



How college students read and write on the web: The role of ICT use in processing online information



Bu Zhong^{a,b,*}, Alyssa J. Appelman^{c,1}

^a College of Communications, Pennsylvania State University, United States

^b School of Communication, Hong Kong Baptist University, 5 Hereford Road, Kowloon Tong, Kowloon, Hong Kong, China

^c College of Communications, Pennsylvania State University, 115 Carnegie Building, University Park, PA 16802, United States

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ABSTRACT

The diffusion of information and communication technology (ICT) has enabled people to process more information than at any time in human history. Despite a growing body of scholarship in ICT use and information processing, we still know very little about how people process mediated information in an online environment. This study contributes to the understanding of this process by investigating the connection between ICT use and processing of online news information. Through an experiment ($N = 114$), several interesting relationships were detected. First, perceived credibility of a news article was significantly correlated with enjoyment, knowledge gain, and motivation. In addition, recall was significantly related to credibility, enjoyment, knowledge, and motivation. Implications and avenues for future research are discussed.

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1. Introduction

Information processing has played a central role in shaping people's perception and behavior (Massaro, 1993). The diffusion of information and communication technology (ICT) enables people to receive, process, and create more information than at any time in human history, and all of these are increasingly conducted on the Internet.

Despite a growing body of scholarship in the areas of information processing and ICT usage (e.g., Sundar & Marathe, 2010), we still know very little about how people process mediated information in an online environment. The purpose of this study, then, is to fill this gap in the literature by investigating the connection between ICT use and processing of online information. It thus explores the following questions: How do people process news information online? How do people create media content online? Do individual differences moderate these processes? Specifically, the current research analyzes relationships among power usage, news media creation, and news media consumption. It also looks at relationships among news media consumption variables.

* Corresponding author at: School of Communication, Hong Kong Baptist University, 5 Hereford Road, Kowloon Tong, Kowloon, Hong Kong. Tel.: +852 3411 7834.

E-mail addresses: zhongbu@gmail.com (B. Zhong), alyssa.appelman@psu.edu (A.J. Appelman).

¹ Tel.: +1 (314) 640 2898.

Overall, this study examines the links between ICT use and information processing in an online environment.

Theoretically, this study adds to the literature on power usage and connects it with other concepts. Practically, it helps web users understand how attitudes toward technology affect news media consumption. It should also help web producers better understand their readers and customize information for them.

2. Literature review

2.1. Power usage of ICT

Users of ICT differ from one another along a continuum of use efficiency; some use the technology more efficiently than others. Sundar and Marathe (2010) refer to efficient ICT users as “technology efficacious individuals.” Other researchers simply call them “power users” (e.g., Zhong, 2013). According to Zhong (2013), power users are those who use technology “more innovatively, efficiently and thoroughly than other users” (p. 1742). Power usage thus may be viewed as an individual difference referring to a high level of technological efficiency. Several studies have explored the notion of power usage and the characteristics of power users (e.g., Marathe, Sundar, Nije Bijvank, Van Vugt, & Veldhuis, 2007; Sundar & Marathe, 2010; Zhong 2013). However, no study so far was found to address the effects of power usage on processing online information.

The concept of “power user” has shared roots with Rogers (1995) notion of “innovators,” but it differs in certain ways. Rogers talks about five adopter categories on the continuum of innovativeness – “innovators, early adopters, early majority, late majority, and laggards” (p. 279). His innovators are the people most likely to adopt the technological innovation first. The notion of power usage is quite different in this aspect, though both include an element of user efficiency. Just like the “innovators,” the power users show an eagerness to try and adopt new ICT ideas, while laggards, on the opposite end of the spectrum, are more traditional, isolated, and set in old ways (Severin & Tankard, 2001). Unlike innovative users, however, power users are not necessarily early adopters, who sometimes might also be later adopters or early majority. What matters the most is that power users use technology more innovatively, productively, and efficiently than other users, for instance, heavy users (Zhong, 2013). Marathe et al. (2007) explained that there are four dimensions to power usage: motivation (“Do you want to use technological interfaces?”), expertise (“Are you able to use technological interfaces?”), efficacy (“Do you think you can use technological interfaces?”), and behavior (“Do you actually use technological interfaces?”). The researchers suggest that these questions indicate characteristics of a power user. In this way, power usage is similar to high ICT technological efficiency, but it offers the added dimensions of motivation, expertise, and behavior, thus making it a worthwhile concept in its own right. Conceptually, these represent the notion of power usage for this study. The specific questions used to measure power usage are explained in Section 3.

2.2. Power usage and news media creation

The first relationship of interest to this study is the connection between power usage and media creation. People not only read and share information on the Internet, but they create information on the Internet, as well, by writing and distributing their own content. Prior research has distinguished among the types of online activities in which people engage (e.g., Howard & Jones, 2003). Beyond demonstrating users’ differential uses of information and communication technologies, the literature has also identified that differential uses have the potential to contribute to social inequality (DiMaggio, Hargittai, Celeste, & Shafer, 2004; Mossberger, Tolbert, & Stansbury, 2003). Gillmore (2006) found that individuals who created more content on the Internet also scored higher on the self-efficacy dimension than those less involved in content creation. Leung (2009) argued that people with the knowledge and skills to create online content may have a different personality; cognitive and motivational aspects of personal control; and competence. Consequently, power usage, which was found to be mediated by personality traits (Zhong, 2013), might affect information processing, which could color the way people create online media content.

The current study thus explores the content length, clarity, and valence of participant-created content. As part of the experiment, participants were asked to write an essay about a typical day in their lives; this writing prompt was used so as not to cause much emotional arousal (see Schwarz & Clore, 1983). This study analyzed those essays to measure the relationships between power usage and word count, word quality (i.e., grammatical clarity), and word valence (i.e., positive or negative words). Since little research addressing these connections, several potential findings might be generated in this research. For example, power users of ICT may write longer pieces than ordinary ICT users because they may do things more efficiently in a limited time period. In addition, maybe power usage is correlated with general intelligence, in which case power users would have fewer grammatical errors in their pieces. On the other hand, maybe power users’ ICT efficiency requires so

much cognitive effort that they have little left for other tasks; in this way, perhaps power users would write shorter essays with more grammatical errors.

This study also looks at word valence. Research has suggested that, in general, web surfing seems to be associated with positive emotions (e.g., Appiah, 2003; Garrett & Danziger, 2008; Perse & Ferguson, 2000). Maybe power users, who are efficient web surfers, are more positive about the experience and, therefore, would write essays with more positive words. On the other hand, maybe frequent use numbs them to the positive effects of surfing. As a result, maybe power users tend to be neutral or negative about the experience and, therefore, would write essays with more negative words. These suppositions, and the exploratory nature of these relationships, lead to this study’s first research question:

RQ1: What is the relationship between ICT power usage and content creation, in terms of content length, clarity, and word valence?

2.3. Power usage and news media consumption

This research also examines the relationship between power usage and news media consumption. Maybe power usage affects information processing by influencing users’ perceptions of online content. This study looks at the effect of power usage on four specific perceptions of news media content: credibility, enjoyment, knowledge, and motivation for seeking related information.

2.3.1. Credibility

Media credibility is defined as “perceptions of a news channel’s believability, as distinct from individual sources, media organizations, or the content of the news itself” (Bucy, 2003). Medium credibility is differentiated by its focus on how the chosen medium affects the way that viewers decipher the message (Kioussis, 2001). Chung, Nam, and Stefanone (2012) view it as “a perceived quality based on multiple factors, including trustworthiness and expertise” (p. 173). Other scholars contend that media credibility combines ratings of bias, trustworthiness, balance, accuracy, completeness, and fairness (Fico, Richardson, & Edwards, 2004). For the purposes of this study, credibility refers to perceptions of accuracy, trust, and believability.

Based on related research, several possible relationships exist. The research on online credibility has produced mixed findings (Wathen & Burkell, 2002). Maybe power users perceive online news content to be more credible because they consume it more frequently. This would support Kioussis (2001), which found that online media use was correlated with perceptions of online media credibility. It would also support Stavrositu and Sundar (2008), which found that, in the context of information, Internet credibility is predicted by Internet use. On the other hand, maybe power users are more skeptical about online news content from their frequent use and, therefore, perceive it to be less credible. This would support several studies that find people distrust online news media, particularly from non-traditional media sources (e.g., Melica & Dixon, 2008).

2.3.2. Enjoyment

Media scholars have found a great deal of evidence demonstrating enjoyment as a primary effect of media use (Sherry, 2004). Enjoyment refers to a general positive reaction toward media content (Miron, 2003; Zillmann, 1988), and it may serve as “an indicator of consumption and potential profit” (Nabi & Krcmar, 2004, p. 288). Raney (2003) defines the construct as the sense of pleasure derived from consuming media products, while Bosshart and Macconi (1998) conceptualize it as a pleasurable reception phenomenon composed of the physical system, personality, emotions

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