whether the Web can function as an online public sphere.

Dahlgren (2005), for instance, argued that all media, including the Internet, belong to the public sphere, but include structural and representational aspects affecting their ability to create a truly open deliberative space. A thorough examination of both aspects of the Internet provides a strong theoretical understanding of the state of online research and its relationship to campaigning.
Internet Structure: Search Engines

Structural attributes include “formal institutional features” that organize the legal, social, and cultural elements of a medium (Dahlgren, 2005, p. 149). Spatial and temporal constraints, which are inherent in face-to-face deliberation, and, to a lesser extent, in television programming and newspaper publication, are much less apparent online. Users can access content at the time and place of their choosing, rather than rely on the 6 o’clock evening news or the early edition of the local newspaper. Any person can theoretically create their own information online through Web sites, blogs, discussion boards, etc., which can then be found by any person using the Web.

Unlike traditional media in which candidates communicate messages to a captive audience exposed to one of few television, radio or print outlets, the Internet allows users to control what they want to see. The Internet is a pull media, meaning that individuals must actively seek the Web pages they desire to read (Endres & Warnick, 2004; McKeown & Plowman, 1999). The hypermedia provide users with a large amount of control over the content they access, which becomes a disadvantage to campaigns since not everyone immediately seeks official sites as their sources of information (Benoit & Benoit, 2005; Benoit & Benoit, 2000). Voters will not just appear at a Web page if a candidate builds it; they have to find the Web page first.

As the Internet has gained popularity, the number of users seeking political news online has increased from 3% in 1996 to 18% in 2004 (Rainie & Horrigan, 2007) to 56% in the 2008 campaign (Internet activities, 2008). Search engines, such as Google, Yahoo!, and Ask.com, help users find widely scattered online information. As of 2008, 89% of Internet users reported seeking information through search engines (Internet activities,
Each search engine uses distinctive software to find key terms and phrases. Such software programs become a structural constraint for the internet as the public sphere.

Search engine configurations alter the structure of the Internet by organizing the messages accessed by voters. A brief overview of politics and search engines, as well as search engine development and the software used to run search engines, will lead us to an examination of the implications of search engine technology on political information seeking.

**Search Engines and Politics**

Search engine peculiarities have presented themselves anecdotally in numerous hypermedia campaigns. During the 2000 presidential primaries, one search for Steve Forbes resulted in a Web page extolling him as the first presidential candidate to announce his candidacy online. The page, however, was not created by the Forbes campaign but by a company selling Internet software. Similarly, searching for George W. Bush provided not an official presidential site but rather a 1998 official gubernatorial candidacy Web page (Benoit & Benoit, 2000). Other politicians seemed to fare just as badly in the same year. For instance, a search for Hillary Clinton on Yahoo! generated an unofficial fan site, a Web site entitled *Sexiest Woman Alive*, and no official Web page (White, 2000).

The 2008 campaign also generated press in connection with online information seeking. Obama’s campaign spent an estimated $7.5 million on Google advertisements and sponsored keywords (Kaye, 2009). In keyword advertising, a candidate purchases specific keywords (e.g. `<Ohio primary>`) on search engines (Mosk, 2008). When a user types in the keyword, links appear for the candidate’s site under a section of the search
results labeled ‘sponsored.’ Rather than simply hoping that a candidate’s Web page appears on the results page, keyword marketing provides campaigns a high level of control by ensuring that a Web site is listed when a specific term is searched. Both candidates included keyword marketing strategies in their 2008 campaign communications, purchasing terms ranging from “global warming” and “gas prices” to “lipstick” and “obama muslim” (Whoriskey, 2008).

While these examples provide just small snapshots of the sponsored keywords during the 2008 election, they do illustrate that campaigns attempt to control unintended consequence of information availability and the myriad of avenues to dispense political information. Each illustrates indirectly the potential impact of search engines effects.

**Search Engine History**

Internet search technology emerged in the mid-1990s from academic and research groups interested in organizing and finding information in their own databases. Yahoo! became the first publicly available search program in February 1994, whereas Google and AskJeeves did not emerge until closer to 2001 (Van Couvering, 2008). Since Google and AskJeeves began searching the Internet, the search engines began consolidating as the various companies merged and created a market with few major options for Internet search. Technology companies such as Yahoo! and Google gained prominence and the widespread popularity of search engines also led to a boom in search engine advertising. By 2003, marketers spent approximately $2 billion in sponsored links and advertisements (Ryan, 2008). Google and Yahoo! gained much of the advertising revenues and began purchasing smaller search engine companies to gain new technology (Van Couvering, 2008). Much like the consolidation of traditional media companies in the 1990s, search
engines utilized their new advertising success to consolidate the market and shake out companies that could not draw enough searchers to gain significant advertising revenues.

As a result of consolidation, only five major search engines (Google, Yahoo!, AOL, MSN, and Ask.com) remained active by the 2008 presidential campaign. Start-up search engines, such as open-source Wikia Search, and niche search engines, such as African American engine Richmond Drive, do exist, but hold miniscule market shares compared to Google’s incredible 62% (July 2008, 2008). The “network of alliances” between the search engines seems unlikely to unravel anytime soon (Van Couvering, 2008, p. 178).

Interestingly, 68% of search engine users believe they provide balanced and unbiased information (Fallows, 2005). Despite the prevalence of search engine use, and the trust people place in them, few individuals actually understand how searches generate rankings. As a part of the Internet’s structure, search engines use software programs to select and rank results to user queries. When utilized by voters in a political campaign, search engines help organize the mass of uncentralized information available on the Web, but the lack of awareness about how search engines work may discount potential differences in the ways in which search engines choose and rank their data.

**Structure and Workings of Search Engines**

Search engines developed in a relatively competitive private sector. Thus the software programs, or algorithms, that find and rank Web sites are almost entirely proprietary. Not one of the five major search engine publishes its algorithm, citing protection from spammers who could manipulate the results of searches with knowledge of how Web pages are found and ranked by software (Lev-On, 2008). Each search
engine provides a general account of the features emphasized in their searches but gives few details. Despite the lack of direct information from search engines originators – or perhaps because of the lack of information – a significant amount of research has emerged approximating the workings and impacts of using different algorithms.

Two main types of search technology have developed: Directory-based search engines and automatic search engines. Directory-based search engines involve an index, or listing, of Web pages developed primarily by individuals who manually save and rank a percentage of Web sites submitted to the search engine companies (Introna & Nissenbaum, 2000). The second, and most prevalent, type of search engine finds information through software programs that automatically, rather than manually, search and rank Web pages (Lev-On, 2008; Schwartz, 1998). The major search engines remaining in the market (i.e. Google, Yahoo!, Ask.com, etc.) fit the definition of automatic search engines.

Automatic search engines claim to distance human influence from the generation of search results. Software engineers instead create programs called “spiders” or “robots” that “crawl” from link to link between Web pages (Introna & Nissenbaum, 2000, p. 172). A spider begins at a designated Web site, saves it, and follows links from that site to others on the Internet. The hyperlinks connecting one page to another provide a path spiders follow to find Web pages without requiring manual submissions.

Once spiders have located a Web page, information from that page is saved in an index, which Druckenmiller (2001) described as “a giant book containing a copy of every webpage the spider finds” (n.p.). The Web page, as well as major information on that page (including titles, keywords, and text included in the software coding), remains in the
index waiting to be retrieved. When an Internet user types a keyword into a search engine, the software determines which indexed Web pages are relevant to the search, retrieves those pages, and ranks them according to the proprietary algorithms (Introna & Nissenbaum, 2000). Exactly which indexed Web pages are “relevant” to a search depends on the search engine and the programming it uses.

While all automatic search engines utilize spiders to find Web sites to add to their indexes, the details of the software used to crawl, index, and rank Web pages differ based on the engine. Google, for instance, utilizes PageRank software that measures relevance by the number of times popular Web sites link to a page related to a search. The more links to a site, the more “votes” it receives and the higher it is ranked (Corporate information, 2008). Yahoo! runs with Yahoo Search Technology (YST) software, which, in addition to the number of links, evaluates documents by information in the text, title, and description of a Web page (What is Yahoo! Search technology?, 2008). A third search engine, Ask.com, utilizes ExpertRank, which relies on expert Web pages and the links of clusters of expert Web sites based on the topic of the search (Web search, 2008). In an example of the rapidity of change in the online market, Ask.com updated its software in October 2008 (halfway through the campaign) in an effort to provide more relevant responses. The new Ask.com software relies on analyzing natural language to answer questions, rather than simply searching for the number of links to a site (Ackerman, 2008). See Appendix A for more information about each search technology.

Published differences in software and ranking priorities suggest that search engines may provide different results for the same keyword search. The proprietary nature of the algorithms creates difficulties in understanding whether differences in
results and rankings exist. To discover the extent to which the algorithms affect search engine results, a number of researchers have investigated the outcomes of searches and the implications of keyword search rankings.

**Implication of Search Technology**

Many scholars have noted disadvantages to search engine technology, notably that no one search engine can rank every relevant page on the Web and that results often differ among search engines, even when using the same keyword query (Van Couvering, 2008). Since a ranking algorithm “judges” what is relevant to a given searcher based on a keyword, different algorithms powering different search engines may provide a different set of Web pages and a different viewpoint of the keyword at hand.

Bradlow and Schmittlein (2000) explained that the results of most search engines, no matter the algorithms used, are affected by the number of links to a given Web page. The reliance on links to a page can create an interwoven web that continually reinforces pages with initially large numbers of links (Himelboim, 2005). Since these Web sites are often highly ranked on results pages, users who find the sites may also link to them, encouraging a cycle which reinforces their high positions. Hindman, Tsioutsouliklis, and Johnson (2003) labeled this property of the internet a “Googlearchy.” Practically, search engines act as gatekeepers to information because of overpowering numbers of links, as well as the fact that no search engine is able to access information from the entire internet (Henzinger, 2007; Lawrence & Giles, 1998).

A number of studies, particularly in the field of information science, have researched the varying results generated when searching for given keywords using multiple search engines. Bar-Ilan (2005), for example, searched for 15 keywords on each
of four search engines (Google, AlltheWeb, AltaVista and HotBot). Due to variations among the results rankings of the search engines, the study concluded that the algorithms used to rank data on each of the search engines differed significantly. Spink, Jansen, Kathuria and Koshman (2006) analyzed logs from a meta-search engine (i.e. a program that searches a key term on multiple search engines at the same time) to find patterns among the search engines. After examining over 10,000 user searches, the study concluded that the first page of results on each search engine was largely unique to that search engine. A staggeringly low 3% of the results for any given keyword were found by all search engines.

In a similar vein, Mowshowitz and Kawaguchi (2005) conducted a large study of 16 search engines (ex. About, Ah-Ha, AltaVista, Google, Lycos, Msn, Yahoo, etc.). They searched for selected keywords falling into one of five broad categories: Persons, Contracts, Crimes, Remedies and Government. The results found that search engines yielded significant differences in the result rankings within each of the subject areas; that is, the keyword rankings within given subject categories differed based on the search engine used. However, an earlier study conducted by the same researchers found no significant differences among the results of search engines (Mowshowitz & Kawaguchi, 2002). Contradictory findings led to the conclusion that differences among search engines most probably depends on the subject of a query.

Researchers tend to agree that search engine algorithms may lead to a “search engine bias” where engines “control their users’ experiences” based on the rankings of results (Goldman, 2008, p. 121). Mowshowitz and Kawaguchi (2002) highlighted a similar concept, “indexical bias,” which “implies slant or emphasis, attributable to the
inclusion or exclusion or the order of presentation of references” (p. 143). Unlike charges of partisan bias in traditional media, search engine bias in automatic search engines is inherent to the software that ranks the results, not attributable to a human editor of some kind. The impact of such bias, or difference, remains unclear, but two major schools of thought have emerged in the field. The first, search engines as markets, views bias as a desirable market trait, while the second, search engines as purveyors of the public good, views bias as a means to marginalize minority voices.

**Search Engines and the Market**

The market-based paradigm defines bias as a positive attribute that encourages users to choose the search engines that provide the most relevant results. Due to the advertising revenues generated by search engines, researchers who support the market view argue that search engines are “navigational media” companies that exist to draw a large number of users to a search engine in an effort to gain advertising revenue (Goldman, 2008; Van Couvering, 2008). As in other competitive markets, the argument supporting differences explains that “dissatisfied users will defect from an inadequate search engine to another that does a better job of indexing and prioritizing” (Introna & Nissenbaum, 2000). Seekers may not realize they are taking part in a market-oriented system as they jump from one search engine to another looking for relevant information. The more users that visit a search engine, and the longer they remain on the site, the more ads a search engine can sell and the more money that search engine will make (Goldman, 2008; Introna & Nissenbaum, 2000). The argument predicts that search engines failing to produce relevant results for consumers will not profit from ad revenue and, thus, will go out of business.
A second market-based aspect of search engines emerged as Web masters looked for ways to improve the ranking of their sites in keyword search results. Research has illustrated that seekers rarely look beyond the second page of results, necessitating that a Web page must rank in the top 10 or 20 results to be viewed by Internet users (Introna & Nissenbaum, 2000; Jansen, Spink, Bateman, & Saracevic, 1998; Jansen, Spink, & Saracevic, 2000). Rather than simply hoping a Web page meets the standards of a given search engine’s algorithm, many sites have implemented search engine optimization (SEO) techniques to enhance the ranking of a page. In general, SEO tries to make a Web page “accessible to search engines,” to “improve the chances” a site will be found, and to increase the ranking of a site (Sullivan, 2007). SEO often involves altering Web pages to highlight specific keywords on a site and to increase the links between sites to cater to algorithms that prize Web pages recognized through links by other pages on the Internet (Greenberg, 2000; Hill, 2008). While SEO does not guarantee a number one spot on a search engine’s results page, it does illustrate the extent to which marketers and Web page creators attempt to improve their rankings.

The infamous “Google bomb” of President George W. Bush in 2003 highlighted an incident related to SEO. Google bombing is a specific type of SEO that seeks to increase the ranking of a Web page on a search, but is often a “prank” or “protest” used by a third-party to relate the page to a keyword that is not favorable (Zeller, 2006). For instance, one user altered the links to the official White House biography of then-President George W. Bush until the White House Web page became the first result of a search for <Miserable Failure> ('Miserable failure' links to Bush, 2003). Another example involved Clay Shaw, a Florida candidate for U.S. Representative, whose name
in a Google search received highly ranked pages denouncing negatives of the candidate’s record (Zeller, 2006). While these results are anecdotal, they do display the potential impact of SEO on politics.

Recent consolidation of major search engines has complicated the market view. In a competitive marketplace, users have many opportunities to find the best “deal” on search results (i.e., find the search engine with the most relevant results to their search). An oligopoly exists of five search engines in today’s search engine economy: Google, Yahoo!, MSN, Ask.com and AOL (July 2008, 2008). Among these companies, Google has partnered with AOL since 2006 to provide some of the search engine’s results, further consolidating the number of unique search engines available (America Online and Google, 2003).

The lessened competition among engines has led some researchers to question whether competitive forces will be able to improve the relevancy of results. If a user suspects high ranking results on Google have been affected by SEO, that user has fewer alternative information seeking sources than in the late 1990s when at least 15 search engines crowded the market (Van Couvering, 2008). Supporters of the market-based view of search engines point to niche search engines, such as Technorati, that compete with the current oligopoly, but admit that, with the limited reach of the niche engines, the market is not perfectly free (Goldman, 2008). Despite its limitations, researchers advocating the market paradigm oppose government action and regulations to reduce search engine bias and argue that the market should control future navigational media.
Search Engines and the Public Good

A second view of bias argues that search engines should provide results that are best for the public as a whole, rather than those results that draw the largest audience. Scholars opposed to the market view argue that search engines “cater to majority interests” by ranking marginal and unpopular, but potentially important, Web pages toward the bottom of any query (Introna & Nissenbaum, 2000, p. 177). While low rankings are seen as a benefit in the market view, since the sites would not be seen as relevant to the majority of users, researchers advocating that search engines support the public good emphasize that marginalization decreases public exposure to alternative viewpoints necessary to an informed public.

Proponents claim that search engines should provide information based on the common good and the need for citizens to access informed public discourse, rather than ranking information based on its relevance to majority interests. Thus, the Internet could foster a transparent direct democracy to engage average people in the political process (Howard, 2006). The organization of search engines as markets arguably does not fulfill the role of the search engine in a free and open public sphere. Keane (2000) examined the view that market run media “encourage[d] moral selfishness and disregard of the public good” (p. 71). Minority interests, be they Web sites with unpopular views or simply Web sites that do not attempt SEO, may be marginalized even if they hold public significance (Goldman, 2008; Van Couvering, 2008). Instead, engines become gatekeepers that decide what information is distributed to media users and what information is ignored based on market value. In this case, search engine bias through
the selection and ranking of certain sites at the expense of others is seen as restricting the access to marginalized information.

While search engines may not provide an entirely open marketplace of ideas, they do organize the incomprehensible amount of Web material available to voters. Herein lies the controversy surrounding the two main views of search engines: scholars argue that Web engines must organize information in some way, but, by selecting and ranking certain Web pages at the expense of others, search engines demonstrate an intrinsic bias that affects the messages users receive.

Research up to this point offers contrasting views on the nature of search engines and their impact on society. Much like Hacker and van Dijk (2000), the current study does not advocate either a “utopian” or “dystopian view of political communication using digital media,” but rather examines the predominant patterns of Web search engine results generated by political keyword queries (p. 2). In a presidential campaign, search engines can act as navigational media that choose and rank the selection of the sites available on the Web. The outcomes of the structural constraints of search engines may result in differing representations of political topics (Dahlgren, 2005). An examination of the representational outcomes of search engines follows.

**Online Representation: Search Engine Bias and Online Identity**

The way in which people, in this case the presidential candidates, are portrayed by the numerous media online can be examined through the representational aspect of the virtual public sphere (Dahlgren, 2005). Web sites provide information concerning objects, ideas, people, politics, and nations much as the broadcast and print media. The manner in which these concepts are depicted constitute the representational aspect of the
medium. The decentralized structure allows individuals, even those with few or no credentials, to express online their opinions concerning political issues. Individual representations can then be found through search engines, illustrating how the structural aspects of the Internet’s public sphere may affect the portrayal of material.

Although scholars have not engaged in extensive research concerning Dahlgren’s (2005) representational aspect, particularly in relation to search engines, questions of online identity have been raised which closely relate to online representation. Well before the Internet emerged, Goffman (1959) argued that individuals attempt to control the impressions they make on others through performing their identities. Identity in the analog age involved the issue of real space, for instance a neighborhood, school, or a church, where individuals interacted with each other in a physical realm. Time also influenced identity within this physical space. Prior to the telephone, and, particularly the Internet, we could not communicate our identities with others across disparate time zones. In the digital online world, however, identity becomes discursive (Mitra, 1999; Mitra & Schwartz, 2001). Rather than reveal our identity through physical space and linear time, individuals use communication to link the physical to the digital, allowing for an identity that is neither based entirely in the cyber world nor the “real” world.

Online identity has been studied in a number of contexts. Mitra (2006), for instance, analyzed the cybernetic identity of the Indian-American population. Parks and Archev-Ladas (2003) provided tentative evidence that the information posted online in personal homepages is typically connected to offline life, not separate identities unrelated to the ‘real’ world. Research has investigated the online identities of ethnic minority women (Kennedy, 2006) and Black youth (Moss, 2007), the collective identities of social
movements (Wall, 2007), and adolescent identity experimentation (Duits, 2007; Valkenburg & Peter, 2007).

Politicians routinely present biographical information on their Web sites as well. One article in the area of political online identity focuses on the importance of Congress members’ image construction on their Web sites, arguing these sites are the primary means members use to gain the trust of their constituents. The study emphasized that sites communicated identity even when purposeful (or obvious) image presentation by the site builder or Congress person was lacking (Gulati, 2004). Other political candidates often post image information on their campaign web pages, as illustrated by the examination of 2000 political campaign sites by Bimber and Davis (2003), the analysis of 2002 U.S. House of Representatives Web pages by Xenos and Foot (2005), and the exploration of 2004 presidential candidate sites by Trammell et al. (2006). What has been largely ignored are potential differences between the representations of candidates on campaign Web pages and the representations of candidates on third-party Web pages, as well as potential differences in the results generated by various search engines. As McKee (2005) explained, a candidate who is portrayed by unofficial media loses control of his or her identity. Rather than communicating a campaign’s view of an action, person, event or idea, an unofficial Web site generated by a search engine presents a third-party, uncontrolled representation of a candidate.

**Research Questions**

Despite the potential influence search engines may have over the information found by voters online, no communication studies have examined the issue. We do not know whether individual search engines differ in the information they provide. We do
not know whether search engines provide users with messages controlled by campaigns, the media, or third-party sources unable to communication with voters offline. We do not know whether the results of different search engines affect the online representation of presidential candidates. To better understand the role of search engines in political campaigns, this study posited one hypothesis and asked a number of research questions.

The hypothesis referred to the different results generated by Web search engines when users seek information about presidential candidates:

H1: The results generated by three search engines when keyword searching for each 2008 presidential candidate will differ.

An examination of the variations in results generated by search engine results will build on previous studies suggesting that differing algorithms lead to different lists of results (Bar-Ilan, 2005; Spink, Jansen, Kathuria & Koshman, 2006; Mowshowitz and Kawaguchi, 2005; Mowshowitz & Kawaguchi, 2002). The focused look at one area – 2008 presidential candidates – in the current study sought to discover whether differences among search engine structures translated to a specific topic. If results among search engine differ, the research will support past studies emphasizing the varying structures of the search engines. If a large percentage of the results do not differ among search engines, the current study will suggest that the assumption of difference among search engines may not hold true for political keyword searches.

While past studies have examined the differences among search engine results, no research has analyzed the differences over time. Due to the various events that occur during a campaign, the possibility of changes in search engine algorithms, and the ever
increasing amount of material posted to the Internet, the first research question explored
the possibility of changing differences over time:

RQ1: When keyword searching for the 2008 presidential candidates during the
campaign, does the difference among the results from three search engines
change longitudinally?

Presidential campaigns change constantly. Debates, gaffs, scandals, and crises can alter
the messages presented to the public. By tracking differences in search engine results
over time, the current research illustrated the extent to which results changed during the
shifting campaign climate. Similarities in the results generated over the course of the
campaign would also suggest support for a market-based view of search engines that give
a voice to only a few of potentially millions of Web pages in the political search arena.

Since political communication and hypermedia campaigns traditionally involve a
high level of control by the candidates, the sources resulting from search engine queries
for the presidential candidates also warrant study. The second set of questions involved
source issues:

RQ2a: Do the sources resulting from 2008 presidential candidate keyword
searches differ among three search engines?

RQ2b: When keyword searching for the 2008 presidential candidates during the
campaign, do the sources generated from three search engines change
longitudinally?

The questions discussing the sources generated through search engine queries examined
whether the various search engine algorithms yielded messages from a range of sources.
It is possible that, despite differences in the exact Web pages resulting from search
engine queries, the results originate from only one type of source, such as the presidential campaigns or traditional newspapers. Since previous communication studies have examined online messages controlled by the campaigns almost exclusively (see Benoit & Benoit, 2000; Bimber and Davis, 2003; R. Davis, 1999; McKeown & Plaowman, 1999; Xenos & Foot, 2005, etc.), an examination of the sources illustrated the extent to which candidate messages and third-party voices have the potential to reach search engine users. Following the same logic as the first research question, the sources were also noted on multiple dates throughout the campaign to discover variations, or lack thereof, over time.

The outcomes of the structure of search engines – that is their ranking algorithms – may also influence the representations of the two candidates. A third set of questions examined the representational impact of various search engines:

RQ3a: When keyword searching for the 2008 presidential candidates, to what extent do representations of the candidates differ among the Web page results from three search engines?

RQ3b: When keyword searching for the 2008 presidential candidates during the campaign, to what extent do the representations of the candidates change longitudinally among the Web page results of three search engines?

Previous studies of the differences among search engines have not extended into the messages presented on the resulting Web pages. An analysis of the communication on the pages will build upon previous search engine studies, as well as Dahlgren’s (2005) argument that the structure of public sphere media may influence the outcome and representation of information filtered through the media. Once again, the representations will be noted throughout the campaign to illustrate variations over time.
The answers to the questions raised by the current study provided a broad view of online political messages throughout the 2008 campaign. The outcome of the study also demonstrated the extent to which messages generated by third-parties appeared in the results of search engine queries. While the study does not claim that the market view or public good view of search engines is “better,” it does provide data depicting the current position of search engines in the public sphere. For instance, if sources generated by the campaign and the online components of traditional news media dominate the results, the market paradigm of search engines will be supported. On the other hand, if a variety of sources and representations arises in the results, the public sphere paradigm will be supported as a result of the many voices interacting in online discourse.
CHAPTER 2: METHOD

**Key Terms**

To answer the research questions and examine the landscape of online political messages during the 2008 presidential campaign, keywords were chosen for each of the two major party presidential candidates: Democratic nominee Barack Obama and Republican nominee John McCain. To maximize the external validity of the results, the search terms were chosen based on search engine habits and data estimating the number of queries for Obama and McCain. Since search engine users typically search with one- to two-word phrases, the potential keywords were limited to either one word or a short phrase (Jansen et al., 1998; Jansen et al., 2000).

No methods exist to predict exactly which terms voters will use most when searching for information about the presidential candidates in the future, but search engine marketing tools do approximate the number of past searches for a given keyword and estimate the average number of searches for that keyword in the future. Yahoo! Search Marketing (YSM) and Google AdWords Keyword Tool (AdWords) provide two online instruments that assist advertisers in choosing relevant search terms for their markets. Both tools allow users to type in a keyword and receive estimates of searches for that term, as well as the number of searches for similar keywords. Accordingly, YSM and AdWords were used to determine the search terms utilized in the current research.

When choosing the keyword for the Democratic candidate, the terms <Barack Obama> and <Obama> drew the most estimated searches on both the YSM and AdWords tools. Other terms generated by the instruments, such as <barack obama...
muslim>, were estimated to have a limited amount of search potential and, thus, were disregarded. In August 2008, YSM estimated that both <Barack Obama> and <Obama> would receive over 559,007 monthly searches (Yahoo! search marketing, 2008). AdWords also listed <Barack Obama> and <Obama> as the top two keywords, but estimated that the monthly search volume for <Barack Obama> was 1,830,000 while the monthly search volume for <Obama> was approximately three times larger at 6,120,000 (Google Adwords, 2008). These numbers are not exact, but illustrate that (1) the large number of queries for both terms and (2) the term <Obama> was estimated to receive more searches than the candidate’s full name. As such, the study examined search results generated by queries for <Obama>.

The Republican candidate’s key term choice raised a more complicated issue. YSM and AdWords listed <John McCain> and <McCain> as the top candidate related key terms. Terms such as <Obama> and <cindy mccain> were not considered because of their irrelevance to the candidate himself. YSM estimated that both terms would receive between 61,633 and 558,763 queries (Yahoo! search marketing, 2008). AdWords estimated that the monthly search volume for <John McCain> was only 673,000 while the estimated monthly search volume for <McCain> was, much like <Obama>, almost three times larger at 1,830,000 (Google Adwords, 2008). Since the search volume for <McCain> was much higher than that for the other keywords, the term was utilized in the current study.

Both of the Republican candidate search term queries resulted in a significantly lower monthly search volume than searches for the Democratic candidate. An argument could be made to utilize both keywords for the Republican candidate and analyze the data.
based on an equal number of viewers for the Republican and Democratic candidate rather than using one keyword for each candidate. AdWords and YSM estimated the number of searches for <Obama> to be so much greater than <McCain> that even analyzing multiple terms for McCain would not equal the number of search impressions Obama generates with one keyword\(^1\).

The projected number of searches for <Barack Obama> rather than <Obama> did equal the search impressions generated by queries for <McCain>. The study, however, sought to analyze the results for each candidate that could reach the most search engine users. Choosing a term that decreased the number of potential viewers of searches for candidate Obama would undermine the goal, even if it would equalize the number of searches. To simplify the analysis and avoid the potential pitfalls of utilizing multiple keywords for McCain, the study focused on only two terms – <Obama> and <McCain>.

**Search Engines**

The chosen keywords were queried on the two largest search engines (Google and Yahoo!) and one of the smallest search engines (Ask.com). Google, the most popular Web search engine, held a 62% share of the market as of July 2008. Yahoo!, the second largest search engine, held 21% market share of searches in July 2008. By employing the two sites, the current research analyzed materials available to at least 83% of individuals who used search engines at the time the study began. A third search engine, Ask.com,

---

\(^1\) Additionally, if two search terms were utilized for McCain, the number of Web pages analyzed would have to be altered as well, making the data analysis more complex than if utilizing one keyword per candidate. Since the top 20 Web page results will be analyzed in the study (see below for more details), searching for two keywords related to McCain will yield either (1) 40 Web page results for each search compared to Obama’s 20 Web page results or (2) 10 Web page results for each of McCain’s keywords to equal 20 Web pages for each candidate. In the second situation, the analysis of McCain’s Web pages would focus entirely on the first page of results for each search, whereas Obama’s Web pages would flow over onto the second page of results. It is possible that the different rankings could influence the answers to the results.
was utilized to search for the candidate keywords. Ask.com held the second smallest share (5%) of the market out of the five remaining major search engines (July 2008, 2008). Previous research also presented a historical basis for examining these search engines (Jansen & Spink, 2006). AOL, the smallest search engine by market share (4%), was not selected for this study because it partners with Google, which may have influenced the algorithm and results.

An analysis of an unpopular search engine along with two of the largest engines demonstrated the extent to which the results differed among algorithms with various levels of use. The market view of search engines, for instance, would suggest that less popular search engines provide less relevant information for Internet users. The current study examined whether the Web pages, sources, and candidate representations differed among all three of the search engines, but also whether they differed only between the least popular and most popular search engines.

The three search engines utilize three different search algorithms; therefore, the results found in the research illustrated the extent to which the technologies affected results rankings. While the findings of the study will not generalize to the search engines not utilized in the research, they will provide an expansive view of the Internet landscape during the 2008 presidential election as compared to previous communication studies.

**Data Collection**

Data collection began on Wednesday August 20, 2008 and occurred on the third Wednesday of each month until November 19, 2008. The collection schedule yielded a total of four data points in order to gather longitudinal data over the course of the 2008 presidential election. Since no longitudinal study has investigated search results prior to
the current research, there is no precedent determining the day of the month to collect data. The dates chosen for the study began just prior to the August 25, 2008 Democratic National Convention and ended two weeks following the 2008 election on November 4, 2008, which is typically viewed as the general election period (McKeown & Plowman, 1999). Choosing a specific day each month kept the data collection as constant as possible, despite election events that occurred throughout the campaign. For instance, the final presidential debate on October 15, 2008 took place on a data collection day. Given a range of events, the results can be particularly illustrative. If the results were stable even on days when major political events, such as the debate, occurred, the impact of search engine algorithms would be more than the impact of events during campaign.

Each search term (<Obama> and <McCain>) was entered into each of the three search engines (Google, Yahoo!, and Ask.com) to yield six searches on each date. Although the exact manner in which every person utilizes the Internet is unknown, previous research suggests that search engine users typically do not search for exact phrases surrounded by quotations marks, rarely change the default settings of search engines, generally do not read more than the first two pages of results, and often look at the top results only (Jansen & Spink, 2006; Jansen et al., 2007; Spink et al., 2006). Keeping the conventions in mind, the current research sought to enhance external validity by searching for terms without quotation marks surrounding them and by choosing artifacts from only the first 20 unique Web pages generated by the default settings of each engine.
The top twenty non-sponsored, unique Web page results were collected during the searches. Each of the three search engines label which links have been purchased, rather than found through the spider software of the search engine. Such sites were not analyzed in the current research since the objective was to examine the natural results of the search engines.

The search engines each generate ten non-sponsored links per page of results when the default settings have not changed. Thus, twenty links, or the equivalent of two pages of results, were analyzed. To keep the units of analysis similar, only Web page results – that is, results that link to Web pages rather than YouTube videos, Flickr photos, and search engine specific aggregate results that list a number of newspaper and blogging searches, such as Google News results and Ask.com blog results – were analyzed because not all three of the search engines presented the specialized results. The twenty analyzed Web pages from each search also excluded any duplicate links to the same Web page. However, when there were two or more Web pages from the same Web site, both Web pages were counted in the results.

To provide an example, the Google search results for <Obama> may include: (1) Obama’s Official Web site Home Page, (2) Obama’s Official Web site Position on Health Care, (3) Wikipedia’s Obama Biography, (4) Google’s list of top blog results, and (5) Wikipedia’s Obama Biography. The first three results would be analyzed, but the second two would not.

The results lists generated by the search engines, as well as the front pages of the resulting Web pages, were captured by Zotero, the Mozilla Firefox add-on research tool.

---

2 Organizations may pay to place a link to their Web sites in a specially marked Sponsored Links section of various search engines through services such as Google Adwords (Google Adwords, 2008). Since such sponsored links are not generated by each search engine’s algorithm, they will not be analyzed in this study.
Capturing images of the Web pages provided a snapshot of each artifact, which supplied a stable environment for analysis and avoided the possibility that Web sites could be updated or, at worst, removed before examination was complete. The six searches on each of the four data gathering dates yielded a sample size of 480 Web pages.

**Data Analysis**

Due to the exploratory and open-ended nature of the research questions posited, the collected data was analyzed through a content analysis, which Krippendorff (2004) defined as a “research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (p. 18). Each research question required a slightly different unit of analysis. An answer to the first question, which involved the differences among the actual search results generated by each of the queries, required analysis of the URLs – World Wide Web addresses – for each of the resulting Web pages. An answer to the second question, which focused on the types of source generated in the search results, required analysis of the information illuminating the source of each Web page generated by the search engines. An answer to the final question, which examined the representation of the candidates in the search results, required analysis of the textual content on each Web page generated by the queries.

**Differing URL Results**

Previous studies in the discipline of information technology have analyzed search engine results by determining the percentage of Web pages that appear on more than one results list from a given search (Blakely, Spink, & Jansen, 2005; Spink et al., 2006). Wolfe and Sharp (2005) examined the results generated by searches for childhood
immunizations in one of the few communication-related studies of search engine content. Similar to previous research on the topic, the current study examined the URLs from the top twenty results of each search and frequencies were computed to discover the extent to which the results differed among the searches. To determine the longitudinal changes, the differences in the results between each of the search dates were noted and compared. The first three results on each search engine were compared in the same manner to discover any differences among the most highly ranked sites and the top twenty Web pages.

Differing Source Types

The second research question required a focus on the types of source from which each Web page originated. Categorizing sources in this way provided an array of information about whether search engines provided controlled messages sent from candidates, communication through online outlets of traditional media sources, and/or other third-party sources of information about a single candidate. Dahlgren (2005) established a number of sectors that appear on the World Wide Web: “e-Government” (e.g. Senate Web pages), “Advocacy” (e.g. The Sunlight Foundation), “Parapolitical” (e.g. Wikipedia), and “Journalism”³. These sectors offered a starting point for categorizing the sources of Web page results. Dahlgren’s (2005) “Journalism” sector was divided for the purposes of the current study between the online presence of “Journalism”⁴ (e.g. CNN) and “e-Journalism” sources that have no mass offline presence (e.g. Salon.com).

³ Although Dahlgren (2005) mentioned civic forums as another sector, no discussion boards or other Web pages that focused solely on generating community discourse or action were ranked within the top 20 results for any of the three search engines; therefore, the category was not employed for analysis.
⁴ The “Journalism” category in the current study originally contained a subcategory of “Journalism(Blog),” which contained Web pages and blogs originating from offline media companies that could not exist in
Hypermedia campaigns also have illustrated the tension between the campaigns’ controlled messages and the third-parties’ uncontrolled messages. As previously discussed, many studies have examined Web pages run by the candidates (see Benoit & Benoit, 2000; Bimber and Davis, 2003; R. Davis, 1999; McKeown & Plaowman, 1999; Xenos & Foot, 2005, etc.), but few have branched out into Web pages posted online by other sources. To determine the extent to which campaigns have control of the messages received by Web search engine users, a sixth category, “Campaign Controlled,” was added to Dahlgren’s (2005) public sphere sectors. Web pages controlled and maintained by the individual campaigns include the official campaign Web sites, as well as the official Facebook, MySpace, Twitter, and Linked-In pages (McCain vs. Obama, 2009). The “Campaign Controlled” sector differs from “e-Government” in that the Web pages were created by the campaigns themselves, rather than a governmental department.

One additional, and unanticipated, category emerged from the results themselves: “Commercial.” The large number of Web pages that originated from businesses focused on selling a product or service warranted the seventh group. The “Commercial” category included sites, such as McCain Foods, Ltd. And McCain Traffic Solutions, that focused on corporate activities. “E-Government,” “Campaign Controlled,” “Journalism,” “e-Journalism,” “Advocacy,” “Parapolitical,” and “Commercial” comprised the final seven categories into which the results of Web searches were coded (see Appendix B for definitions).

The researcher and an additional coder categorized the results into one of the seven categories (see Appendix C for coding rules). If the original source of a Web page traditional media formats such as blogs written by newspaper journalists. The subcategory was ultimately integrated into “Journalism” because there were too few results to analyze the subcategory separately.
was not immediately familiar to the coders, they examined the Web site for information about whom or what group created the page. Although Krippendorff (1980) recommended that all inferences made in a content analysis be based on information contained in the artifact, an inaccurate source for the Web pages in the research could alter the results. Since the information concerning the source of any Web page was generally available, it was worth further examination if, at first glance, the source of a Web site was vague. Since the categories included some based on Dahlgren’s (2005) sectors and some originating from patterns in the results themselves, the coders categorized a randomly selected 25% of the Web pages first to check the reliability of the categories before coding all 480 of the Web pages. After acceptable inter-coder reliability was reached\(^5\) (Krippendorff’s \(\alpha\) (2004) = .85) in one-fourth of the cases, the coders categorized all 480 Web pages into one of the seven groups. The final inter-coder reliability indicated a high percentage of agreement beyond chance (Krippendorff’s \(\alpha\) (2004) = .95)\(^6\).

Categorizing the sources into these seven groups uncovered the extent to which search engines generated results controlled by the campaign, the government, journalists, or other third-parties. The sources found through Web searches for the presidential candidates were compared among the search engines to determine different results. The percentage changes in each source type on each search engine was also examined to discover longitudinal variations during the campaign.

---

\(^5\) The coders first attempted to categorize 10% of the Web pages to solidify the definitions prior to coding the entire data set. The failed to code them reliably on the first attempt; therefore the definitions were slightly altered to make each category more well-defined. In the second attempt, the coders categorized 25% of the Web pages, reached an acceptable level of inter-coder reliability, and continued to code the entire data set.

\(^6\) Krippendorff’s \(\alpha\) (2004) for each inter-coder reliability check in the study was computed using the SPSS macro developed by Hayes and Krippendorff (2007).
**Representation**

Dahlgren (2005) argued that all media have both a structural and representational dimension. The analyses dealing with Web page differences and source characteristics illustrated structural aspects of the information provided by Internet search engines. A close look at the content of the Web pages that resulted from searches for the two presidential candidates provided a taste of how the output of different search engines altered the representations of the 2008 candidates. Representation can be defined and studied in various ways, but Dahlgren’s (2005) mention of the existence of a “pluralism of views” relates specifically to the online sphere (p. 149). Web pages resulting from a search may present users with a range of opinions about the two candidates.

The current study analyzed the text on the resulting Web pages, not including comments sections on the Web pages, advertisements, bibliographies, and sections of links titled “see also,” “also read,” “most popular,” or something similar. Due to the extreme length of a number of the resulting Web pages, particularly biographical sites such as Wikipedia and Congresspedia, the coders opened screen shots of the Web pages in Microsoft Paint and read the first two screen lengths of text. The first two screen lengths included the entire text of the majority of the Web pages generated, made the coding more manageable, and fit into the spirit of the study in that the information at the top of Web pages is the most accessible on the sites when Internet users do not want to read an entire page.

The coders categorized the pages into “Supporting” messages (those that encouraged users to vote, donate, volunteer, etc. for a candidate), “Anti-Candidate” messages (those explicitly discouraging users to vote for a candidate), and “Neutral”
messages (those that neither explicitly encouraged support or opposition). Although this was a simplistic operationalization of Web page representation of the candidates, analyzing the results in this manner illustrated whether the results advocated a position on the candidates or simply provided information without directly soliciting users’ support or opposition. Again, the coders categorized a randomly generated 25% of the Web pages until an acceptable level of inter-coder reliability (Krippendorff’s $\alpha$ (2004) = .85) was achieved\(^7\). Once the coders reached a high level of agreement, they coded all 480 Web pages into one of the four representation categories. The final inter-coder agreement once again indicated a percentage of agreement beyond chance (Krippendorff’s $\alpha$ (2004) = .86).

Analyzing the URLs, sources, and Web pages generated in Web searches for the 2008 presidential candidates provided a broader examination of the Internet than has been previously conducted during political campaigns. Due to the difficulty in determining which key terms are most popular and the periodically changing search engine algorithms, the study does not produce one-hundred percent generalizable results, but it does provide a panoramic view of how navigational media guided users through the vast geography of the Internet over the course of the 2008 presidential campaign.

---

\(^7\) The coders’ first attempt at categorizing 10% of the Web pages included additional categories, including as “Biography,” “Issue/Event,” and “Fact Check.” When the first round of coding yielded unreliable results, the categories were narrowed to only “Supporting,” “Anti-Candidate,” “Neutral,” and “Unrelated.” In the subsequent round of coding with fewer categories, the coders categorized 25% of the Web pages, reached an acceptable level of inter-coder reliability, and continued to code the entire data set.
CHAPTER 3: RESULTS

The issues raised in the current research examined the extent to which results from Web searches for presidential candidates Obama and McCain differed and changed over the course of the 2008 campaign. Data was collected on four dates: August 20, 2008, September 17, October 15, and November 19. Each search term (<Obama> and <McCain>) was entered into three search engines (Google, Yahoo!, and Ask.com) on each date and the top twenty Web page results were collected, yielding a total of 480 cases for analysis. Each search generated between 27.3 million results (for an Ask.com <McCain> search) and 2.19 billion results (for a Yahoo! <Obama> search), but the top twenty results generated less than 90 URLs for each candidate by the end of the campaign.

URL Differences

Hypothesis one, which claimed that the results generated by different search engines would be different, was supported. Fifty-nine percent (n=142) of the total Web page results for <Obama> originated from URLs that appeared in the results for only one search engine. Searches for <McCain> also demonstrated differences among the engines, since 55% (n=133) of the total cases originated from URLs that appeared in the results for only one search engine (see Table 1). The differences, at between 50% and 60%, were smaller than differences highlighted in previous research, which found that up to 85% of results were unique to a given search engine (Spink et al., 2006). The similarities among the engines were also greater than the 3% Spink et al. (2006) found. Ten percent
of the URLs in the study appeared in every search for each candidate (see Table 1). Despite differences, the focus on searches for a narrow category of terms (e.g. presidential candidates) seemed to decrease the differences among the results generated by Web searches.

Table 1

<table>
<thead>
<tr>
<th>Shared Search Engine URL Results</th>
<th>Shared URL Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>URLs Generated by:</strong></td>
<td>&lt;Obama&gt;</td>
</tr>
<tr>
<td>Google &amp; Yahoo! &amp; Ask.com</td>
<td>15% (35)</td>
</tr>
<tr>
<td>Google &amp; Yahoo!</td>
<td>17% (40)</td>
</tr>
<tr>
<td>Google &amp; Ask.com</td>
<td>3% (8)</td>
</tr>
<tr>
<td>Yahoo! &amp; Ask.com</td>
<td>6% (15)</td>
</tr>
</tbody>
</table>

| **URLs Generated by:**          |                  |
| Google & Yahoo! & Ask.com on All Dates | 10% (24)          | 10% (24)          |
| Only One Search Engine          | 59% (142)         | 55% (132)         |

*Note. n = 240 URLs for each search term*

Since search engine users tend to look only at the top ranked items, an examination of the top three Web page results was warranted to determine differences among the search engines that may not have appeared in the top twenty results. The number of URLs generated by all three search engines increased dramatically in the top
three results for the candidates. For <Obama>, nearly two-thirds of the URLs appeared in the results of all three search engines and over half appeared in the results of the search engine queries for <McCain>. Specifically, the candidates’ official Web pages and the Wikipedia biographies for each candidate appeared in the top results for nearly every search. In the top three results, similarities in the URLs outweighed the differences.

Variation in URL Differences among Search Engines during Campaign

Collecting data on multiple dates provided the evidence necessary to answer Research Question 1, which asked whether differences among the URL results generated by search engines changed over the course of the campaign. The simple answer is yes, the differences did change. However, much of the change occurred in the percentage of URLs that appeared in only one search engine on each date.

Despite the varying amount of unique URLs that appeared in only one search engine, the percentage of URLs generated by all three search engines changed by an average of only 2%, or one URL between each date, for both candidates (see Figure 1). The overlap among Google, Yahoo!, and Ask.com remained stable even as constant changes occurred in the “real-life” campaign (e.g. vice presidential candidate announcements, economic crisis, debates, election etc.). The additional percentage of the URLs that appeared on both Google and Ask.com searches also remained incredibly stable with an average change of only 1%, or less than one URL between each date, for <Obama> and showed no change in <McCain> searches. Since 3% (n=8) of the URLs appeared in only these two search engines (see Table 1), the large differences between Google and Ask.com results apparently remained stable during the campaign.
The variation among the top three URL results changed slightly on different collection dates as well. At least one URL appeared in every single search for both candidates on each date, which generated an overlap among the results of 33% ($n=3$). In many cases, two URLs appeared in all three search engine results, which generated an overlap among the results of 67% ($n=6$) (see Table 2). The overlap was typically due to the consistently top ranked candidate homepages and the Wikipedia pages for the candidates.

Overall, the search engines narrowed the millions of potential Web pages to fewer than 90 URLs for each candidate during the campaign. While the similarities among the three search engines was substantially higher than past research would predict, especially among the top three results, the differences between at least two of the search engines (Google and Ask.com) were large and stable throughout the campaign. We can further
understand the differences among the search engines and changes in results during the campaign by examining the source types from which the URLs originated.

Table 2

<table>
<thead>
<tr>
<th>Source Type</th>
<th>August 2008</th>
<th>September 2008</th>
<th>October 2008</th>
<th>November 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Obama&gt;</td>
<td>33% (3)</td>
<td>67% (6)</td>
<td>67% (6)</td>
<td>67% (6)</td>
</tr>
<tr>
<td>&lt;McCain&gt;</td>
<td>33% (3)</td>
<td>33% (3)</td>
<td>33% (3)</td>
<td>33% (3)</td>
</tr>
<tr>
<td>URLs Generated by Three Search Engines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;Obama&gt;</td>
<td>&lt;McCain&gt;</td>
<td>&lt;Obama&gt;</td>
<td>&lt;McCain&gt;</td>
</tr>
<tr>
<td>August 2008</td>
<td>33% (3)</td>
<td>33% (3)</td>
<td>44% (4)</td>
<td>44% (4)</td>
</tr>
<tr>
<td>September 2008</td>
<td>67% (6)</td>
<td>33% (3)</td>
<td>33% (3)</td>
<td>44% (4)</td>
</tr>
<tr>
<td>October 2008</td>
<td>67% (6)</td>
<td>33% (3)</td>
<td>33% (3)</td>
<td>44% (4)</td>
</tr>
<tr>
<td>November 2008</td>
<td>67% (6)</td>
<td>67% (6)</td>
<td>33% (3)</td>
<td>33% (3)</td>
</tr>
</tbody>
</table>

Note. n = 9 URLs for each search term on each date

Source Differences

Research Question 2 shifted focus from the URLs of the search engine results to the types of source that created the Web pages under analysis. The 480 cases generated by Google, Yahoo!, and Ask.com were coded into seven categories: “e-Government,” “Campaign Controlled,” “Journalism,” “e-Journalism,” “Advocacy,” “Parapolitical,” and “Commercial.” Twenty-seven percent (n=128) of the total Web pages from searches for both candidates originated from “Journalism” sources, such as CNN and The New York Times. An additional 20% (n=96) were from “Parapolitical” sources, most prominently from Wikipedia, which comprised nearly 40% (n=38) of all the “Parapolitical” results. Only 14% (n=69) of the total Web pages originated from “Campaign Controlled” sources,
such as the official candidate Web sites and Facebook pages. The types of source differed based on the search engine, although the magnitude of difference depended on the candidate.

**Differences in Source Type among Search Engines**

Research Question 2a asked whether the types of source resulting from 2008 candidate keyword queries differed among search engines. The data answered the question in the affirmative, but illustrated that the extent of the differences depended on the type of source and the candidate as well. Over the course of the campaign, Google generated “Campaign Controlled” (23%, \( n=37 \)) Web pages more often than Yahoo! (15%, \( n=24 \)) and Ask.com (5%, \( n=8 \)), Yahoo! resulted in a higher level of “Journalism” (33%, \( n=53 \)) Web pages than Google (26%, \( n=42 \)) and Ask.com (21%, \( n=33 \)), and Ask.com favored Web pages created by “Parapolitical” sources (29%, \( n=47 \)) more heavily than Google (18%, \( n=28 \)) and Yahoo! (13%, \( n=21 \)) (see Figure 2).

The same pattern of differences appeared in searches for <Obama>. “Journalism” (24%, \( n=58 \)) and “Parapolitical” (23%, \( n=54 \)) sources again comprised nearly half of the Web pages, and the search engines favored three different types of source. “Campaign Controlled” sources dominated Google results with 29% \( (n=23) \) of the cases originating from the candidate. “Journalism” sources, particularly CNN, dominated Yahoo! results with 30% \( (n=24) \) of the cases originating from “old” media outlets. “Parapolitical” sources, including Wikipedia biographies, dominated Ask.com results with 33% \( (n=26) \) of the cases originating from traditionally non-political sources (see Figure 3).
**Figure 2.** Percentage of source types generated by Google (n=160), Yahoo! (n=160), and Ask.com (n=160) in searches for both candidates

**Figure 3.** Percentage of source types generated by Google (n=80), Yahoo! (n=80), and Ask.com (n=80) in searches for <Obama>
The source types with the lowest percentages were illustrative as well. Google, for instance, generated three categories comprising 5% \((n=4)\) or less of the results: “e-Journalism,” “e-Government,” and “Commercial” sources. The Google results were dominated by “Parapolitical” and “Campaign Controlled” sources, including Web sites such as Obama’s official campaign pages, Obama’s official Facebook page, and his Wikipedia biography, leaving few spaces in the top twenty results for other sources of information. Ask.com produced two categories making up 5% or less of the results, including “Campaign Controlled” sources, which ranked more highly in the other two search engine results, and “Commercial” results. Yahoo!, however, produced only one category (“Commercial”) comprising 5% or less, suggesting that the search engine provided a wider variety of sources than the other two engines, even though “Journalism” sources comprised approximately one-third of the results (see Figure 3).

The results for <McCain> led to a slightly different pattern of source types than the results for <Obama>. “Journalism” \((29\%, n=70)\) sources again dominated the results, but “Advocacy” \((19\%, n=45)\) sources moved into second place. Whereas the <Obama> results highlighted a difference among each of the search engines, the <McCain> results illustrated similarities between Google and Yahoo!, which then differed with Ask.com. Of the Google and Yahoo! results, approximately 35\% \((n=28)\) originated from “Journalism” sources (e.g. CNN) compared with 18\% \((n=14)\) in Ask.com searches. Twenty percent \((n=17)\) of the Google and Yahoo! results originated from “Advocacy” sources (e.g. the Sunlight Foundation) compared with 14\% \((n=11)\) in Ask.com searches, and approximately 17\% \((n=14)\) originated from “Campaign Controlled” sources compared with only 5\% in Ask.com queries. On the other hand, the “Parapolitical”
sources (e.g. Who 2 Profiles) generated by Ask.com made up 33% \((n=21)\) of the sources compared to approximately 15% \((n=12)\) in Google and Yahoo!, and “Commercial” sources (e.g. McCain Foods Ltd.) comprised 23% \((n=18)\) of Ask.com results compared to only 5% \((n=4)\) of Google and Yahoo! results (see Figure 4).

![Figure 4. Percentage of source types generated by Google \((n=80)\), Yahoo! \((n=80)\), and Ask.com \((n=80)\) in searches for <McCain>]

The top three results for each candidate further demonstrated differences among the engines. The “Campaign Controlled” sources comprised the highest percentage for <Obama> (44%, \(n=16\)) and the second highest for <McCain> (31%, \(n=11\)). Google favored “Campaign Controlled” sources for <Obama> (67%, \(n=8\)) and <McCain> (50%, \(n=6\)), Yahoo! generated the most “Journalism” sources (25%, \(n=3\)) for <Obama> and <McCain>, and Ask.com favored “Parapolitical” sources for <Obama> (58%, \(n=7\)) and <McCain> (75%, \(n=9\)) (see Figures 5 & 6). Google and Ask.com again yielded the most differences while Yahoo! provided a more even distribution of the source types.
**Figure 5.** Percentage of source types in the top three search results generated by Google \((n=12)\), Yahoo! \((n=12)\), and Ask.com \((n=12)\) in searches for <Obama>.

**Figure 6.** Percentage of source types in the top three search results generated by Google \((n=12)\), Yahoo! \((n=12)\), and Ask.com \((n=12)\) in searches for <McCain>.

---

55
Clearly, differences emerged among the search engines, but the candidate searched altered the patterns of difference in the results. Searches for both candidates however, illustrated a substantial difference in the source types generated by Google and those generated by Ask.com, mirroring the pattern of difference in URL results.

**Variation in URL differences among Search Engines during Campaign**

Research Question 2b further delved into the data by asking whether the source types changed longitudinally during the campaign. No definitive pattern emerged from the combined data for both candidates. While there were slight changes, the largest difference among the dates for a given source type was less than 10%.

Exploring the data for the two candidates separately, however, yielded interesting results. The <Obama> sources were slightly more stable than the <McCain> sources, with an average change of less than 5% (i.e. one Web page of a given source type). The <McCain> searches yielded average changes among the dates of less than 8% (i.e. two Web pages of a given source type). The most obvious pattern of variance during the campaign was related to source type rather than search engine or date. “E-Journalism” sources and “Advocacy” sources, for instance, were most inconsistent and varied by an average of at least 5% in every search except one. “E-Government” and “Campaign Controlled” sources were most stable: “e-Government” never varied on average more than 2% (i.e. less than one result of a given source type) and “Campaign Controlled” sources varied more than an average of 2% in only one search (see Figures 7 & 8). The lack of consistent variation for any given search engine, and the presence of consistent variation among a number of the source types, suggests the type of source, be it a media source or a campaign Web page, did not change based solely on the search algorithm.
Figure 7. Average change in source type results generated by Google (n=20 on each of the four collection dates), Yahoo! (n=20 on each of the four collection dates), and Ask.com (n=20 on each of the four collection dates) between each of the four collection dates in searches for <Obama>.

Figure 8. Average change in source type results generated by Google (n=20 on each of the four collection dates), Yahoo! (n=20 on each of the four collection dates), and Ask.com (n=20 on each of the four collection dates) between each of the four collection dates in searches for <McCain>.
The top three Web pages for the candidates illustrated differences among the changes in the search engines’ results during the campaign. Google, for instance, generated more stable percentages of source types in the top three search results for <Obama> than in the total results: the percentage of the “Campaign Controlled” (67%, \( n=2 \)) and “Parapolitical” (33%, \( n=1 \)) sources remained exactly the same over the four data collection dates. The Google results from queries for <McCain>, on the other hand, changed between the collection dates in every category except “Parapolitical.”

The highly ranked Web pages also showed that source type, as well as the search engine, influenced the results. “Journalism” was the most inconsistent source type again, varying by an average of 11% (i.e. less than one Web page of a given source type) in each search except the Google searches for <Obama>. Even thought “Journalism” did not vary much, on average, it was the most inconsistent source type to appear in the top three search engine results. “Campaign Controlled” was the most stable source type, varying between dates only once – in the Google for <McCain> (see Figures 9 & 10). As in the top twenty results, the variation in the source types among the four collection dates depended on the candidate and the source type rather than solely on the search engine algorithm.

The results have demonstrated that the search engines differed in the URLs they produced, that certain search engines favored certain types of source, and that the candidate and category of source also influenced a page’s appearance in the results during the campaign. A final step remains in understanding the landscape of search engines during the 2008 presidential campaign: examining the ways in which the messages present on the Web pages generated by search engines portrayed the candidates.
Figure 9. Average change in the top three source type results generated by Google ($n=3$ on each of the four collection dates), Yahoo! ($n=3$ on each of the four dates), and Ask.com ($n=3$ on each of the four dates) between each of the four collection dates in searches for <Obama>.

Figure 10. Average change in top three source type results generated by Google ($n=3$ on each of the four collection dates), Yahoo! ($n=3$ on each of the four dates), and Ask.com ($n=3$ on each of the four dates) between each of the four collection dates in searches for <Obama>.
Representation Differences

The final questions focused on ways in which the results represented candidates Obama and McCain. Coders categorized the Web pages into one of four groups: “Supporting,” “Anti-Candidate,” “Neutral,” or “Unrelated.” Despite differences in the URLs and source types generated by the search engines, the results were overwhelmingly “Neutral” (72%), meaning they did not explicitly encourage the Internet user to support or oppose the candidate. Examining the results by candidate, search engine, and date provided a more detailed view of the representations emerging from the searches.

Differences in Candidate Representation

Research Question 3a asked whether the candidate representations differed depending on the search engine. While the specific percentages for each category differed in degree among the search engines, the relative differences were similar in each category. “Neutral” messages dominated every search, never falling below 50% (n= 80) of the results for any search engine. “Supporting” messages comprised a distant second place in each engine’s results, ranging from a high of 26% (n=21) in Google searches for <Obama>, to a low of 5% (n=9) in Ask.com searches for <Obama>. The only search deviating from the pattern was Ask.com’s <McCain> search, which included 36% (n=30) “Unrelated” and 8% (n=6) “Anti-Candidate” messages (see Figures 11 & 12).
Figure 11. Percentage of representation types in the search results generated by Google ($n=80$), Yahoo! ($n=80$), and Ask.com ($n=80$) in searches for <Obama>.

Figure 12. Percentage of representation types in the search results generated by Google ($n=80$), Yahoo! ($n=80$), and Ask.com ($n=80$) in searches for <McCain>.
Even though the relative representations did not change based on the search engine, the magnitude of difference was instructive. Google resulted in the highest percentage of biased Web pages. Twenty-six percent ($n=21$) of the resulting Web pages yielded “Supporting” messages for <Obama> and 19% ($n=15$) of the Web pages contained “Supporting” messages for <McCain>. Google also favored “Campaign Controlled” sources, which comprised 92% ($n=33$) of the messages encouraging potential voters to support the candidates. Few of the results apart from the candidate Web pages and social networking sites encouraged readers to vote for, donate to, or otherwise support the candidates. Google also generated the most “Anti-Candidate” pages for <Obama> (6%, $n=5$) and <McCain> (15%, $n=12$), including the Web pages “Stop Obama” and “McCain’s Skeleton Closet.”

<Obama> searches displayed the clearest differences among the engines. “Supporting” messages resulting from Google searches for <Obama> comprised over one-fourth of the results, but “Supporting” messages made up only 14% ($n=11$) of Yahoo! results and a much lower 5% ($n=4$) of Ask.com results. “Neutral” results for <Obama> illustrated an opposite pattern. “Neutral” Web pages comprised 93% ($n=74$) of Ask.com results, 81% ($n=65$) of Yahoo! results, and only 66% ($n=53$) of the Google results (see Figure 11).

Searches for <McCain> resulted in differences as well but in opposite categories. “Anti-Candidate” messages resulting from Google searches for <McCain> comprised 15% ($n=12$) of the results, but Yahoo! searches resulted in only 5% ($n=4$) “Anti-Candidate” messages and Ask.com searches resulted in 8% ($n=6$) “Anti-Candidate” messages. “Unrelated” results for <McCain> showed similar differences, with Ask.com
generating 36% ($n=29$) “Unrelated” Web pages, Yahoo! generating 5% ($n=4$) “Unrelated” Web pages, and Google generating 3% ($n=2$) “Unrelated” Web pages (see Figure 12). While the results from Yahoo! acted, in some cases, like Google and, in other cases, like Ask.com, the differences between Google and Ask.com were consistent for both candidates.

The top three results generated an increase in the percentage of “Supporting” messages in searches for <Obama>, which yielded 44% ($n=16$) “Supporting” messages, and <McCain>, which yielded 22% ($n=8$) “Supporting” messages. Highly ranked Google results especially mirrored the top twenty results from the search engines. Google searches generated the most “Supporting” Web pages for <Obama> at 67% ($n=8$) of the Web pages, that is two of the top three Web pages for each Google search encouraged the Internet user to contribute in some way to the Obama campaign. Google searches for <McCain> yielded slightly fewer “Supporting” Web pages (42%, $n=5$), but still encouraged more support from Internet users than Yahoo! and Ask.com searches (see Figures 13 & 14). Google, it seems, was most favoring of “Supporting” messages in both the top twenty and top three results.
Figure 13. Percentage of representation types in the top three search results generated by Google \( (n=12) \), Yahoo! \( (n=12) \), and Ask.com \( (n=12) \) in searches for \(<\text{Obama}>\)

Figure 14. Percentage of representation types in the top three search results generated by Google \( (n=12) \), Yahoo! \( (n=12) \), and Ask.com \( (n=12) \) in searches for \(<\text{McCain}>\)
**Variation in Representation during the Campaign**

The final research question (RQ3b) asked whether the representations of the candidates changed longitudinally during the 2008 presidential campaign. The variation among the four dates, presented no consistent pattern based on engine or candidate. However, the average variation for all the searches but one was highest between the collection date in October and the collection date in November (see Figures 15 & 16). Ask.com searches for <McCain> in November resulted in especially large differences compared to the October searches since “Unrelated” Web pages decreased by 30% ($n=6$).

The top three results reflected the differences in variation demonstrated by the top three source type results. The top three <Obama> results did not vary once in respect to the representations of the candidate. Google searches presented <Obama> in a particularly positive manner since two of the top three results on each search date encouraged readers to support Obama. No clear pattern emerged in the <McCain> top three results for the representation variable, and the variation in each category of representation was not consistent for each search engine. Once again, the variation in the representation of each candidate depended on the candidate not the search engine alone.

Search engine results, like many other online phenomena, illustrate no one definitive design in the information they generate. Google, Yahoo!, and Ask.com were no exception, but searches for the 2008 presidential candidates did illuminate a number of patterns that have the potential to alter understanding of search engines and their interactions with politics. The final chapter explores the relationship between search engine results and theoretical perspectives of the Internet, as well as the implications of search results on online political discourse.
Figure 15. Average change in the representation types generated by Google ($n=20$ on each of the four collection dates), Yahoo! ($n=20$ on each of the four collection dates), and Ask.com ($n=20$ on each of the four collection dates) between each of the four dates in searches for $<\text{Obama}>$

Figure 16. Average change in the representation types generated by Google ($n=20$ on each of the four collection dates), Yahoo! ($n=20$ on each of the four collection dates), and Ask.com ($n=20$ on each of the four collection dates) between each of the four dates in searches for $<\text{McCain}>$
CHAPTER 4: DISCUSSION

Analysis of the search engine results of Google, Yahoo!, and Ask.com provided an overview of the broad political landscape of the Internet during the 2008 presidential campaign. While past research has examined candidate Web sites (see Bennett, 2007; Benoit & Benoit, 2000; Bimber & Davis, 2003, etc.), the current study focused on the extent to which search engine users were able to access URLs, source types, and various representations of the candidates. The searches for both candidates on four dates during the campaign generated a total of only 85 URL results for <Obama> and 89 URL results for <McCain> out of the millions (and even billions) of Web pages generated by each search engine. The overall types of source yielded by the search engines highlighted that, while “Journalism” sources made up one-fourth of the sources, “Parapolitical” (largely due to the inclusion of Wikipedia in this category) was a close second. “Campaign Controlled” sources made up a distant fourth place percentage of the results, which further illustrated the importance of studying sources of political information on the Internet that do not originate from the campaign. The percentage of “Campaign Controlled” sources increased dramatically in the top three results, suggesting that the candidates still have a major role in controlling the discourse since many Internet users only glance at the top results of a given search.

Although anecdotal evidence of from previous elections emphasized the lack of political campaigns homepages in the top results (Zeller, 2006) and the threat of Google bombs from opposition forces (‘Miserable failure’ links to Bush, 2003), the current study found no such patterns. Despite the variation in the types of source generated, the
overwhelming majority of the Web pages generated by search engines presented “Neutral” representations of the candidates and campaign. “Supporting” Web pages came in a distant second and “Anti-Candidate” Web pages made up the smallest percentage of the results, uncovering that, somewhat surprisingly, Internet users can find unbiased information online.

In fact, the campaign coverage in the traditional media was not nearly as “Neutral” as the messages generated by search engines. Between September and October 2008, 57% of the stories reported by the mainstream press covered McCain’s campaign in a negative light while less than 30% covered Obama in a negative manner (Winning the media, 2008). While <Obama> searches were less negative than <McCain> searches, particularly in Google Web pages where approximately 5% of <Obama> results were “Anti-Candidate” compared to approximately 15% of <McCain> results, the messages were much more “Neutral” overall than traditional media coverage.

An empirical overview of the information found through Internet searches will add to the analyses of campaign sites sure to emerge from the most recent election. The results also build upon our understanding of search engines as structural aspects of the Internet. While the differences among the results were smaller than previous research found, the URL and source type results illustrated structural variations among the search engines and depicted a market-based search engine system.

Structure and Representation

The results of Google, Yahoo!, and Ask.com searches for <Obama> and <McCain> supported the view of search engines as elements of the Internet’s structure, offering support for Dahlgren’s (2005) argument that structure exists in all media forms.
For instance, none of the search engines provided the exact same URLs, source types, or representations of the candidates. The structural differences of each search engine became clear through an examination of the similar ways they varied in searches for the two candidates. Fifty-five percent to 60% of the URL results for both candidates were unique to a given search engine, and exactly 10% of the URL results for the candidates appeared in the result lists for all three search engines. Google and Ask.com results for both candidates also showed the least similar URL results for both candidates throughout the campaign (see Table 1 & Figure 2).

The types of source generated by the search engines also uncovered differences in the structures of Google and Ask.com, with Google yielding the most “Candidate Controlled” sources for both <Obama> and <McCain> compared to the number of “Candidate Controlled” sources found by Ask.com (see Figures 3 & 4). The source differences became even more defined in the top three results for the candidates, with Google clearly favoring “Candidate Controlled” sources, Yahoo! favoring “Journalism” sources, and Ask.com favoring “Parapolitical” sources (see Figures 5 & 6). The clear differences between Google and Ask.com, and Yahoo! in the top three results, suggest structural search engine algorithms that organize the vast amount of political information available.

The nature of the topic searched lessened the magnitude of difference among the results compared to past search engine studies. The 10% overlap among all three search engines (see Table 1) was over three times more than the commonalities found by Spink et al. (2006). The narrow focus of the study on the topic of presidential candidates paralleled Mowshowitz and Kawaguchi’s (2002) research in which they searched for a
The conclusion drawn by the researchers applied to the current study as well: the narrow subject matter seemed to decrease the differences in the URL and source results among the search engines, although variations did occur. The conclusion makes sense in searches related to political campaigns with only two high profile candidates as compared to broader searches for topics such as those utilized by Mowshowitz and Kawaguchi (2005), including Renaissance philosophies or adultery.

The candidate search term also influenced differences in the structural pattern of each engine. <Obama> queries demonstrated clear differences among each of the search engines, but <McCain> searches displayed clear differences only between Ask.com and the other two search engines for each category of source type (see Figures 3 & 4). Google and Ask.com generated different results no matter the candidate, but Yahoo! did not consistently differ from either search engine. Google searches for <Obama> differentiated themselves from the other search engines and from <McCain> searches since they changed little between any of the collection dates (see Figures 7 & 8).

In the other queries, the changes seemed to depend on the source type for both candidates. “E-Government” and “Candidate Controlled” sources were most stable and “Journalism,” “Advocacy,” and “Parapolitical” sources were most variable for the candidates, illustrating that the source, rather than simply the search engine algorithms, impacted the longitudinal change in search results (see Figures 7 & 8). Yahoo! again acted similarly to Google at times and Ask.com at other times, while the differences among Google and Ask.com were particularly clear throughout the campaign. Thus, structural elements did appear in the search results for the URLs and source types, but the
extent to which the structure emerged in the results depended on the candidate and source type.

To support Dahlgren’s (2005) framework, the structural patterns appearing in the URL and source results needed to lead to different representations of the candidates on Web pages generated by the various search engines. Overall, the structure did not have much influence on the representations of the candidates since nearly two-thirds of the Web pages generated by the search engines presented “Neutral” messages that emphasized biographical information, news stories, and the like. The “Neutral” representations never fell below 50% of the search results for any candidate.

An examination of the representation categories beyond “Neutral” messages did illuminate differences among the search engines and provided limited support for Dahlgren's (2005) framework. Google and Yahoo! were consistent in the relative percentages of representation types no matter the candidate. Both search engines generated mostly “Neutral” Web pages that advocated for neither candidate, followed by “Supporting” Web pages, “Anti-Candidate” Web pages, and, finally, “Unrelated” Web pages. Ask.com differed from the other two search engines since the representations of the candidates were not as consistent as the other engines. Ask.com did generate mostly “Neutral” Web pages, but <McCain> searches included almost one-third “Unrelated” Web pages, whereas <Obama> searches included only 1%.

Google and Ask.com showed a number of other differences. Just as Google favored “Campaign Controlled” Web pages, it also favored “Supporting” Web pages. Ask.com, on the other hand, generated very few “Campaign Controlled” Web pages and included only 5% (<Obama>) or 6% (<McCain>) “Supporting” Web pages in its results.
(see Figures 11 & 12). No matter whether <Obama> or <McCain> was utilized as a search term, the results of Google and Ask.com differed. The consistent difference between the two search engines strongly suggested that the algorithms, rather than simply the key term queried, impacted the sources and representations generated.

During the four collection dates over the course of the campaign, representations of <Obama> were more stable than <McCain>, at least in the top three results in which the representation of Obama did not change a single time. The “Supporting” messages consistently generated in the top three results by <Obama> searches reflected the traditional media coverage, which was less “Neutral” than the messages presented in the top twenty results for the candidates. While no “Anti-Candidate” messages appeared in the top three results for either candidate, <Obama> searches generated one or more “Supporting” Web page in the top three results during each search, whereas <McCain> searches, especially searches on Ask.com, at times generated no “Supporting” messages in the top three results (see Figures 13 & 14). In this sense, the search engines reflected the coverage on the traditional media (Winning the media, 2008), which discussed the Obama campaign in more supporting or positive messages than the McCain campaign.

Specifically, the most changes (with an average variation on all search engines of 6% for <Obama> searches and an average variation on all search engines of 9% for <McCain>) for the representations of the candidates occurred after the November 4, 2008 election (see Figures 15 & 16). No other variable illustrated such a strong percentage of change after the election, illustrating that the messages on Web pages may change more easily than the sources or URLs generated by various search engines. The percentage of “Supporting” Web pages decreased in many November searches in part because a
number of the Obama and McCain Web sites no longer encouraged Internet users to vote for a specific candidate. Instead, some of the Obama campaign controlled Web pages simply thanked supporters, and the McCain campaign home page presented the concession speech given by McCain on the night of the election. These instances were coded as “Neutral” because they no longer advocated for direct action by voters. The large increase in Web pages “Unrelated” to <McCain> also demonstrated a drastic change in the amount of attention Yahoo! and Ask.com results gave to John McCain, presidential candidate, rather than companies, individuals, and even entertainers such as Edwin McCain, that happen to include “McCain” in their names.

Even though the URL differences and source types illustrated few consistent patterns in variation during the fifteen week period of data collection, the representations of the candidates altered during the much shorter time frame between the last two collection dates. The finding further emphasized that the structure of search engines may limit the URLs and types of source that viewers can receive, but demonstrated that the content on the Web pages, and, therefore, the representation of information, can change despite consistency in structure. Even if the same types of source appear in every search, the representation of information can change when a Web page alters its message.

The results of the current study support Dahlgren (2005) to a limited extent. Clear differences in structure appeared over the course of the campaign, but the narrow topic searched, the candidate, and the situation (in the case of the representation of the candidates) influenced the results as well. Despite variables such as these, Google and Ask.com illustrated striking discrepancies and provided support for a structural-representational framework that differentiated the two search engines.
Do search engines act as Markets or Public Spheres?

The results of search engine queries for the 2008 presidential candidates did more than provide support that Dahlgren’s (2005) framework of structural and representational media features applies to search engines. The study also highlighted the extent to which Google, Yahoo!, and Ask.com acted as market-oriented information seeking services (see Goldman, 2008; Introna & Nissenbaum, 2000, etc.) or public sphere supporting softwares (see Keane, 2000, etc.). While some of the outcomes reflected an online public sphere, the results, on balance, portrayed a market-based search engine system.

Public Sphere Paradigm

A few of the study results indicated public sphere tendencies of search engines. “Advocacy” Web pages made respectable appearances in the results of both <Obama> (17%) and <McCain> (19%) (see Figures 3 & 4). The “Advocacy” sources varied from non-profit groups pushing for transparency in politics, including The Sunlight Foundation and Open Secrets, to blogs dedicated to airing the rumors and character flaws of politicians, such as “The Skeleton Closet” and “Brave New Films.” Such Web pages have the potential to provide information about various organizations, politicians, and fundraising that may not be available to the same extent in traditional media outlets.

“Neutral” representations of the candidates dominated the Web page results, making up more than 70% of the results for all candidates. It is possible for Internet users to get actual information about the candidates and the campaign through search engine queries without encouraging voters to support the candidate or comparing the candidate to the Anti-Christ – although Web sites, including “Stop Obama,” with advocating such information did appear. Voters have access to fairly unbiased campaign
information from various sources at their fingertips if they have the will to look for it. Howard (2006) and others argue that a digital democracy depends on political information in the creation of an informed citizenry. As such, access to information not readily available at all times through traditional media, including “Neutral” information about campaign events and “Advocacy” sources that fact-checked politicians and disclosed campaign financing, contribute to political discourse in a public sphere.

**Market Paradigm: Source Types**

Despite the few patterns suggesting that search engines function as digital public spheres, the study generally demonstrated that the market is a better descriptor of search engines. The source types and representation variables, in particular, presented evidence of the market-based attributes of search engines. Most notably, Dahlgren (2005) described the existence of civic forums, such as discussion boards or other online areas in which individuals can discuss their views openly with others, as one sector in the online public sphere. “Civic Forum” was not included as a coding category in the current study because none of the search results originated from a source that primarily focused on promoting discourse among citizens. Although comments sections abounded on Web pages ranging from digital newspaper articles to anti-candidate blogs, they do not provide enough interaction to warrant definition as a civic forum. Without such discourse-focused forums in the top twenty results of any search, the prospect appears dim that search engines alone can encourage online political discussion among individuals online.

One source category that comprised a small percentage of the results, “e-Journalism,” illustrated the difficulties new media outlets and political bloggers face in ranking highly on search engine results lists. The existence of new media news sources
would inject variety to the search engine results that were inclined to favor traditional media sources. Despite the myriad new media political sites available, ranging from Townhall to The Daily Kos, less than 10% of the total search results originated from “e-Journalism” sources and the appearance of such sources was among the most inconsistent during the campaign (see Figures 7 & 8). Possibly, the audience of each new media Web page was too small to draw the attention of search engine algorithms during every search. Since political blogs and Web pages unrelated to major news organizations often lean in an ideological direction, the target audience of the sites tends to be narrower than traditional media sources. According to the marketing paradigm, the ability of less prominent voices to rank highly in the search engine results decreases as fewer users recognize the source or find it relevant to their needs. The same principle could be at work in limiting the number of “Civic Forum” and “e-Journalism” sources since they reach out to a smaller market.

In comparison, traditional media, such as CNN and The New York Times, made up 18% of the results for <Obama> and 28% of the results for <McCain>. The combined total of “Journalism” sources, “Candidate Controlled” sources, and “e-Government” sources reached approximately 45% for <Obama> and <McCain> combined (see Figures 3 & 4). That is, nearly half of the results generated by the searches originated from typical political sources such as campaign, government, and traditional media outlets.

Even the prevalence of “Parapolitical” sources for <Obama> (23%) and <McCain> (18%) were slightly misleading. The category contained the promise of including various non-traditional outlets of political news in online discourse, but the high percentages had much to do with only one source: Wikipedia. The online
encyclopedia appeared in 16 (6%) searches for <Obama> and 22 (9%) searches for <McCain>, or a significant one-quarter and one-half, respectively, of the “Parapolitical” results. Wikipedia appeared approximately as many times as all of the “e-Government” sources combined.

The remaining “Parapolitical” sources generally provided biographical material about the candidates, or, in the case of <Obama> searches, de-bunked myths about Barack Obama’s religious background. Web pages such as Snopes.com, a site focused on urban legends, Who 2 Profiles, a site devoted to biographies of high-profile individuals, and Congresspedia, a Wiki site involving biographical and issue position data for the candidates, were generated by searches for both candidates. The “Parapolitical” sources with relevant political messages about Obama and McCain did introduce various voices into the online sphere that would likely be inaccessible elsewhere. The “new” discourse, however, was overshadowed by Wikipedia, particularly because of the Wikipedia’s prevalence in the top three results. As such, even though the percentages for each source type seem spread evenly among the different categories, a large percentage of the results come from traditional political sources and from a dominate information Web site rather than new third-party sources utilizing search engines to enter into public discourse on the Internet.

Market Paradigm: Top Three Results

Analysis of the top three results for the candidate searches throughout the campaign further supported the market-based paradigm. The top three search results for <Obama> illustrated that the search engine favored “Campaign Controlled” sources to an even greater extent than the top twenty results. Google searches for <McCain> also
yielded higher levels of “Campaign Controlled” sources than the top twenty results, with 42% of the Web pages originating from the campaign (see Figures 5 & 6). “Parapolitical” sources dominated the remaining percentages of the top three results and also provided support for the market paradigm. Of the “Parapolitical” sources (42%) generated by <Obama> searches, 30% originated from Wikipedia, and of the “Parapolitical” (47%) generated by <McCain> searches, 36% originated from Wikipedia.

Since Internet users often look no further than the top handful of search results (Lawrence & Giles, 1998), the most highly ranked results – Wikipedia and candidate Web pages in the 2008 election – hold an advantage in drawing search engine users to a page. The large percentage of overlap in searches for both candidates suggested that one of a number of situations is at work. The first possibility relates to what Hindman, et al. (2003) label “Googlearchy,” which claims that highly ranked Web sites gain more users who are then able link to them, encouraging a cycle which reinforces highly positioned Web sites and creates a rich-get-richer scenario. Sources like Wikipedia rank highly and, therefore, have a greater likelihood of gaining more links in the future than lowly ranked sources. Wikipedia often ranks highly in searches across various topic areas, including searches for political candidates, due to the copious links within the Web site to various articles, as noted by Arthur (2006) among others. For instance, Wikipedia pages interlink with the biographies of Obama and McCain and act as “votes” for the pages’ popularity. When the biographies rank highly, search engine users are more likely to view the Web pages, link to the pages themselves, and continue the cycle that keeps Wikipedia articles ranked highly. It is probable the Wikipedia results for <Obama> and <McCain> illustrated the continued existence of the “Googlearchy” trend.
Candidate Web pages most likely benefited from “Googlearchy” as well. Millions of individuals visited the official candidate Web sites of Obama and McCain over the course of the campaign. The home pages for both candidates were easily accessible through search engines since they ranked in the top three results of almost every search. Obama’s Web site had a much larger unique audience (7.9 million viewers) than McCain’s Web site (2.7 million viewers), which may help explain the consistent appearance of Obama’s site in the top search results during the campaign (Online prez, 2008). Drawing upon the notion of “Googlearchy,” Internet users often link to the most popular Web pages, Obama’s official home page in this instance. With as large an audience as Obama’s Web page attracted during the campaign, he should have garnered a substantial number of links to his Web page. Since the sources controlled by the Obama campaign were particularly stable in the top-results throughout the campaign, it is very likely the popularity of the Obama Web site helped the page remain highly ranked and fed the “Googlearchy” cycle.

**Market Paradigm: Google v. Ask.com**

The considerable differences in the results of Google and Ask.com provided the most solid support for the marketing paradigm. Google generated the largest percentages of “Campaign Controlled” results for both candidates (see Figures 3 & 4) and “Supporting” Web pages for both candidates (see Figures 11 & 12). The top three results on Google particularly favored the candidates, at the expense of alternative information sources. The highly ranked candidate messages were positive for the campaigns, which attempt to communicate directly with potential voters so as not to lose control of the message (Benoit & Benoit, 2000). Rather than providing an arena for new voices to enter
in online political voices, Google’s structure allowed controlled campaign messages to reach potential voters more easily than any other search engine.

The high percentages of “Campaign Controlled” and “Supporting” messages in Google results makes sense when providing for the possibility that the candidates engaged in search engine optimization (SEO). In general, SEO efforts attempt to make a Web page “accessible to search engines,” to “improve the chances” a site will be found, and to increase the ranking of a site (Sullivan, 2007). SEO often involves altering Web pages to highlight specific keywords on a site and increasing the hyperlinks between sites to cater to algorithms that prize high numbers of links (Greenberg, 2000; Hill, 2008). Google, the most popular Web search engine by market share, would be the ideal engine for campaigns to have in their sights when attempting SEO since highly ranked Web pages would have a particularly large audience for their messages. While no publicly available evidence proves that the candidates utilized SEO for their home pages, the attention to marketing detail on the sites, the millions of dollars spent on Internet marketing as a whole, and the consistent appearance of the URLs in the top results, suggested that some mix of SEO and “Googlearchy” influenced the search results.

From a marketing perspective, the ability of the marketers (e.g. the candidates) to reach consumers (e.g. voters) without the gatekeeping powers of the traditional media is a significant benefit. Google provided an outlet for the candidates to control their messages and connected voters directly with their potential political representatives in a manner unimaginable prior to the Internet. The candidate Web sites contained information potentially relevant to search engines users, particularly news releases, speeches, and ways to becoming involved in the campaigns. Knowledge gained by
reading the highly ranked “Campaign Controlled” Web pages could foster a better understanding of Obama and McCain, as well as their issue positions. On the other hand, the dominance of the candidates’ voices, as well as Wikipedia, threatened the existence of an open public sphere, at least in Google results. If an Internet user wanted to gain access to information about the campaign from a non-candidate source, that user would be able to find it, but would also have to look beyond the top three results or more to move away from information dominated by the campaigns and Wikipedia. Since users do not often take time to search beyond the top results, “Supporting” messages communicated by the campaigns became even more prominent in the Google search results.

While Yahoo! results sometimes paralleled Ask.com results and sometimes paralleled Google results, Ask.com consistently differed from Google. The URL differences between the two engines were particularly stable throughout the campaign, illustrating a longitudinal structural difference. Whereas Google provided the largest percentage of “Campaign Controlled” and “Supporting” messages, Ask.com generated the smallest percentage, approximately 6% or less of both categories for both candidates. Once again taking SEO into consideration, the campaigns have had little motivation to utilize resources and raise the search rankings on Ask.com because of the miniscule market share of the search engine.

Since Ask.com generated fewer “Campaign Controlled” sources than the other search engines, particularly Google, a variety of other source types were able to move into the top twenty results for each query. “E-Journalism” sources, for instance, appeared more often in Ask.com search results than Google search results for both candidates (see
Figures 3 & 4). Think Progress, a popular liberal-leaning political blog according to Technorati (Blog directory, 2009), appeared in none of the Google or Yahoo! results, but Ask.com generated the Web page in various searches for both candidates. The larger number of “e-Journalism” sources on Ask.com than Google showed that, as limited spaces in the top twenty results are filled by campaign sources, fewer new voices are able to reach the eyes and minds of voters.

Even as the number of political relevant voices varied on Ask.com, the search engine also yielded more “Unrelated” messages than either Google or Yahoo!. The name “McCain” is fairly common, but Google and Yahoo! generated few, if any, Web pages focused on an individual or organization other than the candidate John McCain. Ask.com, however, provided access to Web pages such as McCain Traffic Solutions, individual genealogy sites for McCain families, and information about Edwin McCain on VH1.com. Google and Yahoo! marginalized such Web pages to a large extent as they favored the more popular searches for the candidate, just as Goldman (2008) and Mowshowitz and Kawaguchi (2002) predicted would occur in a market-based search engine system.

Ask.com’s results, while more accepting of non-traditional political sources, still generated the largest percentage of “Commercial” results of any search engine due to the appearance of corporations with “McCain” in their company names, particularly McCain Foods, Ltd. (see Figure 4). Even the search engine that generated non-campaign related results provided support for a market-based paradigm due to the prevalence of corporate sources with an interest in increasing their search engine rankings. Were the name “Obama” more common for individuals and companies, it would not be surprising if the same pattern appeared in the Ask.com search engine results for <Obama> searches.
Since the “Unrelated” searches seem irrelevant to searches for the presidential candidate, they may hurt Ask.com in the marketplace as search engine users gravitate to the search engines that provide them with more “relevant” information. The diversity of sources generated by Ask.com illustrated one risk of search engines that provide a more complete portrait of the Internet than other engines: when the scope of a search engine begins to display more public sphere qualities, the number of unrelated or extraneous voices may increase with the number of politically relevant voices. Even as Ask.com generated messages from the new media political blog Think Progress, it also generated messages from VH1 that were completely unrelated to candidate John McCain. Either way, the Ask.com results generated a larger percentage of “Parapolitical,” “Unrelated,” and “Neutral” sources than Google, depicting a slightly more varied pool of Web page results, but also demonstrated the market-view of search engines due to the existence of a significant percentage of “Commercial” sources.

**Marketing Paradigm**

Searches for the candidates revealed that search engines provide a structure and a filter for the vast amount of information available at the fingertips of Internet users, much as Dahlgren (2005) argued. While the structural influence of individual search engine algorithms was impacted by the variable, the candidate, and the situation, clear differences did exist among the search engines, particularly between Google and Ask.com. The marketing paradigm also revealed itself in the top three results, which generated high percentages of “Campaign Controlled” Web pages, especially the candidate home pages, and “Parapolitical” Web pages, particularly Wikipedia, throughout the campaign. While a traditional partisan or ideological bias did not appear
in the search engine results for either candidate, the results suggested an inherent search engine bias that favors certain URLs, source types, and representations depending on the search engine used.

The search engines examined in the current study acted much like various television channels. The Web pages portrayed the candidates in a mostly neutral manner, but each “channel” represented the candidates differently in the magnitude of support provided by the various Web pages. Google operated as Fox News Network or MSNBC by presenting a range of neutral information, but providing more Web pages that explicitly supported or opposed a candidate than other search engines. Ask.com, on the other hand, acted as a network television station that presented a large amount of neutral information from a wide variety of sources, as well as a number of Web pages that had nothing to do with the political campaign at all.

Even though the search engine results originated from some non-traditional sources, the dominance of typical political sources, the lack of civic forums, and the extensive appearances of “Campaign Controlled” and “Supporting” messages signal a market-based navigational media with little potential of encouraging public sphere discourse – unless Internet users make the individual effort to look beyond the top results of any given search. Since the Internet is a pull media that relies on the individuals to take initiative and expose themselves to various information sources, citizens need to be encouraged to examine the multiple viewpoints present online rather than simply accepting the top three results of a Web search.

Users should also be aware of the discrepancies among the search engines, even if they explicitly seek the candidate Web pages most often found in the top three sources.
While Google may be the best engine to use if an information seeker wants to find a campaign related site, Ask.com or, potentially Yahoo!, may provide access to a different set of information for individuals looking to find the marginalized Web pages ignored by Google searches. It is also important to note the SEO abilities of campaigns, which gives them an advantage in ranking highly in searches. As long as Internet users search only on Google and focus solely on the top ranked results without thinking about how and why the Web sites got there, the potential for search engines to encourage an online political public sphere is limited.

**Limitations and Future Research**

Due to the exploratory nature of the current study, a number of limitations arose that recommend future research. The search terms chosen for research were supported with estimates from AdWords and other marketing tools, but the most often used key words cannot be proven at any given time. Researchers may look for alternate key words to demonstrate whether the findings of the present research apply to search engines more broadly. Other aspects of Internet use, including the day and time searchers query for information, change depending on the individual and, therefore, could not be taken into consideration in the current study. By following the guidelines provided by Lawrence and Giles (1998) concerning online searching, the research utilized as many conventions about Web search as possible. Altering variables such as day and time in the future can help determine the extent to which search results change depending on the time of day a term is queried.

The researcher approached this study as a preliminary exploration of search engines and presidential campaigns, and, thus, did not test for significance of difference
among the search engine results. Significance testing in the arena of online searching raises a number of problems. The different software utilized for each search engine requires researchers to question the assumption that each search engine is truly searching the entire World Wide Web. As a result, the search engines may not draw their results from the same population of Web sites. For the exploratory purposes of the current research, the simple percentage differences among the searches were intriguing and provide a foundation upon which other studies can build. Future research refining significance testing techniques for online studies will help clarify the differences and similarities among search engine results.

Communication scholars interested in politics and the Internet largely have conducted empirical research, which sometimes lacks a strong theoretical foundation. The current study sought to weave together empirical and theoretical approaches by emphasizing the relationship between the results and the structure, representation, and search engine paradigms related to the Internet. Future research should continue building theoretical backing in addition to describing the elements of candidate Web pages. Agenda setting and framing theories, for example, could be used as lenses through which to examine representations of the information provided by search engines. Creating a stronger theoretical basis for online communication studies will continue to strengthen our understanding of the intersection between the Internet, politics, and digital democracy.

Despite the limitations of the study, clear implications emerged regarding the impact of search engines on the information received by Internet users. The market-based paradigm of search engines was supported, as was Dahlgren’s (2005) claim that all media have a structural component. Search engines filter the vast amount of information
available online, but do so according to algorithms that favor different URLs and sources depending on the search engine. While the differences in the case of presidential campaigns were less than have been illustrated in previous studies, the research illustrated that the search engine chosen by a voter becomes a gatekeeper controlling the access to the open public sphere. Campaigns will maintain a level control over the representation of their issues and images as long as their Web pages enter the top three results of search engines. Search engine users, however, must learn to look deeper into search results and, at times, utilize programs other than Google to truly gain access to the broad expanse of online information at their fingertips.
REFERENCES


Fallows, D. (2005). *Search engine users: Internet searchers are confident, satisfied and trusting -- but they are also unaware and naive*. Pew Internet & American Life Project.


### APPENDIX A: SEARCH ENGINE INFORMATION

<table>
<thead>
<tr>
<th>Engine</th>
<th>Technology</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>PageRank</td>
<td>• 500 million variables&lt;br&gt;• 2 billion terms&lt;br&gt;• “considers the importance of each page that casts a vote, as votes from some pages are considered to have greater value, thus giving the linked page greater value.”</td>
<td>(Corporate information, 2008)</td>
</tr>
<tr>
<td>Yahoo!</td>
<td>Yahoo! Search Technology</td>
<td>• Document features: “text, title and description accuracy, source”&lt;br&gt;• Links&lt;br&gt;• “other unique document features”</td>
<td>(What is Yahoo! Search technology, 2008)</td>
</tr>
<tr>
<td>Ask.com</td>
<td>ExpertRank</td>
<td>• Does not emphasize the overall link popularity of a Web page&lt;br&gt;• Subject-specific popularity: “determine popularity among pages considered to be experts on the topic of your search”&lt;br&gt;• Topic clusters and expert sites</td>
<td>(Web search, 2008)</td>
</tr>
</tbody>
</table>
APPENDIX B: DEFINITION OF CODING CATEGORIES

Definitions for Source Type

<table>
<thead>
<tr>
<th>Source Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-Government</td>
<td>Web page where “government representatives interact with citizens” or “information about government … services is made available” (Dahlgren, 2005, p. 153). This includes any site with a .gov URL.</td>
</tr>
<tr>
<td>Example: Board of Elections, Congressional Home Pages</td>
<td></td>
</tr>
<tr>
<td>Campaign Controlled</td>
<td>Any Web page posted online by the presidential campaign or an official presidential campaign representative, as listed by the Pew Research Center (McCain vs. Obama, 2008):</td>
</tr>
<tr>
<td>List for Obama:</td>
<td>Official Campaign Site, Facebook, MySpace, YouTube, Flickr, Digg, Twitter, Eventful, LinkedIn, BlackPlanet</td>
</tr>
<tr>
<td>List for McCain:</td>
<td>Official Campaign Site, Facebook, MySpace, YouTube, LinkedIn, Digg, Flickr</td>
</tr>
<tr>
<td>Journalism</td>
<td>Web page “includes everything from major news organizations that have gone online” (Dahlgren, 2005, p. 153). It includes any journalistic material originating from media primarily in print or broadcast form.</td>
</tr>
<tr>
<td>e-Journalism</td>
<td>Web pages originating from online new media sources, political Web sites and political blogs that have no original offline presence. The source can be ideological in nature, but should not be formed by an identifiable advocacy group that focuses on a specific issue.</td>
</tr>
<tr>
<td>Examples: RealClearPolitics, Politico</td>
<td></td>
</tr>
<tr>
<td>Advocacy</td>
<td>Web pages where “discussion is framed by organizations with generally shared perceptions, values, and goals – and geared for forms of political intervention” (Dahlgren, 2005, p. 153). It includes Web pages maintained by partisan and nonpartisan organizations that support a specific issue/s.</td>
</tr>
<tr>
<td>Examples: AFL-CIO, Project Vote Smart, Brave New Films</td>
<td></td>
</tr>
<tr>
<td>Parapolitical</td>
<td>Web page that “airs social and cultural topics having to do with common interests and/or collective identities. Here politics is not explicit but always remains a potential” (Dahlgren, 2005, p. 153). It includes sources that generally do not deal with political news or information, but provide a space where political information could potentially occur.</td>
</tr>
<tr>
<td>Examples: TMZ, PerezHilton, Wikipedia, Snopes.com</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>Web page maintained by a for-profit company (not including media organizations) selling a product or service.</td>
</tr>
<tr>
<td>Examples: McCain Foods Limited, McCain Traffic Solutions, Cafe Press</td>
<td></td>
</tr>
</tbody>
</table>
### Definitions for Representation of Candidates

<table>
<thead>
<tr>
<th>Representation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Candidate</td>
<td>Message/s on the Web page encourage readers to take action in support of a candidate such as voting, volunteering, donating, ‘friending,’ joining candidate community, purchasing merchandise for a specific candidate. Even if there is some neutral information on the Web page, as long as the text contains words/phrases encouraging support for the candidate, it should be coded as “Supporting.”</td>
</tr>
<tr>
<td></td>
<td><strong>Examples:</strong> Obama &amp; McCain Official Web sites</td>
</tr>
<tr>
<td>Anti-Candidate</td>
<td>Message/s on the Web page actively discourage readers from supporting a candidate, specifically by not voting for the candidate, by encouraging readers to take action that criticizes or opposes the candidate, or by explicitly attacking the candidate’s character. The Web page may use terms such as ‘stop,’ ‘anti,’ ‘against,’ ‘dangerous,’ or state a goal to expose the ‘real’ candidate’s secrets or ‘skeletons.’</td>
</tr>
<tr>
<td></td>
<td>The category does NOT include Web pages that may provide negative messages and then refute them or messages that include potentially damaging information, but are reporting facts rather than passing judgment.</td>
</tr>
<tr>
<td></td>
<td><strong>Examples:</strong> Vietnam Veterans Against John McCain, Stop Obama</td>
</tr>
<tr>
<td>Neutral</td>
<td>If the Web pages do not explicitly encourage readers to support/oppose a candidate, the Web page is considered “Neutral”. Some of the information on the Web page could be considered positive/negative, but the messages do not explicitly tell readers to support or oppose a candidate.</td>
</tr>
<tr>
<td></td>
<td><strong>Examples:</strong> Wikipedia biography pages, Washington Post articles</td>
</tr>
<tr>
<td>Unrelated</td>
<td>Message/s on Web page do not mention the candidates by name.</td>
</tr>
<tr>
<td></td>
<td><strong>Examples:</strong> McCain traffic Solutions, Wikipedia entry for Obama, Japan</td>
</tr>
</tbody>
</table>
APPENDIX C: DIRECTIONS FOR CODERS

Directions for Source Coding

1. First, look at the URL and the names of sources provided, follow the coding decision tree to categorize the source, and look at the provided lists for candidate controlled Web pages (see definitions) and political blogs (see below).

Top Fifteen Technorati Political Blogs (Blog directory, 2009)

<table>
<thead>
<tr>
<th>1. DailyKos</th>
<th>9. Mother Jones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Think Progress</td>
<td>10. Crooks and Liars</td>
</tr>
<tr>
<td>4. The Corner</td>
<td>12. Power Line</td>
</tr>
<tr>
<td>5. Pajamas Media</td>
<td>13. RedState</td>
</tr>
<tr>
<td>7. Asylum</td>
<td>15. Matthew Yglesias</td>
</tr>
<tr>
<td>8. Hot Air</td>
<td></td>
</tr>
</tbody>
</table>

2. If a source is unfamiliar to you, does not have a .gov, and is not provided on either of the lists provided, then look at the Web page snapshot I provided of that source.

3. If it is still unclear, look up the source online and read the ‘about’ page (if provided).

4. With the additional information about the source, follow the coding decision tree again Please note in the “Notes” column those sources that you had to look up to find more information.

5. Remember to look at the detailed definitions of each source type if you have any questions.

Directions for Representation Coding

1. Open the files provided in Paint and analyze only what is on the first two full screens – that is scroll down one full screen and analyze the messages only on the first two screens.

2. Analyze ONLY main text, text superimposed on images, captions, and links – DO NOT analyze the images/videos themselves, comments sections, advertisements, bibliographies, and sections labeled “see also,” “also read,” “popular,” etc.

3. Categorize each Web page into one of the following categories: Supporting, Anti-Candidate, Neutral, or Unrelated.

4. Remember to look at the definitions if you have any questions.
Decision Tree for Source Types

Is the URL a .gov?
  Yes → e-Government: enter "1"
  No →

Is the source on the Obama or McCain Website list?
  Yes → Campaign Controlled: enter "2"
  No →

Is the source a media organization or does the source publish political news?
  Yes → Is the source a traditional media organization (began in print or broadcast)?
    Yes → Is the source a blog on the traditional media site?
      Yes → e-Journalism: enter "5"
      No → Journalism: enter "3"
    No → Is the source on the Technorati Political Blog Directory?
      Yes → e-Journalism: enter "6"
      No →

Does the source focus on political information?
  Yes →
  No →

Is the Web page created by an identifiable nonprofit or activist organization/group focused on a specific cause or interest area?
  Yes → Advocacy: enter "8"
  No →

Does the source focus on social/political topics that may include politics, but does not always?
  Yes →
  No →

Is the source a for-profit organization or corporation?
  Yes → Commercial: enter "8"
  No →
ASHLEY MUDDIMAN ACADEMIC VITA

EDUCATION:

Master of Arts in Communication, Wake Forest University

Expected Date of Graduation: May 2009
GPA: 4.00/4.00

Thesis: Searching for the president: Analysis of search engine results from the 2008 presidential election, Advised by Dr. Allan Louden

Bachelor of Arts, Miami University, Oxford, Ohio

Date of Graduation: May 2007
Summa Cum Laude, Honors with Distinction, Phi Kappa Beta

Major: Strategic Communication
Minor: Marketing
Overall GPA: 3.98/4.00
Major GPA: 4.00/4.00

ACADEMIC PUBLICATIONS AND PRESENTATIONS:


Muddiman, A. (2007). Harry Potter and the public relations phenomenon. Manuscript presented to the annual meeting of the National Communication Association held in Chicago, IL.

Muddiman, A. (2007). Muhammad cartoons: Collision of comic and tragic worldviews. Manuscript presented to the annual meeting of the National Communication Association held in Chicago, IL.


ACADEMIC MEMBERSHIPS:

Jan. 2007 – Present  *Eastern Communication Association*, Student Member
Aug. 2007 – Present  *National Communication Association*, Student Member

COLLEGE-LEVEL TEACHING EXPERIENCE:

Aug. 2008 – May 2009  *Head Teaching Assistant*, Public Speaking, Wake Forest University

- Assisted head instructor Dr. Dee Oseroff-Varnell in changing course syllabus and creating new class exercises
- Acted as liaison between Public Speaking T.A.s and head instructor

Aug. 2007 – May 2009  *Teaching Assistant*, Public Speaking, Wake Forest University

- Independently taught two break-out sections of undergraduate students enrolled in an introductory public speaking course
- Worked closely with three professors and three additional graduate assistants to instruct and grade undergraduate students

Sept. 2007 – May 2009  *Tutor*, Student Athletic Services, Wake Forest University

- Tutored undergraduate students in: introductory communication theory, presidential rhetoric courses, history of mass communication, film history, and communication research methods
- Acted as liaison between tutored students, instructors, and counselors to help students stay abreast of course work
*Undergraduate T.A.*, Introduction to Speech Communication, Miami University

- Worked closely with professor Dr. Ann Frymier and other assistants to plan activities and discussions for class of 180 students
- Managed online discussion board assignments

SERVICE AND EXTRACURRICULAR ACTIVITIES:

Feb. 2009
*Juicy Ethics Organizer*, Juicy Ethics Symposium, Wake Forest University

- Assisting in organization of symposium encouraging undergraduates to discuss the ethical perspectives of Web sites such as Juicy Campus
- Created logo and call for entries

*Department of Communication Graduate Student Representative*, Honor Code Panel, Wake Forest University

- Representative on panel that hears cases of student honor code violations

*Forensics*, Miami University

- Participated in individual Forensics events including Persuasive Speaking, Rhetorical Criticism, and Poetry
- Placed in state forensics tournament and qualified for national tournament

*Miami University Scholar Leader Program*, Miami University

- Planned community service and learning trip to Toronto
- Chosen as one of 50 students to live in the community

April 2005 – May 2007
*Lights on Campus Leadership Board*, Miami University

- Served with approximately ten other students on leadership board
- Strengthen leadership skills by planning service and social programs

*University Honors Program*, Miami University
PROFESSIONAL EXPERIENCE:

Sept. 2008 – May 2009
Communications Intern, Information Systems, Wake Forest University

- Created communication campaign plan to educate students about secure computing practices
- Implemented campus wide announcements, Coffee Chat with administrative assistants, and text posted on Information Systems Web site

June 2008 – July 2008
Mentor, Benjamin Franklin Transatlantic Fellows Initiative, U.S. State Department Summer Youth Program at Wake Forest University

- Mentored international high school students in academic courses, State Department Darfur simulation and model parliamentary session
- Communication contact for picnic involving students, host families, and staff
- Created invitation to the Summit Picnic using Adobe Photoshop, as well as programs for the Farewell Banquet and Talent Show using MS Publisher

Laws, Hall & Associates, London Advertising Program, Miami University

- Created prize-winning franchise marketing toolbox plan for Burger King, U.K.
- Collaborated with a 20 person team of marketing, communication, and graphic design majors
- Designed, shot, and edited a sales pitch to franchise owners

Strategic Communication Practicum, Air Force ROTC, Miami University

- Created PR plan for the Miami University Air Force ROTC with team of senior strategic communication majors
- Conducted a convenience survey and analyzed data using SPSS

Tour Guide, Office of Admissions, Miami University

- Strengthened interpersonal communications through interactions with prospective students and families
- Utilized public relation skills by giving informational tours of the campus

**Student Worker** (Aug. 2004 – Feb. 2005), King Library Circulation, Miami University
**Supervisor** (Feb. 2005 – May 2007), King Library Circulation, Miami University

- Involved in interpersonal communications with patrons
- Carried out tasks that kept the library operating smoothly

Aug. 2004 – July 2005

**Public Relations Student Society of America**, Miami University Chapter

- Published article in chapter newsletter about technology public relations
- Created an online member directory for the Miami University Chapter
- Gained skills needed for careers in communications and public relations

**HONORS:**

April 2009  
*Top Student Paper Panel*, Rhetoric and Public Address Division, Eastern Communication Association

April 2009  
*Runner-up Social Sciences Category*, Graduate School of Arts and Sciences Research Day Poster Presentation, Wake Forest University

*Cultural Crossroads*, Juried Gallery Showing, Associated Artists of Winston Salem

April 2006 – Present  
*Phi Kappa Beta*, Miami University Chapter

*Lambda Pi Eta*, Honorary Communication Fraternity, Miami University

*National Society of Collegiate Scholars*, Miami University

May 2007  
*Inklings*, Painting published in literary magazine, Miami University

Jan. 2006  
*Inklings*, Painting published in literary magazine, Miami University

Nov. 2004  
*Outstanding Speaker*, Miami University