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Presidential Web Sites as Sources of Information:

The Next Knowledge Gap in the Making?

Abstract

Scholars recognize that knowledge represents power, particularly in a participatory democracy. In modern society, the Internet offers a unique opportunity for candidates to interact with the citizenry, potentially increasing the transfer of political knowledge. This study examines the Web sites of three top candidates in the 1996 Republican primary to gauge their channel effectiveness -- the degree to which candidates take advantage of the medium's unique capacity for immediacy, interactivity, sourcing and multimedia.

Attention is devoted to how effective communication on the Web might promote a knowledge gap between those who have access to the Internet and those who do not.

[Presidential Web Sites As Sources of Information: The Next Knowledge Gap in the Making?]

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"My sources are unreliable, but their information is fascinating."

--Ashleigh Brilliant

That knowledge is a form of potential power for individuals and an influence on the division of power in society has long been recognized by philosophers and statesmen. Aristotle was said to have claimed that those with knowledge differ from those without "as much as the living from the dead" (Laertius 1942 ed.). This is distinctly true in a participatory democracy, where the citizens' knowledge of politics and politicians plays a crucial part in determining the course of a nation's government. Those who possess knowledge about their politicians tend to adopt a more active role in determining which of those politicians shall govern and which shall be governed (Rosen & Merritt 1994).

In modern society, the Internet offers a unique opening for political candidates to interact with the citizenry, potentially increasing the political knowledge of those who take advantage of this opportunity. Ideally, such a situation creates a more enlightened electorate before which "tyranny and oppressions of body and mind will vanish like evil spirits at the dawn of the day" (Jefferson 1899a ed.). Perhaps the most salient ground for this interaction lies on Web sites operated by the various candidates where an electronic form of old-fashioned retail politics may be practiced, in theory, if not in fact: candidates speaking directly to voters, voters responding to leaders, all without interpolation by other agents of media. However, this presumes that universal access is inherent to such communication. In fact, even in the United States only 13 percent of the population has access to the

online environment (Nielsen Media Research 1995). Moreover, the U.S. Internet population differs systematically in its demographic and psychographic profile from that of the nation as a whole, being significantly more homogenous in terms of race, education, occupation, gender, age and income (Pitkow & Kehoe 1995).

Researchers have noted that different groups in society acquire, retain and employ knowledge at different rates and with varying effectiveness. This gap between the "information rich" and the "information poor" is and has been a real problem (Price & Zaller 1990). But that political Web sites should contribute to such a divide might not be so obvious. Indeed, some journalists have argued that politicians' use of new media constitutes little more than glitzy advertisement with little or no information content (Beckel 1996). On the other hand, the Web has been cited as a great potential venue for political discourse, potentially eclipsing all other media (Gates 1996). It is of importance for communications researchers a) to ask how can the web's characteristics as a medium fit into and expand traditional conceptions of mass and interpersonal communication in politics, b) to assess the types, quantity, quality and accessibility of information available on the WWW, and c) project the future development and impact of political communication on the Web. This study is a first step toward such a research program. We examine the Web sites of three top candidates -- Bob Dole, Patrick Buchanan, and Steve Forbes -- in the 1996 Republican presidential primary in an effort to gauge the existence, abundance, form, and persuasive ability of their information. Many aspects of the web sites, including their accuracy, content, and quality of the message themselves, can be studied. However, we argue that a first step is to evaluate the channel effectiveness -- the degree to which

candidates take advantage of the new medium's unique capabilities such as immediacy, interactivity, sourcing and multimedia. To this end we analyzed information at these sites, more than 1,600 printed pages of data, employing an instrument that attempts to measure channel effectiveness within the framework of traditional mass communication research. We also speculate on the latent meanings inherent in Web political discourse and its possible effects on the electorate, the democratic process and media representation of politics.

Literature Review

Knowledge -- as opposed to purely wealth and birth in the countries of the old world -- has been considered one of the key elements of social and political mobility in the United States (Watkinson 1990). Jefferson argued that no nation can expect to be both "ignorant and free" (Jefferson 1899b ed.), a sentiment echoed by James Madison who noted that "liberty and learning" support each other like marble columns--if one were to fall, so would the other (Madison 1910 ed.). Thus, the acquisition of knowledge is not merely a pastime nor an outlet for excess energy, but rather essential to the continued existence of a free society. It follows that, while all areas of knowledge may have some relevance and importance to groups or individuals, political knowledge is the keystone to participation in the democratic process and to mobility within the social system.

Despite the crucial need for information in a democratic society, certain groups perennially lack knowledge of important social and political issues (Hyman & Sheatsley 1947). If information is indeed power, then differences in knowledge contribute to the power of the elites over the majority (Moore & Tumin 1949). Discrepancies in the quantity and quality of knowledge held by groups might perpetuate differences in power within a society

(Donohue, Olien & Tichenor 1987; Olien, Donohue & Tichenor 1983). Such differential absorption of knowledge has profound political implications in nations, like the United States, that profess universal suffrage. Within communication studies, the strongest model for noting and predicting social differences in knowledge acquisition and retention is the knowledge gap hypothesis of Tichenor, Donohue & Olien (1970). As originally conceived, the theory posits that:

As the infusion of mass media information into a social system increases, segments of the population with higher socioeconomic status tend to acquire the information at a faster rate than the lower status segments, so that the gap between these segments tends to increase rather than decrease (Tichenor, Donohue & Olien 1970:159-160).

In a recent review of 25 years of research on the knowledge gap hypothesis, Finnegan and Viswanath noted that one of the theory's foremost strengths is that it "predicts the impact of information flow on knowledge equalization" (1995: 218).

The effects of information flow should be measurable and may occur even when knowledge equalization is the goal of information diffusion. One celebrated example of such a paradoxical knowledge gap involves the program "Sesame Street," which had been targeted at children of lower economic status in an effort to raise their educational level. The program was later found to unintentionally accelerate the learning of higher status children, whose home environments were more conducive to absorbing, retaining and applying the new knowledge (Ball & Bognatz 1970; Katzman 1974). Some researchers believe this problem illustrates that higher SES groups utilize more cultural and economic resources to aid in assimilating new knowledge (Price & Zaller 1993; Gaziano

1984; Hyman, Wright & Reed 1975).

Since its inception, the knowledge gap hypothesis has undergone many refinements and extensions (see Gaziano 1983; Viswanath & Finnegan 1995), expanding from its original application in the analysis of newspaper readership rates to use in examining any communication situation where individuals collect information. Rather than a unilateral hypothesis, knowledge gap is a "scientific research program" (cf. Latakos 1968, 1970) that is a "contribution to the understanding and explanation of society" (Viswanath & Finnegan 1995: 218). It can thus be applied to new learning situations, new knowledge campaigns and novel technologies -- such as the World Wide Web.

Many factors have been suggested as moderating, affecting or intervening with differential rates of knowledge acquisition. These include the social structure of a community, the geographic limits of a community, the geographic limits of an issue, the impact of an issue on a community and the flow of information--how much and how often information appears within a community (Donohue, Tichenor & Olien 1975). One study (Delli Carpini, et al. 1994) found that citizens of Northern Virginia tended to be more informed about national issues, but less informed about state issues than residents of Richmond. The study suggested that differences were probably due to location--the former group proximate to Washington, D.C. and the latter residing in the state capital.

The relevance of an issue and the motivations of groups have also been suggested as interpolating knowledge gap rates (Ettema & Kline 1977). Specifically, lower SES groups do not have the interest or perceived need to acquire certain types of knowledge (see also Pan 1990; Tichenor, Donohue & Olien 1980; Wade & Schramm 1969). Research also suggests that a community's

"boundedness" -- not merely geographical, but also social, racial, religious or ethnic -- may affect the presence and degree of a knowledge gap (Webber 1963). For example, the knowledge gap between African Americans and other citizens is relatively narrow on the issues of civil rights and crime, despite the former group's generally lower SES (Viswanath, Kosicki, et al. 1993). The researchers suggested that these issues have greater immediate relevance to the African American community.

Motivation of the receiver has been noted as a possible intervening variable in knowledge acquisition (Ettema & Kline 1977; Ettema et al., 1983). Indeed, idiosyncratic characteristics of audiences and individuals can ameliorate the knowledge gap (Sears & Freedman 1967; Dervin 1980). Furthermore, certain types of knowledge in certain contexts may encounter a "ceiling effect" whereby the have-nots can catch up with haves (Ettema & Kline 1977). Other researchers persist in arguing against wholly individual level explanations for knowledge gaps and instead continue to cite differential SES status as the major determinant in most situations (Gady & El Waylly 1985; Viswanath 1990).

Studies have explored relationships between the structure of a knowledge gap and the type of information being disseminated, the complexity of that information and the channel employed for its transmission (Gaziano 1983; Viswanath & Finnegan 1994). For example, topic-oriented studies have examined the presence or diffusion of information on public affairs (Robinson & Levy 1986), the environment (Donohue et al. 1975), health (Viswanath 1990; Viswanath, Finnegan & Kahn 1993; Zandpour & Fellow 1992), and agricultural innovation (Hornik 1989). The complexity of information has been found to be a significant factor in differential rates of diffusion. That is, gaps in

awareness of simple knowledge (Viswanath et al. 1994) have been found to be smaller than gaps in complex data (Galloway 1977; Viswanath et al. 1994; Gaziano 1984) between low and high SES groups.

In addition, studies have examined the effect on knowledge gaps relative to the type of medium employed for information transmission, including print media (McLoed & Pearse 1994, Price & Zaller 1993), television (Galloway 1977, Simmons and Garda 1982), and interpersonal discussion (Donohue et al. 1975; Griffin 1990; Hornik 1989). Several studies have also compared television-derived knowledge to that acquired through newspapers (McLoed & Pearse 1994, Lang & Lang 1984). Channel processing research has not produced a clear set of effects, but the absorption of information seems to be equally governed by SES status of the receivers and the level of exposure to the information (Robinson 1972). For example, higher SES groups seem to use newspaper derives knowledge for making citizenship decisions like voting more than lower SES groups (Loges & Ball-Rokeach 1993).

New media types present a challenge for researchers exploring knowledge gaps in contemporary society. Some have seen cable television, videotext, and computers as agents of equalization, closing gaps between the haves and the have-nots (Compaine 1986; Parker & Dunn 1972). However, such optimistic views are premised on such technology being both universally accessible and of interest to all groups. By contrast, it is precisely the higher SES haves who are more likely to have the means and the interest required to adopt and employ new technology (Berg 1984; Ettema 1984; Finnegan, Viswanath& Loken 1988; Rogers 1976; Scherer 1989; Tomita, 1989).

Data available from the U.S. Census Bureau confirm unequal access to technology among the citizenry. The statistics show that, while 9.6 percent

of white Americans had access to a computer in 1983, only 4.4 percent of African Americans and 4.1 percent of Hispanic Americans had access to the machines.

Those numbers narrowed a few percentage points during the next decade as computer technology began to spread among all groups, but the technology gap remained conspicuous (See Figure 1). One can assume that minorities continue to lag behind whites in their access to computer equipment.

Even more striking is the disparate presence of whites and most minorities on the Internet. A 1995 survey of Internet users reported that nearly 86 percent of U.S. Internet respondents were white, while only 1.84 percent were Hispanic and 1.47 percent were African American (Pitkow & Kehoe 1995). These results clearly do not reflect the racial make-up of the United States as a whole (See Figure 2). The study showed similar disparities with regard to gender (67.5 percent male), age ($M = 32.7$) and income ($M = \$63,000$). Moreover, few members of traditionally blue collar occupations were found to use the Internet. Not surprisingly, four traditionally white collar job categories constitute approximately 90 percent of the Internet population: computers (29.1), educational (30.9), professional (19.9) and management (10.2). We believe it is no coincidence that these also comprise the upper SES groups noted in the knowledge gap hypothesis.

The Internet, particularly the World Wide Web, thus serves as a new focus for debate about the dissemination of information in a democratic society as well as the nature of future knowledge gaps. The Web undoubtedly has the potential to act as a source of information for political decision-making, but one wonders whether that potential is being realized. In short, do the Web sites of political candidates offer real information, or are they simply virtual burlesque-- a hollow imitation of political intelligence? This is especially of concern, in light of findings that show that the Internet population differs markedly from the U.S. population as a whole. Thus, as the title of our paper suggests, we ask whether this represents a knowledge gap in the making.

Before any such conclusion can be made, one must analyze in depth the types of political information available on the Net. We argue that, before an Internet knowledge gap can be determined, researchers must examine the channel itself in order to assess its capacity for transmitting information that would contribute to such a gap. Obvious loci to begin such a project would be the sites of the candidates themselves. Accordingly, our instrument taps into two basic concerns of the knowledge gap program of research, relevance and complexity, in order to examine candidate Web sites. We assess these issues through an instrument that outlines ten categories of channel effectiveness: 1) timeliness, 2) proximity, 3) prominence, 4) source diversity, 5) message diversity, 6) presentation diversity, 7) volume, 8) accessibility, 9) image consistency and 10) issue consistency. Timeliness, proximity, prominence, source diversity and message diversity tap into the issue of relevance, while presentation diversity, volume, accessibility, image consistency and issue consistency address the issue of complexity.

Methodology

If one wants to study U.S. politics on the Web there are many sites that profess to offer information (Mann 1995). However, perhaps the most obvious sources of information on political candidates are the sites of the candidates themselves. Ideally containing the full text of speeches, press releases, issue stances and the like, these serve as the primary sources on the Net, as opposed to sites that offer secondary analysis of this data. Thus, in preparation for this study the researchers visited the "official" home pages of all Presidential candidates. One can find lists of such sites in a variety of places on the Internet; however, we selected those pages listed as official by the Yahoo! subject-oriented Web index (Yahoo 1996).

Although it would be worthwhile to perform an in-depth investigation of the Web sites of all political candidates, the volume of the data and the exploratory nature of this study made it more practical to limit the number of sites examined. Given the amount of public attention devoted to the Republican candidates and the relative importance of those candidates in a two-party system, we determined to limit our analysis to these candidates. The information contained on Web sites is not fixed. It can change on a weekly, daily or even hourly basis. Accordingly, this study examined sites over time in order to gauge the flux and consistency of information. Sites were visited repeatedly during a period from February 24 to March 12 inclusive. Visits occurred at randomly selected dates and times, with no more than a five day gap between visits. During the course of this study the Republican field narrowed to three major candidates-- Bob Dole, Patrick Buchanan and Steve Forbes. These constituted the purposive sample for this investigation. Final coding occurred on March 12, the day Forbes withdrew from the race, beginning at 5 p.m.

Two primary coders examined each site using the Netscape Navigator 2.0 Web browser over a 56 K per second Internet connection. Netscape is one of many programs available for browsing the World Wide Web; however, it has several distinct advantages for those conducting Internet research. An estimated 82.5 percent of those on the Internet currently use Netscape to view Web documents (Jennings Communications 1995). The second most popular browser, Mosaic, claims only 3.1 percent of the market. Netscape also possesses the ability to handle certain document features, known as "Netscape extensions," and computer applications, called "plug-ins," that other browsers have been slow to adopt (Netscape Communications 1995).

The coders appraised and printed hard copies of every document in every section or "room" at each site; in other words, this study evaluates all data contained at each site, not merely a sample of that data. While variations among equipment and software make it difficult to render a precise estimate of the volume of data examined, one can roughly compare one site to another simply by counting the number of printed 8 1/2 by 11 inch pages. Sites were found to grow in volume rather than change indiscriminately, as older data were archived and retained for public inspection. Final analysis involved 1,575 pages divided among the candidates as follows: Dole, 469; Buchanan, 974; and Forbes, 236.

The study employs an instrument designed to gauge channel effectiveness -- the degree to which candidates take advantage of the new medium's unique capabilities, such as immediacy, interactivity, sourcing and multimedia. To this end we have created an instrument that measures 10 categories of channel effectiveness: 1) timeliness, 2) proximity, 3) prominence, 4) source diversity, 5) message diversity, 6) presentation

diversity, 7) volume, 8) accessibility, 9) image consistency and 10) issue consistency. Using the Spearman-Brown Prophecy Formula, intercoder reliability achieved a score of near 100 percent in categories based upon purely objective data.[1]_ However, in the areas of image consistency and issue consistency some decrease in reliability was noted. In the former category, the formula yielded a reliability coefficient of 0.953. In the latter, the formula yielded a coefficient of 0.958. The high level of inter-coder agreement was due to the existence of overwhelmingly dominant themes permeating each site. One assumes that reliability would drop off in the event coders attempted to include secondary themes.

Relevance

Timeliness refers to the perceivable gap between the moment a user views a message or document and the time when that message was last updated. Most basic media writing texts recognize that recent information possesses greater news value than dated information (Brooks, et al. 1995; Mencher 1996). We can therefore assume that timely information will generally be more relevant than dated information.

This study assessed timeliness on several fronts. Coders examined each site for an "update notice," a note on the front page of the document indicating when the site was last updated. If no notice was found, they looked through the site to verify when the site was last updated by locating dated material. A score of 1-10 was given for each site, with a 10 for sites that had been updated on the same day the coders visited that site and a 0 for sites that had never been updated. Coders also assessed the frequency with which dated items such as press releases were updated. Ten dates were selected at random from January 1, 1996 to March 12, 1996. The

coders examined each room in the site looking for material bearing that date. "Hits" were recorded, resulting in a score of 0-10, which was averaged with the overall site update to generate a timeliness score.

Journalists and end users also place greater value upon information that is geographically proximate to them (Brooks, et al. 1995; Mencher 1996). As a British press lord once said, "One Englishman is a story. Ten Frenchmen is a story. One hundred Germans is a story. And nothing ever happens in Chile" (in Romano 1986). Geographic proximity remains important on the Internet. However, the interactive nature of the new medium provides a new kind of virtual proximity, a feeling that the person or persons communicating with you are somehow near.

This study gauged the geographic proximity by examining the amount of information aimed at audiences in individual states and voting provinces. Given the nature of the election, good sites have specific areas devoted to state-level information. Coders looked for a geographic-specific room at each site and measured the largest such room in terms of how many states and voting provinces were addressed. A score of 0-10 was given, with a 10 referring to a site that covered all states and voting provinces and a 1 referring to a site that had only one state in a geographic-specific room.

Virtual proximity is measured by an examination of personal/interactive devices. For example, sites that offer electronic discussion groups or e-mail forms were determined to possess greater virtual proximity than sites lacking such community-oriented tools. Coders looked for 10 specific tools on each site, giving one point for each tool found. The resulting count of 0-10 was averaged with the geographic score in order to represent overall proximity.

Media professionals generally recognize that prominent people and organizations have greater news value than others (Brooks, et al. 1995; Mencher 1995). It follows that the more prominent someone is, the more relevant their message will be to end users. To measure the prominence of a site, we examined those whose endorsements appeared on a candidate's site. "Household names," what might in legal terms be called general purpose public figures (Associated Press 1994) such as Mel Gibson and Barry Goldwater were deemed Rank #1 endorsements. Regionally or nationally prominent individuals/groups who did not attain Rank #1, such as most governors or U.S. senators, were labeled Rank #2. All other endorsements were placed in Rank #3.

Our instrument assigned a score to that site based upon the number of endorsements received in each category, with Rank #1 endorsements receiving the 10 points, Rank #2 getting 5 points and Rank #3 endorsements receiving 1 point each. The resulting scores were added and divided by 10. Scores were limited to a maximum of 10, resulting in a 0-10 point scale.

Journalists also recognize that information is more believable if it comes from more than one source. A greater diversity of sources produces a "replication effect" that increases the amount of information retained (Jamieson 1992). We examined each site for information from 10 different source types: news articles, think tanks/academics, government publications or organizations, press releases, speeches, op-ed pieces/editorial cartoons, politicians, social figures (movie stars, sports figures, etc.), groups/organizations and unclassified individuals. A source could be either a group/person cited in a press release or a link to another Web site. A site received one point for each source type represented, resulting in an overall score of 0-10.

A diversity of messages types also increases the likelihood that end users will deem information relevant. Candidates need to do more than simply present a one-dimensional image of themselves. For example, they need to discuss the issues, provide personal and professional information, talk about their political philosophy, and let people know what's happening in their campaign.

We examined each site for a ten message types: candidate personal information, candidate professional information, candidate financial information, party information, site information, issue information, a philosophical statement, a calendar/schedule, symbolic information and "other" information. A site received one point for each message type represented, resulting in a score of 0-10.

Complexity

Communication scholars have long recognized that information with a strong visual component tends to gain and hold one's attention. Media design specialists recognize this and attempt to achieve a proper mix of textual and graphical components. Where appropriate, they also include audio and video. A design that balances text and graphical images helps the end user mediate information complexity. The Internet is capable of handling text, graphics, photos, audio and video. Therefore, an effective Web site should provide a blend of these elements to better convey information.

We conducted a preliminary evaluation of graphical elements on political Web sites with two coders. After reviewing all available candidate Web sites, the coders concluded that two graphics per room appeared to be the most effective. This usually consisted of a graphical lede element and a iconographic menu bar at the base of the document. In a pending study, the

researchers presented select Web sites to 60 students in three mass communication courses. Preliminary analysis of the data indicates that the subjects seemed to find the 2:1 image to text ratio most effective. Therefore, in this study sites that provided a 2:1 ratio of graphical images to text, together with some audio and video, received a higher score than either those that relied overmuch upon raw text or those that appear to be a mere slide show of pretty pictures.

The volume of information contained upon a site presents several problems to the researcher. A plenitude of information, by its nature, has neither a positive nor a negative impact upon the its effectiveness. On the one hand, an end user can be buried by megabytes of worthless data. Then again, one would certainly be underwhelmed by a candidate who offered only a single 8 1/2 by 11 inch page of information about his campaign. This study looks at volume as one potential component of complexity. Rather than attempting to measurebytes or megabytes of information, this study simply gauges volume by the number of 8 1/2 by 11 inch pieces of paper that the site itself generates when printed in total. When links pointed to off-site areas such as the Library of Congress or the Republican Party's home page, those sites were not included in the page count. Printed pages from each site were counted and given a score based upon a 0-10 variable interval scale as follows.

Accessibility mediates volume. More data has a positive effect only if it is well organized and easily accessible. A telephone book is of little value in locating a person's number if not organized alphabetically. This study measures both the logical and technical accessibility of political Web sites. In order to achieve a high accessibility score, a site must be organized hierarchically with a clear and complete table of contents. A

computer-assisted method for searching the site should be present, preferably one that permits the end user to search for words of his or her choosing. The site must be linear, but also permit users to traverse rooms in three dimensions. It also must be open to users of limited technical ability, with limited equipment. Sites were awarded points based upon the existence or absence of these features.

Consistency helps combat complexity. The consistent use of specific images -- symbols, visual cues and thematic concepts -- helps the end user make sense of a specific site. They can lend it form. Advertising researchers advocate the consistent use of certain symbols (e.g., Golden Arches, Helping Hands) to create a positive emotional response. On a political Web site, image consistency supports a candidate's effort to provide information about himself and his campaign. In this study, coders examined each site in its entirety and identified recurring symbols, visual cues and thematic or "candidate image" concepts. Each image type was then given a score reflecting the percentage of rooms in which it appeared, receiving a score from 0 (none) to 10 (90-100 percent of the rooms). The scores were then averaged to provide an overall image consistency score.

In addition to consistency of image, a political candidate must be consistent with regard to issues. One can address every issue that arises during a campaign, but a wise candidate selects a few specific issues to make his own. For example, Bill Clinton in his 1992 Presidential campaign chose the economy as one issue that would help define his campaign. Coders in this study visited every issue-oriented room in a candidate's Web site in order to assess the site's issue consistency. In most cases this included rooms containing press releases, speeches, issue statements and philosophical statements. Where

applicable, it also included candidate writings, newsletters and weekly updates. Coders identified possible issue themes running through a site. Each issue theme was then given a score reflecting the percentage of rooms in which it appeared, receiving a score from 0 (none) to 10 (90-100 percent of the rooms) to provide an overall issue consistency score.

Each candidate's Web site was given a score ranging from 0-10 in each category of channel effectiveness, resulting in a total score of 0-100. In each case, higher scores reflect that a site that reduces channel noise (Schramm 1955) and helps communicate information effectively. Lower scores indicate that the site remains an ineffective source of potential information. To summarize, a political candidate's Web site will be deemed an effective channel for communication if the site helps make the candidate's issues relevant and clear to the end user. Sites help make issues relevant if they offer timely information that is both geographically and virtually close to that user. The messages sent should be diverse enough that end users will get a full picture of the candidate, and they should come from a variety of preferable prominent sources. Sites reduce the complexity of information if they provide a balanced presentation with consistent images and issues that offers a great deal of data in a logically and technically accessible manner.

RESULTS

The Web sites of each of the three top candidates in the 1996 Republican primary race took advantage of the Internet's ability to provide timely information on the campaign. Both the Forbes and Dole sites had been updated in some form on the day coders performed their analysis, while Buchanan's had been updated one day earlier (Mean = 9.67). However, none of the sites updated their press releases, speeches, activities or other issues on a

daily basis resulting a low update frequency score (Mean = 2.33). Forbes received the highest score for overall Timeliness (7.0), with Dole second (6.0) and Buchanan last (5.0).

The candidates exhibited far greater variance with regard to proximity. The Dole site possessed a very strong geographic-specific room offering a clickable map that provides information about organizers and supporters in all 50 states, but no voting provinces (9.0). The site also offered a variety of interactive material, including unique opportunities for end users to create a Dole "poster" (see Illustration 1) or take a quiz about the site (6.0). Buchanan's site featured a geographic-centered room listing Buchanan Brigade members in 47 states (8.0). The site also boasted a wide variety of interactive possibilities, including an open board where end users could post messages to one another (8.0). On the other end of the spectrum, the Forbes site failed to take advantage of either geographic or virtual proximity. The site offered only one room offering geographic-specific information for less than nine states (2.0) and just three interactive tools (3.0). Buchanan received the highest score for overall Proximity (8.0), with Dole second (7.5) and Forbes last (2.5).

As might be expected, Dole easily claimed the top score among the various candidates with regard to prominence. He communicated the endorsement of one Rank #1 source (Barry Goldwater), 27 Rank #2 sources and 21 Rank #3 sources for a prominence score of 10.0. Buchanan fell a distant second with one Rank #1 endorsement (Mel Gibson), 4 Rank #2 sources and 12 Rank #3 sources (4.2). Forbes listed only three endorsements: one Rank #1 (Charles Barkley), three Rank #2 sources and one Rank #2 (2.6).

All candidate sites performed reasonably well with regard to source diversity. Buchanan site offered information from all 10 sources coded as part of this study (10.0). Forbes' site left out information from think tanks/academics and government publications (8.0), while the Dole site failed to use think tanks/academics, news articles and op-ed pieces/editorial cartoons (7.0).

Interestingly, none of the candidates took full advantage of the Web's ability to provide a variety of message types. All three candidates failed to disclose financial information about themselves or their campaign. Unlike candidates from the Libertarian or Natural Law parties, all three Republican primary candidates also failed to include information about the Republican party or links to GOP sites. Only Dole provided serious information about the Web site itself, even to the point of including pictures of its opening day festivities. The Dole and Buchanan sites receive identical scores for message diversity (7.0), with Forbes' site falling further down the scale (5.0).

The Dole site scored extraordinarily well with regard to presentation diversity. With 511 graphical images, 48 photos and 244 rooms, the site maintained a graphics to text ratio of 2.29:1. By contrast, the Buchanan site offered 247 graphical images and 35 photos in 487 rooms for an adequate graphics to text ratio of 1:1.73. The Forbes site represented the online equivalent of gray space, with only 10 graphical images and 8 photos in 114 rooms -- a graphics to text ratio of 1:6.33. Both the Buchanan and Dole offered users the opportunity to access audio and video, while these elements were absent from the Forbes page. Given the preferred ratio of 2:1, Dole achieved a perfect 10.0 in presentation diversity. Buchanan fell second scoring 9.0, with

Forbes a distant third at 3.0.

In terms of sheer volume, the Buchanan site predictably achieved the highest score (10.0). A printout of the entire site resulted in 974 sheets. The Dole site achieved a respectable 469 printed pages (8.0), while Forbes again made a relatively poor showing with 236 pages (5.0).

Interestingly, although both the Dole and Buchanan sites had a large volume of information, they did not perform equally well at making that information accessible. With a clear and complete table of contents, as well as a limited search mechanism, the Dole site was well-organized and easy to navigate, lacking only a choice of text-only for users with slow Internet connections and a more robust search mechanism. Meanwhile, Buchanan's site lacked both logical structure and technical accessibility. Although the site claimed to offer a search mechanism, the program was "down temporarily" during the entire study period. The opening page was organized haphazardly, without a clear hierarchical structure. Although interconnected in several ways, the site offered no sense of linearity, causing coders to sometimes lose their way in the site. By contrast, the Forbes site offered a clear and complete table of contents, as well as linear access. However, it lacked the interconnectedness that provides depth in a Web site, as well as an adequate search mechanism to locate documents quickly and easily. As at the Buchanan site, non-Netscape users were left looking at a site that was sometimes confusing to their browser. Thus, Dole received the highest score for overall Accessibility (8.0), with Forbes second (4.0) and Buchanan last (3.0).

Image consistency proved to be another fascinating category in studying the candidates' Web sites. Given the lack of graphical images on Forbes site, it came as little surprise that he lacked both symbolic and

thematic consistency. Aside from a yellow bar that added a degree visual consistency (9.6), the site lacked a consistent image. There was no symbolic consistency (0.0) and limited thematic/candidate image consistency. The idea of Forbes as a "political outsider with an answer" emerged, but only in approximately one quarter of the rooms (2.5). By contrast, the Dole site maintained a strongly consistent image. The flag symbol appeared in some form in every room on the site (10.0), together with a pictographic menu bar at the bottom and an iconographic lede at the top (10.0). The site also reinforced the idea of Dole as "the Republican party's choice" (9.1) and, to a lesser extent, as "an American Hero." Buchanan's site, meanwhile, achieved some symbolic consistency with flag-like images (4.97), but only limited success with visual consistency in his parchment-like backgrounds (0.68). However, the site firmly reinforced the Buchanan's image as an "American patriot" and a "Defender of the Unborn" (10.0). Thus, Dole received the highest score for overall Image Consistency (9.7), with Buchanan second (5.2) and Forbes last (4.0).

While the Dole site clearly puts forth a strong image of its candidate, it lacks power in addressing the issues. Coders identified only three recurring issues on the Dole site: family values, welfare reform and a balanced budget, and only the rather nebulous issues of family values achieved a score above 50 percent. Buchanan's site, on the other hand, presented several issues forcefully and consistently. Issues appearing in more than 50 percent of the applicable rooms were: pro-life, anti-NAFTA, anti-immigration and America First/pro-worker. Forbes, though more limited in scope than Buchanan, was just as consistent in presenting his issues: a flat tax and term limits. In terms of issue consistency then, Buchanan and Forbes each achieve a 10.0, with Dole straggling at 5.4.

CONCLUSIONS AND FUTURE RESEARCH

The goals of this study were limited, and the results should be considered provisional. We began by noting that the World Wide Web is a potentially diverse, rich and powerful source of information about the political process. We noted that the knowledge gap hypothesis predicts that this new medium may follow a discernible pattern where the information rich, the technologically literate and the politically aware gain great advantage over those who lack the ability, means and motivation to access the new technology. We further argued that the first step in assessing the presence of a knowledge gap is to ask a set of basic questions including whether or not anything there is worth having. In answering this question, the particular and largely unexplored channel characteristics of the new medium cannot be ignored. The limited goal of this paper, therefore, involved the exploration of these characteristics.

We tried to establish 10 dimensions of what we called channel effectiveness-- the degree to which candidates take advantage of the new medium's unique capabilities such as immediacy, interactivity, sourcing and multimedia. We began by noting that some pundits have dismissed political Web sites as mere billboards on the information highway. However, such a characterization fails to take into account the unique characteristics of the Web. We believe that there is strong evidence, based upon our analysis, that channel effectiveness is an important consideration in evaluating the potential flow of information on Web sites. Sites that offer timely information that is both geographically and virtually close to end users help render that information more relevant to those individuals, especially if the information is reinforced by a variety of messages from prominent groups and individuals.

Sites that provide a balanced presentation with consistent images and issues that offers a great deal of data in a logically and technically accessible manner render help reduce the complexity of their information. In short, Web sites that serve as effective channels help individuals gather, retain and potentially make use of information.

Channel effectiveness is a useful concept not only for candidates trying to create a persuasive Web site and citizens trying to participate more fully in the democratic process, but also for journalists covering a candidate's campaign. In addition to gathering copies of speeches and facts about a candidate's stance on various issues, reporters can also use Web sites to assess a candidate's political strategy and, perhaps most interesting of all, his or her overall style. This style, which comes across through the use of slogans, key words, iconic symbols, and culturally significant themes, represents part of what is called the "political spectacle" (Edelman 1973; Schmuhl 1990). Decoding these strategies of mass persuasion and personal presentation remains crucial to understanding the candidates themselves.

Examining the data gathered for this study yields some engaging insights into the candidates themselves. For example, the Dole site exhibits many of the strengths one might expect of the GOP frontrunner: prominent endorsements, effective presentation style and the strong thematic symbols and imagery of an experienced politician. However, it is interesting to note that the site exhibits a notable lack of attention to the issues. In fact, an examination of the Dole site shows it to be much more concerned with image than issue. Most of Dole's press releases deal with the various endorsements he has received during the campaign. His geographic-specific room lists prominent

Republican supporters throughout the United States. Even his issues area appears designed to reinforce the image of Dole as an American hero and rightful heir to the GOP nomination.

By contrast, the Buchanan site bursts with his position on the various issues. However, as is often the case, the candidate's great strength might also be his great weakness. Addressing 40 separate issues throughout the site -- more than twice as many as either Forbes or Dole (See Figure 3) -- Buchanan runs the risk of diluting the issues he truly holds dear and alienating many of his supporters. The Buchanan site mitigates the damage by consistently reinforcing the candidate's campaign themes of pro-life, anti-NAFTA, anti-immigration and America First. He addresses both NAFTA and the

abortion issue throughout his press releases, issue reports, speeches, and his overall philosophical statement.

Now that he appears out of the race, it would appear certain these issues will be most important to him as the GOP convention draws closer. It is also interesting that Buchanan brings a diverse group of sources to support his position on the various issues, much more so than either Dole or Forbes. Clearly he is more accustomed to making an argument in print than either of his two major opponents, and this is reflected on his Web site. His Buchanan Brigades have a strong presence on the site as well; however, they are perhaps partially responsible for the confusing organization of the site. Still, by eschewing Dole's tactic of concentrating upon prominent endorsements, Buchanan's site retains a populist feel.

Meanwhile, the Forbes site illustrates that candidate's single-mindedness in pushing for a flat tax and term limits. These issues

appear consistently throughout his site, as do others calling for reform in the political system (anti-Clinton, anti-Dole, anti-political class, and pro-tax reform), with one exception. Forbes, and even more so Buchanan, appear to long for a return to the Reagan days.

The World Wide Web represents a new form of communication, but this is not to say that it constitutes a radically different form of communication. Rather, the Web incorporates characteristics of mass communication and interpersonal communication. The average Web navigator visiting a candidate's site today accesses what is essentially a form of mass communication or "wholesale politics," the candidate broadcasting the same message to millions of viewers. However, many intriguing interpersonal elements have already begun to appear on these sites foreshadowing a resurgence of "retail politics" whereby candidates or their avatars (virtual selves) interact directly with potential voters. For example, the Dole site encourages visitors to create a customized poster of the candidate or send a personalized Dole postcard to a friend. The Buchanan site allows users to communicate with one another either on the site's message board or through an electronic listserv of Buchanan supporters. It is currently possible, though no candidate has done this, to host an online talk show where the candidate fields questions from users throughout the nation.

One can imagine a time in the not-to-distant future when users visiting a site will be welcomed personally by a video image of the candidate that refers to them by name and can answer any question asked, calling upon examples that allude to items of specific interest to that user. For example, asking a question about an upcoming tax hike could draw a different response whether the end user is an educator, an environmentalist or a member of the

military. Simply reading data from the user's own e-mail address can already provide Webmasters with a best guess as to their affiliations. Considering that very little personal information remains private today, it is not inconceivable that a person logging into a site might soon be cross-referenced with a database containing vast amounts of data about their likes, dislikes, group memberships and financial situation.

No study is without limitation. We recognize a certain degree of arbitrariness in measuring particular categories such as volume and presentation diversity. We also realize that future research on political Web sites would do well to include more candidates, candidates from more than one party, and pay closer attention to the accuracy of information on various Web sites by checking data provided by candidates against other sources. The Internet is a perfect laboratory for studying such questions. Web sites of political candidates are compact, easily accessible and contain most of the data deemed important by those interested in closely following a campaign. They are, in a sense, an intensified version of an entire campaign equally available to reporters, scholars and the general public.

FIGURE 1: RACIAL BREAKDOWN OF ADULTS WITH ACCESS TO COMPUTERS

FIGURE 2: RACIAL BREAKDOWN OF U.S. INTERNET USERS

Figure 3

ILLUSTRATION 1: EXAMPLE OF POSTER CREATED ON DOLE WEB SITE

Appendix I: Additional Charts

FIGURE A1: BREAKDOWN BY CHANNEL EFFECTIVENESS CATEGORIES

FIGURE A2: FORMAL COMPOSITION OF POLITICAL WEB SITES

FIGURE A3: INFORMATION COMPOSITION OF POLITICAL WEB SITES

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