Is the Medium the Message? Predicting Popularity of Top U.S. News Sites with Medium-Specific Features

Abstract

Recent studies find that only a handful of news sites dominate the online news landscape, and some contribute such finding to the importance of news branding and credibility online. Nevertheless, existing findings fail to consider other possible explanations for this concentration of consumption beyond the fact that they are all counterparts of well-known, established traditional news sources. "Mediumizing" online news, and adopting an updated Uses & Gratifications approach, this study identifies five online news interface-specific features that predict popularity among the 2009 top ten U.S. news sites using maximum likelihood regression analysis in structural equation modeling. Results call attention to the need to move beyond an exclusive focus on content and consider attributes of online news as a distinct medium as a way to better understand the relationship between online news and its consumers. Suggestions for future studies on online news consumption are also discussed.

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Introduction

The State of The News Media Report[1] by the Pew Project for Excellence in Journalism finds year after year that traditional news entities dominate the news landscape online, and suggests this to be indicative of the importance of branding and source credibility to average news consumers online (Abdulla et al., 2005; Meyer, 2009). In other words, news consumers converge on online counterparts of established news entities because they believe that the nature and quality of news information on sites like *Yahoo News*[2], *CNN* and *New York Times* are more trustworthy than news information from other sites (i.e., blogs or citizen journalism) that do not have long-standing history in offering credible news information (Lin, Salwen, Garrison & Driscoll, 2005)[3]. While such speculations may explain why these few sites, out of millions (Chan-Olmsted, 2003) if not billions (Hindman, 2007) of news-oriented sites available on the Internet, dominate the online news landscape, they pose challenge to explaining why there exist, among the "top ten" sites, exponentially large gaps in these sites' popularity.

According to Nielsen's "Top 20 websites in 2009" report, *Yahoo News*, the most popular news site, has on average over 15%, or five million more unique news readers than *MSNBC*, the second most popular news site; over 220%, or over twenty two million

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[1] www.stateofthemedia.org

[2] Albeit *Yahoo News* is not the online counterpart of an established news entity, it primarily aggregates news from credible sources such as *The Associated Press, Christian Science Monitor, Reuters*, etc.

[3] As Abdulla, Garrison, Salwen, Driscoll and Casey (2005) further suggest: "Internet users are aware of the ease of uploading a page on the Web, and with a little design experience, making it look like the output of a well-established, professional organizations. This seems to underline the importance of branding in online news. Readily identifiable news organizations that have moved to a Web presence or Web sites that use existing and known news brands (e.g., CNN, the associated Press, or other news services) have this advantage over news sites that are only on the web and do not offer branded news" (p. 161).

more unique news readers than *New York Times*, the fifth most popular news site; and over 438%, or thirty two million more unique news readers than *USA Today*, the tenth most popular news site. In documenting the fact that online news consumption is even more concentrated than in the "offline" world, Hindman (2007) notes that "there is still a lot we don't know about the underlying causes of audience concentration online" (p.341). In other words, while a select few news sites' dominance online may be partly explained by average consumers' reliance on established and credible sources for news (see Hindman, 2007 for overview), what accounts for the exponential difference in popularity among the "top ten" news sites that all offer news content produced by comparably trustworthy news sources? This study proposes one possible answer to be the extent to which each site satisfies news consumers' "medium-specific process gratifications," and identifies a list of online news interface-specific features that predicts popularity of a handful of the most popular news sites in the U.S.

Online News Consumption: A Whole New Experience?

As media organizations continue to fragment and adopt new forms on the Internet, audience demands and consumption patterns are also evolving (Chan-Olmsted & Ha, 2003). In Quinn's words (2005), "In the early twenty-first century, audiences want news when [and how] it suits them, rather than when the media have traditionally supplied it" (p. 185). Technological and content convergences online are evident – True, research has found that online news websites still largely retain the presentation styles of their traditional counterparts (Lee, 2008), and traditional newsrooms still supply most of the news information online (see Salwen, 2005; Dibean & Garrison, 2005; Weldon, 2008; Quandt, 2008; Hindman, 2008). Nevertheless, neither is the online news environment a

mirror of its offline counterpart, nor are all news organizations adapting to this new

environment at the same pace. Not only does the Internet affect journalistic production

processes, cultural operations, and organizational managements (Deuze, 2003), but also

the convergence of multiple-platform publishing on the Internet revolutionizes how

people interact with information. As Quinn asserts (2005), "Convergence offers a way to

satisfy the audience's desire for news… in multiple formats to reach multiple audiences"

(p.32).

Unlike in the past where differences in media largely equate differences in

mediated experiences (i.e., print newspapers are solely textual and pictorial, radio news is

audio, whereas television news combines moving pictures with audio), the Internet

amalgamates all existing medium-specific interface features and materializes as a "hybrid

of technically sophisticated multimedia-multichannel information and entertainment

medium" (Lin & Jeffres, 2001, p.557) that contests our understanding of what a

"medium" is, and challenges existing notion of news consumption in light of new

technological capabilities. Particularly, since the Internet provides the same

technological platforms for *all* media entities to produce and distribute content, the

competition online among news organizations is no longer merely that of content, but

also consumption experiences (Seelig, 2008a).

"Mediumizing" the Internet?

Technology is the *sine qua non* to discussions about the future of journalism, as

"Journalism has always been shaped by technology" (Pavik, 2000, p. 229). With the

growth of broadband technology (Huang, 2007) and online news sites (Spyridou &

Veglis, 2008) in early 2000's, the Internet has become the third most popular "mass

medium" from which average American news consumers access news information on a daily basis (Roy, 2008; Pew Research Center's Project for Excellence in Journalism, 2010). Nonetheless, we have not yet fully "mediumized" the Internet despite its popularity. In other words, we have not clearly conceptualized the Internet as a medium (sic) based on its unique attributes. Instead, we have largely stagnated with the term "new media" without really paying attention to what, if at all, sets the Internet apart from all other media. How can we fully understand the intricate relationship between news consumers and the Internet if we remain vague in our conceptualization of "new media?" It is with this in mind that this study proposes the need to operationalize the Internet as a news medium.

The Internet as a news medium. A medium has generally been defined as "any extension of ourselves," or more broadly, "any new technology" (McLuhan, 1964 p.7). While such broad definitions apply to the Internet as well, the danger of evaluating the Internet the same way we assess newspapers, radio and television lies in that the Internet fundamentally redefines traditional mediated communicative processes with its medium-specific uniqueness, and thus renders existing theoretical assumptions and measurements of traditional media uses obsolete and inapplicable for Internet studies. Just as new technologies are changing the nature of how news is produced and distributed, they are also changing the ways in which people consume news, and thus provide new opportunities for studying such behavior in the context of the new media environment (Tewksbury, 2003). In examining how and why people consume news on the Internet, this study turns to the Uses and Gratifications paradigm.

U&G paradigm in media studies. The Uses and Gratifications (U&G) paradigm is an audience-centered approach that seeks to understand *why* and *how* people use media in order to understand media's impact on people (McQuail, 1983; Perse and Dunn, 1998; emphasis added), and emerged as one of the dominant theoretical frameworks for inquiry into audience orientations with the advance of new media (Palmgreen, Wenner & Rayburn, II, 1981). Summarily, the U&G paradigm holds the following assumptions about the relationship between media and the audience: Audience members inadvertently form perceptions on meanings and values of a medium from mediated experiences. These perceptions translate into expectations, where such expectations then motivate audience members to return to the same medium for a certain set of gratifications. So long as the medium is able to meet audience members' expectations, or gratifications in subsequent interactions, audience members are more likely to choose to go back to the same medium, be it a conscious or habitual act, and such routine usage of a medium then becomes the focal point in conventional media studies (Blumler, 1979; Katz, Haas & Gurevitch, 1973; Palmgreen, Wenner & Rayburnm II, 1981; see Ruggiero, 2000, for recent overview of the paradigm). In Katz, Haas and Gurevitch's (1973) words, one of the goals of this theoretical framework is to understand the relationship between media and audiences by "explor[ing] the relationships between the attributes of the media and the functions they serve" (p. 179).

U&G criticisms and counterarguments. Early criticisms of the U&G include its assumptions of active audience and rational media uses, invalidity of self-reports, insensitivity to media content and social gratifications, and lack of predictive power (see McQuail, 1994; McDonald, 1990), albeit not all of the concerns are equally applicable in

today's media landscape, and many early criticisms have been addressed in more recent online U&G studies. Based on more recent studies, counterarguments against early U&G criticisms include: 1) With the advance of the Internet, active media choices are now common, if not necessary among average online users to navigate through a plethora of information (Sunstein, 2007). 2) Newer U&G studies have examined the implications of social gratifications online (e.g., Stafford, Stafford, & Schkade, 2004; Stafford & Stafford, 1998). Moreover, adding to the force of counterarguments against early criticisms, this study 3) relies on Nielson's empirical estimates of online traffic rather than self-report (more details in Method section) and 4) predicts the extent to which online news-specific gratifications account for the disproportional popularity of top news sites in the U.S.

　　　　Internet and online news-specific gratifications. Several Internet studies have introduced new conceptual and operational approaches in understanding Internet-specific gratifications[4]. Particularly, Stafford, Stafford and Schkade (2004) state the need to look at *process gratifications* in addition to content[5] and social[6] gratifications, as mediated experiences online is vastly different from mediated experiences in other traditional media. Process gratifications center on classifying the Internet as a medium by its modes of transmission and reception (Perse & Dunn, 1998; Katz, Haas & Gurevitch, 1973), and examples of such experiential gratifications include surfing on the Internet, navigating

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[4] "Gratifications" are reflective of how users perceive characteristics of a medium (Dimmick, Chen & Li, 2004).

[5] Content gratifications have often been studied under broad categorizations such as "for entertainment, diversion, or surveillance purposes (Roy, 2008).

[6] e.g., focuses on interpersonal communication and social networking

through different media channels, consuming content in multimedia and timely fashion, etc.

Additionally, other studies have categorized a variety of Internet-specific gratifications that Internet users get and expect from the medium: Papacharissi and Rubin (2000) identify five: Interpersonal utility, pass time, information seeking, convenience and entertainment. Parker and Plank (2000) state three: Companionship and social needs, and needs for learning, excitement and relaxation. Song et al. (2004) suggest four: Social escapism, pass time, interactive control, and information. Roy (2008) contribute two: Information seeking and self-improvement. Grace-Farfaglia, Dekkers, Sundararajan, Peters & Park (2006) offer seven: Social companionship, economic gain, self-improvement, entertainment, escape, fame and aesthetics. And Flanagin & Metzger (2001) supplement five: Problem solving, persuading others, relationship maintenance, status seeking, and personal insight. In relation to online newspaper consumption, Mings (1997) categorize the following gratifications: Functionality of providing links, supplemental information, immediacy, timeliness, personalization, and interactivity.

Overall, these studies offer rich description of audience's Internet-uses and gratifications, yet they have not examined the Internet in ways that facilitate understanding of its news uses and implications, and thus restrain our understanding of online news consumption patterns and effects. Just as print newspapers found "authenticity" to be its greatest strength in attracting readers (Jones, 2009), online news also needs to realize its strengths in relation to other news media in order to function and succeed as a unique news medium of its own.

Updated U&G paradigm: Analyzing five interface-specific features

Extending the U&G paradigm, and drawing extensively from relevant literature, this study identifies five overarching medium-specific features, or process gratifications that affect average consumers' experiences with online news consumption (broadly speaking): 1) Interactivity 2) Immediacy 3) Multimedia 4) Information availability 5) Usability (see Deuze, 2003; Seelig, 2008a; Seelig 2008b; Quinn, 2005; Meyer, 2009; Kemey et al., 2000; Ramasubamanian & Martin, 2009; Spyridou & Veglis, 2008, etc.).

1. Interactivity. Interactivity is often seen as the "golden standard" (Quinn, 2005, p. 89) or "key advantage" (Ha & James, 1998, p.459) of the Internet, for the Internet is one of the first medium that encourages direct interaction between "producers and consumers", as well as among users (Chan-Olmsted & Ha, 2003). In fact, research finds interactivity positively associated with user satisfaction, favorability, and involvement with news sites (e.g., Spyridou & Veglis, 2008; Sundar et al., 2003; Shyam Sunder, 2000). Deuze (2003) defines interactivity as a special trait of the Internet that facilitates association, and enables people to not only *receive* but also *disseminate* information. Moreover, Ha & James (1998; also see Seelig, 2008b) compartmentalized interactivity into "audience-oriented interactivity," which examines the "range of options or choice of content available to the users to interact with," and "source-oriented interactivity," which investigates the ways in which media facilitate reciprocal communication between users and media by focusing on the availability of forums, chatrooms, games, language options, and such on media sites (p. 241).

2. Immediacy. In relation to the news media, one of the advantages of the Internet is that it allows for timely updates on breaking news by changing the ways in

which news is generated, reported, and distributed (Deuze, 2003). For example, while television news already sped up the long established news cycle in the print industry, the Internet allows for even faster updates by enabling news contributors to distribute news stories in real-time (Quinn, 2005). Moreover, the fact that the Internet makes it possible for news contributors to easily edit content post-distribution allows them to publish news with more emphasis on "speed" (at the expense of "accuracy") since "irreversibility" is less of a problem online (Seelig, 2008a). Furthermore, for its speed and flexibility, the Internet also enables easy production of real-time, immediate updates especially during time-sensitive news events such as natural disasters.

        3. Multimedia. Content wise, traditional newsrooms still supply most of the information on dominant news websites (see Maier, 2010; Salwen, 2005; Dibean & Garrison, 2005; Weldon, 2008; Quandt, 2008; Hindman, 2008), and this blurs the distinction between online and offline news. However, one of the properties that distinguish online news from all other news media is the ways in which news content are disseminated online. With media convergence on the Internet comes distribution of news in "multiple media platforms to target different audiences," (Huang, 2009, p. 107) and this includes the amalgamating use of texts, pictures, audio clips and video clips to meet different kinds of needs and appeal to different kinds of news consumers (Quinn, 2005).

        According to Kerry Northrup, executive director of the IFRA Centre for Advanced News Operations and director of publications for the World Association of Newspapers and News Publishers, "to consumers, a story they read and watch and surf is all one story, just accessed in different ways at different times on different technology depending on what is convenient, what is required to satisfy the need to know, what fits

with their media personalities" (quoted in Quinn, 2005, p. 75; also see Machin &

Niblock, 2008). Echoing this view, Jones (2009) asserts, "news on the web is almost

entirely chosen by the viewer" (p. 180). While news brand identity contributes to

audiences' initial contact with online counterparts of traditional news entities (Meyer,

2009), multimedia allows online distributors of news information to deliver content in a

much more engaging and creative way (Killebew, 2005; Sundar, 2000), and multimedia

news presentation allows news sites to prompt audiences to extend, as well as frequent,

their visits repeatedly by offering rich process gratifications (Spyridou & Veglis, 2008;

Huang, 2007).

4. Information availability. Another interface feature that distinguishes online

news from other news media is its facilitating information flow and exchanges. For

example, Maier (2010) reports that online news are about four times more likely to

incorporate news information from other outside news outlets than print newspapers, and

part of this is made possible by hyperlinks that allow audiences to easily access additional

information relevant to a specific news story made available by online news providers

(Ha & James, 1998). Moreover, due to its nature and the availability of broadband

connection in today's society (Garrison, 2005), the Internet also makes it much easier for

users to search and obtain information outside of what news providers offer to fulfill their

needs and goals (e.g., to satisfy curiosity or gain knowledge) (Ferguson & Perse, 2000).

In sum, information availability is about online news media's offering a plethora of

information from rich and diverse sources at news consumers' disposal.

5. Usability. Usability has been found to positively shape online activities across

different domains (Buente & Robbin, 2008). Traditional definitions of usability largely

focus on "factors that consider user productivity and performance (Wiberg, 2003, p. 37), and most measurements center on user evaluations of usability in terms of "time required to perform specific tasks, speed of performance, and number and rates of errors made by the users" (ibid.; also see Nielsen, 1994 and Shneiderman, 2004). Nevertheless, Wiberg posits that such task is always dependent on the characteristics of the web sites in question, and that measurement of usability, or user satisfaction, is thus contingent on the nature and uses of each web site. For example, news sites evidently serve different purposes as opposed to social networking sites, and hence have different criteria when it comes to "usability."

With exponential growth and dissemination of news information on the Internet, Internet users now have more channel and content choices than ever before, and this allows them to forego websites that are less user-friendly without worrying about not getting equivalent news information from elsewhere. Particularly in relation to online news sites, usability is measured by evaluating the ease through which average users can navigate a news site in order to locate additional information.

Hypotheses

Drawing on an updated U&G paradigm, the more a news site meets average consumers' need for medium-specific gratifications, the more likely such site will attract audiences. To examine the relationship between the five online news interface-specific features and popularity among the "top ten" news sites in 2009[7] the first hypothesis

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[7] Popularity is based on Nielsen's measure of unique audience visits reported in the 2010 Stsate of the News Media Report.
http://www.stateofthemedia.org/2010/online_nielsen.php#online_toptenusage

establishes differences in how the top and bottom three "top ten" news sites incorporate the five online news interface-specific features, and the second hypothesis predicts popularity of the top ten news sites with these five online news interface-specific features:

> **H1:** Among the top ten news sites in 2009, all else being equal, the top three sites will utilize the five online news interface-specific features *differently* from that of the bottom three sites.

> **H2:** Among the top ten news sites in 2009, all else being equal, use of the five online news interface-specific features will positively predict popularity of these top news sites.

Moreover, to better understand the ways in which the top ten news sites utilize the five online news interface-specific features, the following research questions are explored:

> **RQ1:** Among the top ten news sites in 2009, all else being equal, which of the five online news interface-specific features is the best predictor of popularity?

> **RQ2:** Among the top ten news websites of 2009, how does each top news site use the five online news interface-specific features?

Methods

This study is carried out through content analysis. According to Krippendorff (2004), content analysis is a method for "inquiring into social reality that consists of inferring features of a non-manifest context from features of a manifest text" (p.25). The five Internet-specific interface features proposed in this paper are theory-driven, and most of the items used in content analysis are based on existing metrics used in prior studies, which lends additional support to the reliability of results reported in this study.

Unit of analysis. Defining the unit of analysis on the World Wide Web is uniquely challenging because a lot of the boundaries that seem "concrete" in other media

becomes blurry on the Internet (McMillan, 2000). To this end, Ha and James (1998)

argue that the homepage is an ideal unit of analysis because it's the starting point in

which all visitors decide whether they want to continue browsing a site or not, and that

can be clearly operationalized (i.e., it's anywhere on the webpage where the "web

address" does not change) (also see Seelig, 2008b). For this reason, this study also uses

news site homepages as its unit of analysis.

Sample. Based on Nielsen's ranking of the top ten news sites, which was

measured by average "unique audience visits" of each news site in 2009, the sample in

this study consists of homepages of Yahoo News[8] (#1), MSNBC News[9](#2), AOL

News[10](#3), ABC News[11](#8), Washington Post[12](#9), and USA Today[13](#10). Ideally,

all ten of the "top news sites" would be coded, yet due to budgetary constraints, CNN

(#4), New York Times (#5), Google News (#6) and Fox (#7) were excluded from this

study. Nevertheless, the underlying theoretical assumption of this study, based on

literature review, is that a *linear* relationship exists between the five online news

interface-specific features and popularity among the top news sites, and thus the author

argues that the omission of these four middle-range top news sites is, though not ideal,

acceptable.

Data. All of the data are recorded using Automator, a free application developed

by Apple Computer that enables scheduled data recording. Data can easily be accessed

using Safari Web browser. All data are recorded at 11am everyday to minimize

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[8] http://news.yahoo.com
[9] http://www.msnbc.msn.com
[10] http://www.aolnews.com
[11] http://abcnews.go.com
[12] http://washingtonpost.com
[13] http://www.usatoday.com

confounds of time, and for the entire month of June, 2010. The amount of data collected is justifiable because pretest observation indicates that online news interface-specific features of targeted news websites do not vary significantly overtime, and hence a month worth of data is sufficient in providing adequate power and variance for statistical analysis.

Pretest. Two graduate students from a large research university in the Northeastern U.S. are used for the pretest, and they are both native English speakers and experienced Internet users. Both coders have expressed confidence in understanding the codebook before performing the pretest. The reliability between the two coders using the codebook (see Appendix B) was 0.89, which is deemed desirable according to conventional standard (Krippendorff, 2004), and results from the pretest were used to improve the codebook and coding instructions.

Codebook. Following Huang's guidance (2007), in addition to basing all the items on established metrics, the current codebook (see **Appendix B**) was adjusted on the basis of pretest observations; items bolded in Appendix B were eliminated from final analysis for lack of variances[14].

Independent variables. The independent variables consist of interactivity, immediacy, multimedia, information availability, and usability. In **Appendix A** is a list of all the items used to measure the five overarching online news interface-specific features. All of the items in each independent variable are first standardized before being summed to ensure compatibility across measures for H1, H2 and RQ1. Unstandardized metrics were used for RQ2.

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[14] For example, the "Site map" and "FAQ" variables were eliminated because all of the news websites examined have such functions.

Dependent variable. The dependent variable entails Nielsen's measure of unique audience visits on each news site, as reported by the Pew Project for Excellence in Journalism in its 2010 State of the News Media report. For H1, a dummy variable is created, where *Yahoo* (#1), *MSNBC* (#2) and *AOL* (#3) are coded as 1, and *ABC* (#8), *Washington* Post (#9) and *USA Today* (#10) are coded as 0. Reported estimates of unique audience visits are used as the dependent variable for the rest of the analysis.

Statistical analyses. Firstly, using SPSS 17.0, Independent Sample T-Test is performed to estimate the between-group differences in H1. Secondly, using Mplus, and applying principles of structural equation modeling[15], maximum likelihood regression analysis is performed to assess the extent to which the five online news interface-specific features predict popularity of the top ten news sites in H2 and RQ1. And lastly, descriptive of each unstandardized independent variable is presented in Table 1 regarding RQ2.

Results

Supportive of **H1,** among the top ten news sites, the top three news sites systematically integrate four of the five online news interface-specific features differently from the bottom three news sites. Specifically, while no statistical difference is found between the two groups in their use of the interactivity feature, there are significant statistical differences between the two groups' usage of the immediacy feature, $t(166)=9.39$, $p<0.005$; multimedia feature, $t(166)=2.31$, $p<0.05$; information availability feature, $t(166)=11.72$, $p<0.005$; and usability feature, $t(166)=3.59$, $p<0.005$. Among the

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[15] Which enables analysis of recursive systems with latent variables involving multiple indicators and correlations among all independent variables.

"top ten news sites," the top three news sites consistently utilize more of these features

than do the bottom three news sites.

Supportive of **H2**, integration of the five online news interface-specific features is

predictive of popularity among the "top ten" news sites ($R^2 = 0.97$). Moreover, regarding

RQ1, maximum likelihood regression analysis suggests information availability to be the

strongest predictor of popularity among the "top ten" news sites ($b= 1.22, p< 0.05$),

followed by immediacy ($b=0.46, p<0.005$), multimedia ($b=0.29, p<0.005$), and

interactivity ($b= 0.07, p<0.05$). On the other hand, contrary to expectation, usability

predicts popularity of the top ten news sites in a negative fashion ($b=-0.77, p<0.005$).

RQ2 is illustrated in Table 1 below:

Table 1					
Average count of online news-specific features utilized among the top news sites: Mean & *(SD)*					
	Interactivity	Immediacy	Multimedia	Information Availability	Usability
Yahoo News (#1)	15	0	41	894	6
	(0)	*(0)*	*(1.60)*	*(3.91)*	*(0)*
MSNBC (#2)	14	21	47	190	4
	(0.51)	*(1.66)*	*(1.86)*	*(7.14)*	*(0)*
AOL (#3)	15	7	18	263	3
	(0)	*(0)*	*(1.14)*	*(4.05)*	*(0)*
ABC (#8)	10	0	63	141	0
	(0)	*(0)*	*(2.78)*	*(6.12)*	*(0)*
Washington Post (#9)	14	0	21	77	5
	(0.51)	*(0)*	*(2.34)*	*(2.81)*	*(0)*
USA Today (#10)	10	0	20	63	1
	(0.31)	*(0)*	*(2.35)*	*(3.20)*	*(0)*

Note: *N = 168.* Data collected in June, 2010.

Discussion

The importance of news branding and credibility has been suggested to contribute

to high-level concentration of traffic on the World Wide Web where a handful of news

sites dominate the online news ecology. Nevertheless, existing findings are inadequate in accounting for the exponential differences in popularity among these highly visible news sites. To solve this puzzle, we need to better understand the relationship between the Internet and its users, and this study suggests the incorporation of an updated Uses & Gratifications approach in 1) mediumizing the Internet in order to understand the functional needs and gratifications it serves as a news medium, and 2) examining five underlying online news interface-specific features that dictate online news consumption experiences and process gratifications. Through Independent Sample T-Test, this study finds that the top three and bottom three "top ten" news sites differ significantly in their uses of the five features, wherein the top three sites are systematically more feature-heavy. Moreover, through maximum likelihood regression analysis in structural equation modeling, this study finds that the five online news interface-specific features significantly predict differences in popularity among the "top ten" news sites, and that information availability is by far the strongest predictor.

The fact that usability negatively predicts popularity of top news sites in H2 is unexpected. A post-hoc analysis of the data reveals that number of popularity news stories (i.e., "most read," "most recommended," or "what's hot") is the only predominant item that contributes to the negative slope in the information availability variable. Specifically, *ABC* has the most number of average popularity news stories[16] (22) as opposed to *Yahoo News* (15), *MSNBC* (11), *AOL* (10), *Washington Post* (16) and *USA Today* (5). Future studies are encouraged to consider weighting individual items in each variable as to ensure comparable assessments of the five online news interface-specific

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[16] i.e., "most viewed," "most commented," and "most emailed" stories

features. Moreover, future studies are encouraged to examine how evolution in usage of the five online news interface-specific features predicts popularity of top news ranks over time. Furthermore, future studies are encouraged to interview actual consumers of these top news sites to have a more holistic understanding of a potentially wider range of online news-specific process gratifications that are not accounted for in this study.

Like any study, this one is not without limitations. As aforementioned, due to budgetary constraints, this study was unable to examine mid-range (rank #4 through #7) top news sites. While such data limitation does not appear to weaken the conclusiveness of theoretical assumptions and statistical powers presented in this study, future studies are encouraged to replicate the present study with all ten top news sites to expand our knowledge of how the five online news interface-specific features predict popularity of *all* top ten news sites.

Conclusion

In the age of digitization, the Internet is changing the way people live and interact with each other. As Hindman (2007) documents, "Seventy million Americans now log on to the Internet in a typical day, reading news, checking e-mail, and engaging in a host of other online activities" (p. 327). With rapid changes in Internet-use diffusion and online news media landscape come ever-evolving online news consumption patterns (Lin, Salwen, Garrison & Driscoll, 2005; Garrison, 2005). New technologies are changing the nature of news consumption and providing new opportunities for studying such behaviors, and empirical research is necessary to systematically examine not only *causes* that lead to differing online news consumption patterns, but also *effects* of such newly emerging news consumption patterns.

While past studies have explained to a certain extent why only a handful of news sites dominate the online news landscape, we still don't know enough about why popularity disparities are so great among these few most popular news sites, or how the Internet as a news medium contributes to news consumption choices. At the intersection of an updated Uses & Gratifications approach that focuses on online news medium-specific process gratifications, content analysis and structural equation modeling, this study asserts that one of the fundamental first steps in understanding this puzzle lies in deciphering how the Internet appeals to consumers as a news medium in order to maximize its medium-specific strengths to better match 21st century news audience's demands and desires, and calls to attention the need to expand focuses in existing online news consumption studies on content to examination of medium.

This study does not take the position of technological determinism where technology is seen as *the* answer, or the medium the message. As established studies indicate -- Credibility, news quality and news brands, just to name a few, are without a doubt influential determinants of online news consumption in today's media landscape. Nevertheless, especially given the unique nature of the Internet, this study argues that online news-specific process gratifications are also important predictors of online news consumption, and are thus worthy of scholarly and industrial attention.

The medium is not the whole message in online news consumption, but it tells an important and compelling story that deserves, and ought to be heard.

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Appendix A: Summary of the five online news interface-specific features.

1) **Interactivity**
   i.   Audience-oriented interactivity
        1. Availability of news content choices/categories
   ii. Source-oriented interactivity
        1. Survey or poll
        2. Chat/discussion area
        3. Games
        4. Customized news to email (e-letter)
        5. Direct e-mail link to article's author
        6. Provide email contacts to the editor/journalists
        7. Service featuring the most read stories and blogs
2) **Immediacy**
        1. Latest news section
        2. Breaking news services
        3. Time of updating
3) **Multimedia**
        1. Inclusion of photos/still-images (including ads)
        2. Inclusion of sound/audio clips (including ads)
        3. Inclusion of video/moving-images (including ads)
4) **Information availability**
        1. Special database on issues
        2. Special reports on important issues
        3. Hyperlinks that connect to relevant information from the same site
        4. Hyperlinks that connect to relevant information from different sources
        5. Number of total news stories
        6. Number of news stories from alternative sources
        7. Number of alternative sources
        8. Archives for textual news articles
        9. Archives of video/audio clips
5) **Usability**
        1. Content available for mobile devices
        2. Free "search engine" function
        3. Search engine provides search results from within the news site
        4. Search engine provides search results from different news/web sites
        5. Search engine enables news story searches
        6. Search engine enables photo/still-image searches
        7. Search engine enables audio clip searches
        8. Search engine enables video clip searches
        9. Site Map
        10. Category of "Popularity" news types (i.e., "most read," "most recommended," or "what's hot)
        11. Number of popularity news stories
        12. Having "Help" or "FAQ" section that answers users' queries

Appendix B: Codebook[17]

Definition of "homepage": Tabs or scrolls are okay, as long as the web address does not change after clicking on the tab or scroll it's still considered a homepage.

A. Unique ID

B. Website code
- Yahoo News = Yahoo = 1
- MSNBC = MSNBC = 2
- AOL News = AOL = 3
- ABC News = ABC = 8
- Washington Post = WP = 9
- USA Today = USA = 10

C. Date of data (Ex: April 20th, 2010 = 042010; June 4th, 2010 = 060410)

1a) INTERACTIVITY - <u>Audience-oriented interactivity</u>

D. News Choices-- Number of explicitly labeled news sections on the front page (Enter numeric value) i.e., "Recipes," "Politics," "Blotters," "Health," "Economy," "Entertainment," etc. Anything that is bolded or written in bigger font to indicate a "section title" on the homepage)?

1b) INTERACTIVITY - <u>Source-oriented interactivity</u>

E. Forum/chat/discussion/commenting capability on homepage

> 0. No, The homepage has no forum/chat/discussion/commenting capability
> 1. Yes, the homepage has forum/chat/discussion/commenting capability

F. Survey or Poll on homepage or first-layer page (EX: "The Grid" on AOL news, make sure to only count same-day posts; or "READER POLL" from USA Today)
> 0. No survey or poll on homepage
> 1. Yes, there is either survey or poll on homepage

G. Games on homepage or first-layer page (EX. Crossword puzzles, Sudoku)

> 0. No games on homepage or first-layer page
> 1. One kind of game on homepage or first-layer page (i.e., only Crossword, or only Sudoku)
> 2. Two kinds of games on homepage or first-layer page (i.e., both Crossword and Sudoku)
> 3. More than two kinds of games on homepage or first-layer page

H. Customized news to email (e-letter) option on homepage or first-layer page (i.e., "News Alerts" option on Yahoo News; "Sign up for e-mail & SMS alerts" on MSNBC; "E-mail newsletters" on USA Today. Podcast and RSS feeds do not count)

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[17] Bolded items in the codebook are deleted in the final analysis due to lack of variance in the variables.

0.   No customized news option on homepage or first-layer page

1.   Yes, there is/are e-letter options whether

I. Direct sharing link/options of news articles/videos on homepage (INSTRUCTION: Randomly sample from three most prominent news articles TO YOU on the homepage)

0.   No, there is no direct "email" link/option on homepage

1.   Yes, via email (i.e., "Send" or "Email")

2.   Yes, via social networking (i.e., Facebook, Twitter) or alternative news sites (i.e., Reddit, Technocrati, Digg, Delicious, Newsvine, Fark, StumbleUpon)

3.   Yes, via BOTH email and social networking/alternative news sites.

J. Provide e-mail address of the author/reporter (INSTRUCTION: Randomly sample from three most prominent news articles TO YOU on the homepage)

0.   No, no email of the author/reporter found

1.   Yes, email of the author/reporter was found

2) IMMEDIACY

K. "Latest News" Section: Number of news story links/videos in the "latest news" section [if such section exist, if not enter 999]?

L. "Breaking News" Section: Number of news sotires from "breaking general news" (scroll headlines if need be, though be sure to stay on homepage, i.e., be sure the web address doesn't change)

M. Time of update: Do articles on the homepage or first layer have time stamps?

0.   No

1.   Yes

3) MULTIMEDIA

N. Number of photos on homepage? (Images for ads or banners count as well)

O. Number of audio clips on homepage? (Audio for ads or banners count as well)

P. Number of video clips on homepage? (Video clips for ads or banners count as well)

4) INFORMATION AVAILABILITY

Q. Special service/section that provide more detailed, specialized or extensive news coverage on select topics?

0.   No

1.   Yes

R. Special data on issues?

0.   No

1.   Yes

S. Number of news stories from alternative sources on homepage?
- Enter number of news stories

T. Number of total stories?

U. Number of alternative news sources on homepage?

V. Are there hyperlinks that connect users to relevant information from the same news site? (i.e., Links for "related news stories)
- 0. No
- 1. Yes

W. Are there hyperlinks that connect users to relevant information from different news/web sites?
- 0. No
- 1. Yes

X. Are there archives for textual news articles?
- 0. No
- 1. Yes

Y. Are there archives for audio or video clips?
- 0. No
- 1. Yes

5) USABILITY

Z. Content available on portable devices? (i.e., iPhone application; Yahoo's mobile device alert)
- 0. No
- 1. Yes

AA. Free search engine?
- 0. No
- 1. Yes

AB. Search engine provide results from within the news site?
- 0. No
- 1. Yes

AC. Search engine provides results from *different* news/web sites?
- 0. No
- 1. Yes

AD. Search engine enables news story searches?
- 0. No
- 1. Yes

AE. Search engine enables photo/still-image searches?
   0. No
   1. Yes

AF. **Search engine enables audio clip searches?**
   0. No
   1. Yes

AG. Search engine enables video clip searches?
   0. No
   1. Yes

AH. Site map?
   0. No
   1. Yes

AI. Number of "Popularity" news stories? (i.e., "most read," "most recommended," or "what's hot"; Count repeats if they are listed in both "most recommended" and "most read" on the same news site)
   • Enter number of popularity news stories

AJ. Categorization of "Popularity" news stories? (i.e., "most read," "most recommended," or "what's hot")
   - Enter the number of popularity news story categories

AK. "Help" or "FAQ" section on homepage that help answer users' queries or troubles?
   0. No
   1. Yes

AL. Number of popularity stories

AM. Number of *categories* of popularity stories