

Individual Personality Traits and Use of Digital Media for News

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This paper analyzes the results of a survey of 222 college students on their perception of how the Internet affects their interpersonal communication experience. Using Need for Cognition, the study attempts to determine if college students believe they use the Internet to communicate with one another the same way they communicate face-to-face, or if there is evidence that the Internet has changed communication styles or expectations.

The concept of 'new media' seems to be evolving in such a way that capturing the essence of what it means to the audience may be ephemeral. In what is now identified as the 'Web 2.0' phase of development of the Internet, traditional media (e.g. local and national broadcasters and newspapers) struggle with what adjustments to make in order to retain their audience, while new web-based media seek to build an audience. Industry research and consultants guide traditional media's response to these changes, but are traditional local-market broadcasters and newspapers making the right adjustments to survive, or has the audience changed in the 'new media' world in ways neither university media education nor the mass media truly understand?

This investigation is stage one of a planned two-stage research project to further understand what appeals to the audience about getting news and other information from new media sources like the Internet and to understand how information is diffused or shared differently because of new media sources of information. This study is related to the Two-Step Flow model and Diffusion of Innovations theories, but this research goes further by incorporating personality models from psychology to gain insight into users' needs and motivations. In particular, this phase of the study uses the Need for Cognition scale (Cacioppo & Petty, 1982; Leone & Dalton, 1988; Sadowski & Gulgoz, 1996) to assess motivations for web-based information gathering. What is gained from this study should be useful to journalism and broadcast educators seeking to train the best-prepared graduates and equally useful to traditional media managers seeking to understand the audience and thus remain competitive against new media developments.

THEORETICAL FOUNDATION

Communication scholars may question the need to use models from psychology. Diffusion of Innovations loyalists will note that Rogers (1995) added four adoption/diffusion theories—Innovation Decision Process theory, Individual Innovativeness theory, Rate of Adoption theory, and Perceived Attributes theory—and perhaps suggest those adequately include measurements of users' motivations. Researchers (Cheney, Block & Gordon, 1986; Foxall & Bhate, 1991; Lin, 1998; Lin, 2006) have occasionally incorporated, for example, issues of individual innovativeness as a predictor of behavior. However, the amount of research based on this theory applied to communication technology use is limited.

Rogers (2004) summarized the development of Diffusion of Innovations research since its inception and suggested it was still an important model for communication research. Rogers noted how diffusion research in the field of communication since about 1990 had focused primarily on the Internet, and how, compared to other models of human behavior that had faded after years of use, research using Diffusion of Innovations had held steady in recent years. Rogers also described how the basic diffusion model had evolved since his first diffusion book published in 1962, with important additions. One of those applicable to the current study is the focus on networks and interpersonal channels for the spreading of new ideas. Yet, while adjustments to the model have allowed Diffusion of Innovations to adequately help explain the process of technology adoption and has been applied to users' motivations, critics of the model suggest it is an overly simplified representation of a complex reality. Van den Bulte and Stremersch (2004), for

example, say, in attempting to measure social contagion, standard diffusion models measure the process of information dissemination imprecisely and do not allow operationalizing different contagion mechanisms.

Some descriptions regarding diffusing innovations in a society do point to a basis for recognition of human decision-making. Rogers (1997) noted that the way members of a social system perceive the characteristics of an innovation influence its rate of adoption. When considering why certain innovations spread more quickly than others, specific characteristics are said to determine rate of adoption, including (a) relative advantage (how much better an innovation is assumed to be than its predecessor), (b) compatibility (how much the innovation seems to correlate to existing values and norms), and (c) observability (how much individuals are able to see results of the innovation and discuss it), along with complexity and trialability. The factors seem to be clearly related to underlying, individual personality factors in the decision-making process. Methods to uncover the reasoning process individuals and groups go through in making an adoption decision thus need to be better understood.

How do other traditional media theories illuminate the question? Some researchers (Chung & Yoo, 2006; Kaye, 1998; Parker & Plank, 2002) have applied the Uses and Gratifications perspective to understand appeal of the Internet as a source for news. Knoblock-Westerwick & Alter (2007) looked at how gender schemata influences preferences for news content. Ultimately, such efforts have also provided some understanding of users' motivations, but not enough research exists to truly understand and appreciate changes in audience expectations from traditional to digital media.

Students in media programs often are reminded how important the target audience is to their content, or to the advertising placed within programming. This research should provide greater insight into that audience. An accepted challenge in this type investigation lies in its interdisciplinary nature, which may lead to resistance toward making the research even more interdisciplinary. But just as original diffusion research spread from agriculture to other disciplines (Rogers, 2004), human behaviors and motivations relate to psychological inquiry, and thus looking for models and theories from psychology is judged important to this investigation. Thus, this project looks to delve deeper into the psyche of the individuals, in this case to look for appeals and motivations regarding seeking of information through digital media versus traditional media.

RELATED LITERATURE

An increasing number of developments in web-based video streaming sites appears to be changing the nature of use of the Internet. While YouTube is the almost universally-known site focusing on peer-to-peer video sharing, sites like Veoh (<http://www.veoh.com>) and Hulu (<http://www.hulu.com>) point to a new impetus in Internet media. With its launch in 2007, Veoh, an AOL Time-Warner and ex-Disney executive Michael Eisner-backed service, promised a new level of choice and convenience for both video publishers and viewers (Cheng, 2007). Veoh touted its automatic syndication and reporting features as important tools for video publishers. For

users, Veoh promoted itself as a 'virtual DVR,' allowing downloading of content from video sites across the Internet (Veoh, 2007). However, just as YouTube faces a lawsuit over copyrighted content from Time Warner (LaMonica, 2007), Universal Music Group also filed suit in 2007 against Veoh, claiming significant copyright violations (Cheng, 2007).

Hulu was a joint effort between NBC Universal and Fox (Stone, 2008) when it launched as a password-protected, beta test on-line video streaming service in Fall 2007 and as an openly available, advertising-supported site on March 12, 2008. Veoh, Hulu and similar sites seem to be responding to a changing audience, with some scholars wondering if YouTube has become the new 'social network,' while other video-based sites, increasingly practical due to growth of broadband, are positioning themselves to join in. Home broadband penetration levels, combined with increasing availability of Wi-Fi, Wi-Max and 3G cellular phone service all serve to fuel this growth (Wei, 2006). All these developments point to an increasing ubiquity of Internet-delivered content, and understanding users' feelings about the importance of these in their lives is vital. Even though this study focuses on how users get news and other information and why they find those sources practical, the broader sense of Internet growth is an important variable in such an inquiry. Industry data showed almost 90% of U.S. Internet households had broadband connections as of early 2008, with an overall U. S. penetration level of 57%. (websiteoptimization.com, 2008).

Investigations of New Media Use

Academic research related to online news so far is limited, especially in terms of understanding the audience, as much of the recent research seems more industry than audience (or the increasingly new-media-appropriate term, user) focused. DeMars (2008) found that a small-market news partnership between a local newspaper, TV station and radio station and Internet site made service to audiences more economically practical. Lawson-Borders (2003) examined the state of convergence and offered a strategy for best practices for organizations to integrate new and old media. Dailey, Demo and Spillman (2005) offered a convergence continuum model to help explain types of news convergence partnership and cross-media alliances. Lowery (2005) used institutional theory from the study of organizations to determine if news partnerships between various news media in local markets were more driven by actual versus perceived benefits. These and similar studies, that make up a significant volume of news and new media studies and textbooks over the past several years, seem to imply shared news partnerships serve an audience function, yet the audience is rarely included in the data or analyses.

More research attempting to understand the audience is emerging. Stewart (2007) says that research into adoption and use of new communication technologies increasingly investigates the social context, yet the theoretical sophistication of such research is often weak. Attempting to move beyond the basic adopter/non-adopter model, Stewart uses such theoretical underpinnings as domestication and consumer research to look into the social dynamics of adoption and the formation and operation of informal local networks in decision-making. LaRose, Gregg, Strover, Straubhaar and Carpenter (2007) used path

analysis within a digital divide and social cognitive theory framework to investigate broadband Internet service adoption in rural communities. In this study, prior experience with the Internet, the expected outcomes of broadband usage, direct personal experience with broadband, and self-efficacy had direct effects on broadband intentions. Nguyen (2008) provides a critical analysis of the evolution of online news since the 1990s and says traditional media adopted new media strategies based primarily on a fear-driven defensive approach rather than based on an understanding of the audience. As a result, Nguyen says traditional media are reluctant or lack the resources to use the Internet productively, and with the dramatic changes taking place in news and other content distribution and use through the Internet, traditional media are more threatened now than ever. Nguyen points to industrial developments in 2005 and 2006 making the Internet a major news medium, not changes going on with the audience.

Kayahara and Wellman (2007) compared people's interpersonal to Internet sources for information on cultural activities and found that people first obtain information from interpersonal or other offline sources and then use the Web for information amplification. These researchers suggest a uses and gratifications approach to help understand people's decisions about what information to seek, but also say their findings also have implications for the traditional two-step flow model of communication. They suggest new steps in the flow of decision-making: (a) people receive recommendations from their interpersonal ties, (b) they gather information about these recommendations online, (c) they take this information back to their ties, then (d) they go back to the Web to check the new information that their ties have provided. This suggestion is particularly useful as the present study moves to its second phase.

Wood and Moreau (2006) looked at how emotions can play an important role in the initial use of innovations and suggest two opposing arguments regarding whether the inclusion of emotional responses increases the predictive power of traditional models of diffusion. Ultimately, they say the learning process is potentially emotion generating, without regard to net benefits, and this emotion colors product evaluations. Wei (2006) examined factors that influence the adoption of Wi-Fi in the workplace. Similar to the adoption of the Internet at home, results show that perceived advantages and compatibility of wireless Internet, larger number of fellow employees and family members already using wireless Internet, and higher frequency of communication with technicians about the wireless system all lead to a higher likelihood of using wireless Internet at work.

Other studies have looked more specifically at news and information related to new media. Reese, Rutigliano, Kideuk and Jaekwan (2007) examined blogs to study their relationship to other blogs as well as to traditional media and found a more complementary relationship between blogs and traditional journalism than expected. These researchers say the blogosphere, although often assumed to be about 'new voices,' relies heavily on professional news reports. Gordon (2007) investigated the influence of mobile phones on news agendas, gatekeepers and primary definers and questioned the extent to which the mobile phone is challenging conventional and official sources of

information. These studies serve as yet more examples of new media research that is more operations and business focused than audience focused.

Overall, existing research demonstrates that Diffusion of Innovations continues to be an appropriate and widely used model for investigating current developments with the Internet and news in a world of new media. Other traditional media theories—from uses and gratifications to social cognitive theory—are also sometimes used and sometimes appropriate. However, a more sophisticated level of understanding is needed when it comes to the complexities of what motivates users and what drives their attitudes and behaviors. The current investigation assumes this is a vital, yet often overlooked, aspect of new media use.

Need for Cognition

Cacioppo and Petty (1982), in introducing Need for Cognition (NC) referred to the construct as "the tendency of an individual to engage in and enjoy thinking" (p. 116). Individuals lower in Need for Cognition are seen as 'stingy' in their mental processes, while those high on the scale show more motivation to think deeply. Individuals with a high need for cognition therefore are expected to more thoroughly process complex information and develop 'meaningful interpretations' in which to address a particular issue or problem (Cacioppo & Petty, 1982). Such individuals are expected to review and test more possibilities or alternatives in their assessment of situations and thus may be more effective problem solvers, and those high in need for cognition are expected to process messages following a more systematic approach than those low in need for cognition. This model, as noted previously, is the foundation for this first stage of this two-stage research project and guided the hypotheses that follow.

NEED FOR COGNITION AND NEW MEDIA USE FOR INFORMATION

Hypotheses

The design of the questionnaire and focus of the current study were guided by the following hypotheses, based on the Need for Cognition scale:

H1: The need for cognition is positively related to using new media devices to watch television shows rather than using a television at home.

H2: The need for cognition is positively related to using new media devices to watch news programs rather than using a television at home.

H3: The need for cognition is positively related to using new media devices to check sports scores.

H4: The need for cognition is positively related to using new media devices to check breaking news rather than using a television at home.

H5: The need for cognition is positively related to the preference of using new media.

Method

A convenience sample consisting of 124 upper-level undergraduate and graduate students at a medium size southern university responded to a series of questions regarding their use of new media technologies during the spring 2008 semester.

Questions were designed to determine specific technology use as well as specific uses related to information gathering via the Internet. Regarding gender, 43 were male and 81 were female. The age range of participants was between 20 and 48 years old, with the mean age 29. With respect to their year in school, 29% were juniors, 18% were seniors, and 53% were graduate students.

Participants responded to a questionnaire consisting of three sections. The first section had twelve questions on how likely they would use the new media devices for news and information. The second section was the 16-item short scale regarding the Need for Cognition. The individual score was measured on a four-point Likert-type scale. Half the items on this scale were worded positively, and half of them were worded negatively. Participants indicated their agreement or disagreement with each item on the four-point Likert scale ranging from completely false to completely true. The last section was a demographics section consisting of four questions on participants' gender, age, year in school, and major. The questionnaire was handed out to participants during several different regular class sessions. They were informed that their participation was completely voluntary and anonymous. It took participants about 10 minutes to complete the questionnaire, which was returned to the researcher immediately upon completion.

Results

Hypothesis 1 suggested that an individual's need for cognition is a predictor of using new media devices to watch television shows rather than on a television at home among students. A correlation analysis was used to show that the mean score on the NC correlated significantly with mean score on using new media devices to watch television shows among respondents. ($r=.367$, $p=.000$).

Multiple regression was used to analyze the influences of gender, age, year in school, and need for cognition on using new media devices to watch television shows rather than on a television at home. Results of the regression analysis indicated that 15% of variance in need for cognition ($F=5.333$, $p=.001$) contributed significantly to the variance on using new media devices to watch television shows whereas none of the other variables contributed significantly to the variance.

Hypothesis 2 suggested that an individual's need for cognition is a predictor of using new media devices to watch news programs rather than on a television at home among respondents. There was a significant positive correlation between scores on NC and scores on using new media devices to watch news programs among respondents. ($r=.258$, $p=.004$).

Results of the regression analysis indicated that 10% of variance in need for cognition ($F=3.320$, $p=.013$) contributed significantly to the variance on using new media devices to watch news programs whereas none of the other variables contributed significantly to that variance.

Hypothesis 3 suggested that an individual's need for cognition is a predictor of using new media devices to check sports scores among respondents. A correlation

analysis was used to show that the mean score on the NC correlated significantly with mean score on using new media devices to check sports scores among respondents. ($r=.194$, $p=.031$).

Results of the regression analysis indicated that 8% of variance in need for cognition ($F=2.14$, $p=.018$) contributed significantly to the variance on using new media devices to check sports scores whereas none of the other variables contributed significantly to the variance on that.

Hypothesis 4 suggested that the need for cognition is positively related to using new media devices rather than television at home to check breaking news. There was a significant positive correlation between scores on NC and scores on using new media devices to check breaking news. ($r=.193$, $p=.032$).

Results of the regression analysis indicated that 12% of variance in need for cognition ($F=2.54$, $p=.027$) contributed significantly to the variance on using new media devices to watch news programs whereas none of the other variables contributed significantly to that variance.

Hypothesis 5 suggested that the need for cognition is positively related to the preference of using new media devices for news and information among respondents. A correlation analysis was used to show that the mean score on the NC correlated significantly with mean score on the preference of using new media devices for news and information. ($r=.187$, $p=.038$).

Results of the regression analysis indicated that 6% of variance in need for cognition ($F=1.251$, $p=.024$) contributed significantly to the variance on preference of using new media devices for news and information whereas none of the other variables contributed significantly to the variance on that.

Limitations

One limitation of the study was the limited variability in the demographic characteristics of the convenience sample from one university, although the particular sample used did offer a reasonably diverse age range. The distribution of ethnicity of participants of the study was not identified. In addition, a technical problem in carrying out the study might have occurred. The data were collected through a questionnaire that may not have been sensitive enough to pick up the actual behaviors sought to be measured by the study. In other words, there might have been some discrepancies between filling out the questionnaire and actual behavior.

Implications

This research sought to examine the relationship between the need for cognition and using new media devices for news and information among new media users. Participants appeared to use new media devices, such as a cell phone, Blackberry, and iPod, to watch television shows and news programs. Furthermore, respondents used the new media devices to check sports scores and breaking news in place of using a

television at home. Results confirmed the hypotheses that there was a positive correlation between the need for cognition and using the new media devices for news and information among respondents. Gender, age, and year in school, however, did not contribute significantly to using the devices. Personality factors found in the Need for Cognition index was a predictor of using new media devices. The results suggest that individuals who enjoy engaging in complex cognitive tasks and effortful cognitive activity are most likely to use new digital media devices to receive news and information.

Suggestions for Future Research

The participants for this study were selected from a student body in a university. A wide sample is always preferable in any study. Different ethnic groups should be also included in future study. In addition to filling out the questionnaire, it would be desirable to interview the participants regarding how they actually use new media devices and what they use them for. However, since a major goal of this preliminary study was to assess the usefulness of Need for Cognition as an analytical tool regarding users' digital media adoption and use, the limitation of the convenience sample was not as much of a limitation compared to a study seeking generalizable results. Continued consideration of other models and theories which help explain human individual and social behavior appears to also be appropriate.

CONCLUSION

The findings in this initial stage of this two-part research project are promising. The project used a simpler model from the field of psychology (Need for Cognition) than is planned for stage two, where the Big Five Trait Taxonomy will be used as a measure of leadership, innovativeness and other traits of new media users related to their use of the Internet and specific applications on the Internet. Administering the current survey to a broader sample, then developing a new instrument to test for other personality factors, should bring a greater understanding to what appeals to today's news audience about new media sources in comparison with traditional media sources.

Scholars and the popular press continue to discuss and evaluate the ongoing change taking place with electronic media. Some assume the nature and content of electronic media delivered through the Internet is really nothing new; others assume individuals are using the media in drastically different ways than in the past, and significant social changes will emerge. Understanding issues about how and why individuals are making decisions about digital media use are therefore important. This initial study should point researchers in useful directions for understanding more about how personality traits correlate with user behaviors.

References

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, 42, 116-131.

Cheney, G., Block, B. L., & Gordon, B. S. (1986). Perceptions of innovativeness and communication about innovations: A study of three types of service organizations. *Communication Quarterly*, 34(3), 213-230.

Cheng, J. (2007, September 9) Universal files suit against Veoh for mass copyright violations. *ARS Technica*. Retrieved January 27, 2009 from <http://arstechnica.com/news.ars/post/20070909-universal-files-suit-against-veoh-for-mass-copyright-violations.html>

Chung, D. S. & Yoo, C. Y. (2006). *Online user motivations and use of interactive features on an online news site: A uses and gratifications approach*. Paper presented at the International Communication Association Conference, Dresden, Germany, 2006, Journalism Studies Division.

DeMars, T. R. (2008). News Convergence Arrangements in Smaller Media Markets. In *Understanding Media Convergence*, A. Grant and J. Wilkinson (eds.). New York: Oxford University Press.

Gordon, J. (2007). The mobile phone and the public sphere: Mobile phone usage in three critical situations. *Convergence: The Journal of Research into New Media Technologies*, 13(3), 307-319.

Kaye, B. K. (1998). Uses and gratifications of the world wide web: From couch potato to web potato. *New Jersey Journal of Communication* 6(1), 21-40.

Knobloch-Westerwick, S. & Alter, S. (2007). The gender news use divide: Americans' sex-typed selective exposure to online news topics. *Journal of Communication*, 57(4), 739-758.

Kraepelin, C. & Criado, C. A. (2005). Building a case for convergence journalism curriculum. *Journalism & Mass Communication Educator*, 60(1), 47-56.

LaMonica, P. R. (2007, March 13). Viacom sues 'GooTube' for \$1 billion. Retrieved January 22, 2008 from: http://money.cnn.com/2007/03/13/news/companies/youtube_viacom_reaction/index.htm

LaRose, R., Gregg, J., Stover, S., Straubhaar, J. & Carpenter, S. (2007). Closing the rural broadband gap: Promoting adoption of the Internet in rural America. *Telecommunications Policy*, 31(6/7), 359-373.

Leone, C., & Dalton, C. (1988). Some effects of the need for cognition on course grades. *Perceptual and Motor Skills*, 67, 175-178.

Parker, B. J. & Plank, R.E. (2002). A uses and gratifications perspective on the Internet as a new information source. *American Business Review* 18(2), 43-49.

Reese, S. D., Rutigliano, L., Kideuk H. & Jaekwan, J. (2007). Mapping the blogosphere: Professional and citizen-based media in the global news arena. *Journalism*, 8(3), 235-261.

Rogers, E.M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.

Rogers, E. M. (2004). A prospective and retrospective look at the diffusion model. *Journal of Health Communication*, 9, 13-19.

Rogers, E. M., & Scott, K. L. (1997). *The diffusion of innovations model and outreach from the national network of libraries of medicine to Native American communities*. Draft paper prepared for the National Network of Libraries of Medicine, Pacific Northwest Region, Seattle, available: <http://www.au.af.mil/au/awc/awcgate/documents/diffusion/rogers.htm>

Sadowski, C., & Gulgoz, S. (1996). Elaborative processing mediates the relationship between the need for cognition and academic performance. *Journal of Psychology*, 30, 303-308.

Stewart, J. K. (2007). Local experts in the domestication of information and communication technologies. *Information, Communication & Society*, 10(4), 547-569.

Stone, B. (2008, March 11). Testing over, Hulu.com to open its TV and film offerings this week. *New York Times*, Media & Advertising. Retrieved March 22, 2008 from: <http://www.nytimes.com/2008/03/11/business/media/11hulu.html?ref=business>

Van den Bulte, C. & Stremersch, S. (2004). Social contagion and income heterogeneity in new product diffusion: A meta-analytic test. *Marketing Science*, 23(4), 530-544.

Veoh (2007). Retrieved March 11, 2008 from http://appserver.veoh.com/static/corporate/press_releases/02_13_2007.html

Websiteoptimization.com (2008, February). U. S. broadband penetration to break 90% by mid-2008 among active Internet users. Retrieved March 20, 2009 from: <http://www.websiteoptimization.com/bw/0802/>

Wei, R. (2006). Wi-Fi powered WLAN: When built, who will use it? Exploring predictors of wireless Internet adoption in the workplace, *Journal of Computer-Mediated Communication*, 12, 155-175.

Wilson, B., Ryder, M., McCahan, J. and Sherry, L. (1996). Cultural assimilation of the Internet: A case study. M. Simonson (Ed.), Proceedings of Selected Research and Development Presentations. Washington, D.C.: Association for Educational Communications and Technology [WWW document]. URL <http://www.cudenver.edu/~bwilson/cultass.html>

Wood, S. L. & Moreau, C. (2006). From fear to loathing? How emotion influences the evaluation and early use of innovations. *Journal of Marketing*, 70(3), 44-57.