Computers in Human Behavior 40 (2014) 171–179

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Photo-messaging: Adopter attributes, technology factors and use motives

Daniel S. Hunt [a,*], Carolyn A. Lin [b,1], David J. Atkin [b,1]

[a] Worcester State University, USA
[b] University of Connecticut, USA

ARTICLE INFO

Article history:
Available online 14 September 2014

ABSTRACT

The purpose of this study was to develop a model of technology diffusion and impression management variables on photo-messaging behavior. Diffusion variables, such as innovativeness and technology clusters, were demonstrated to be predictors of sending photo messages and online sharing. Impression management motives – self-expression and self-presentation – were also indicators of photo-messaging. The perceived usefulness of mobile technology for sending and sharing was identified as an important influence of photo-messaging frequency; while perceived ease of use was not a predictor. Taken together, the findings indicate the importance of integrating technological adoption factors and motives for impression management in social media research.

1. Introduction

The creation and use of photographic images by individuals has changed dramatically in recent years due to striking advances in mobile phone technology. Mobile phones are now equipped with digital cameras, which allow users to point and shoot with automated zoom features, light filtering, etc. The key difference between a mobile phone camera and a traditional digital camera lies in a mobile phone user's ability to shoot an image and upload that image instantly to online networking and photo sharing sites. When describing the ubiquitous nature of photography, Hand (2012) states that, "the digitization of photographs has enabled the photographic image to become networked within a range of globally connected flows of information" (p. 11).

Recently, the Pew Research Center's Internet and American Life Project found that the most common activities by cell phone owners are texting and taking pictures, followed by sending photos or videos (Brenner, 2012). In the socially-mediated environment, 54% of adult users post original photos or videos they have created; another 47% of adult Internet users curate existing visual media by taking and reposting photos or videos that they've found online on sites designated for sharing with others (Duggan, 2013). According to Van House and Davis (2005), the mobile phone camera application serves three primary functions: to communicate, express oneself, and capture memory.

As the proliferation of photographic messages being sent and shared online continues, these social behaviors are emerging as part of our mediated interaction culture. Yet our understanding of the factors that influence these behaviors remains preliminary at best. The purpose of this study is to develop a model illustrating the influence of technology diffusion factors as well as impression management variables on photo-messaging behavior. We hope to explain how innovativeness – an important personality factor known to influence technology adoption – and the ownership of technology clusters influence the impression management behavior of sending and sharing of photo messages. Another goal of this study is to determine how motives for self-expression and self-presentation influence the frequency of sending and sharing photo messages. We begin by providing a definition and overview of current research on photo-messaging.

1.1. Photo-messaging behavior

The proliferation of image capturing and image sharing via social networking sites has encouraged scholars to revisit the definition of "photo-messaging." Most social networking sites allow for instant posting of images in photo galleries or sharing images to one's network. In addition to being able to use popular social networking sites (SNSs) and online photo galleries (i.e., Shutterfly) to share images, new applications for photo sharing are growing in popularity. Programs such as Pinterest, Instagram, and Tumblr

* Corresponding author. Address: 486 Chandler St., LRC 328B, Worcester, MA 01602, USA.
E-mail addresses: dhunt@worcester.edu (D.S. Hunt), carolyn.lin@uconn.edu (C.A. Lin), david.atkin@uconn.edu (D.J. Atkin).
[1] Address: 337 Mansfield Road, Unit 1259, Storrs, CT 06269-1259, USA.

http://dx.doi.org/10.1016/j.chb.2014.07.030
0747-5632/

have made it easy to share original images, videos, or curate content (Rainie, Brenner, & Purcell, 2012).

Hence, an appropriate definition for photo-messaging is inclusive of various platforms for image-based sending and sharing. Photo-messaging might include one-to-one picture-based messaging or uploading an image from an electronic device for viewing by one's personal network. Therefore, the broad definition of photo messaging is an exchange of messages using photographs (Hunt, Lin, & Atkin, 2014). Defining photo-messaging in this manner is consonant with definitions of visual communication (i.e., Kenney, 2009) and accounts for web-based communication moving beyond only including mobile-to-mobile image messaging (i.e., Villi, 2007). Photo-messaging represents a form of communication that is richer in cues than text-based communication and instantly compatible with online and mobile applications (Fulk, 1993).

Technology adoption research has identified several predictors of technological adoption. Leung and Wei (1998) grouped these factors into the categories of personality traits, interpersonal channels/mass media use, socioeconomic influences, and the perceived attributes of an innovation. Due to difficulties in measuring all of the antecedents of photo-messaging, we will focus our efforts on some of the most salient factors in the adoption literature: perceived technology attributes, innovativeness, technology clusters, and impression management factors – self-presentation and self-expression.

1.2. Technology attributes

The Technology Acceptance Model (TAM) is one of the most widely used theoretical frameworks in the study of technology adoption (Davis & Venkatesh, 1996; Park, 2010; Venkatesh, Morris, Davis, & Davis, 2003); the theory extends the Theory of Reasoned Action to technology-specific variables (Davis, 1989). The parsimonious model was devised to predict and explain the factors that influence user behavior with technology systems that have already been adopted by an organization (Davis, Bagozzi, & Warshaw, 1989).

In particular, the TAM focuses on two important antecedents of system use, perceived usefulness and perceived ease of use. Perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Perception of usefulness is related to the "relative advantage" attribute, outlined as a key facilitator of innovation adoption according to diffusion theory (Rogers, 2003). Davis (1989) defined perceived ease of use as "the degree to which a person believes that using a particular system would be free from effort" (p. 320). This concept also has a corollary in diffusion theory, that of complexity, lower levels of which are predictive of technology adoption (Rogers, 2003). According to the model, both of the perceived technology attributes–usefulness and ease of use–impact behavioral intention, which in turn influences actual use of the technology.

In the present case, camera phone technology itself has improved dramatically in recent years. Technological features have made it easier to communicate through the use of photographs and to share photographs instantly. Placing these advances in usability in the context of the TAM, our first set of hypotheses test the presumed role of ease of use and usefulness in how often individuals may send and share photo messages; more formally:

H1. Perceived usefulness will be positively related to the frequency of sending and sharing photo messages.

H2. Perceived ease of use will be positively related to the frequency of sending and sharing photo messages.

In the next section, we will address the role of innovativeness in technology adoption. Specifically, we will look at the influence of innovativeness on perceived ease of use and perceived usefulness.

1.3. Innovativeness

Innovativeness is one of the most important constructs in determining the adoption of technology (Vishwanath, 2005). Rogers (2003) describes innovativeness as the degree to which an individual is earlier in adopting than others in the social system. Innovativeness has been shown to predict the adoption of several new communication technologies, such as webcasting and interactive television (Leung & Wei, 1998; Lin, 2004). Rogers (2003) presents several generalizations for personality traits associated with innovativeness. He suggested, for instance, that individuals who are more innovative favor change and typically express higher socioeconomic aspirations. The innovator adopter category was described by Rogers as "venturesome."

Goldsmith and Foxall (2003) described the three ways in which researchers operationalize innovativeness as a behavioral (act of adoption), domain-specific (related to other similar innovations), and trait (a personality variable). Lin (1998) explicated the "need for innovativeness" construct because it allowed for the important distinction between "innate" and "actualized" innovativeness. She explained, in particular, that actual adoption results from the combination of need for innovativeness with other factors. The present study operationalizes innovativeness in line with the trait approach from this body of diffusion literature.

The adoption of a new innovation requires that individuals overcome its technological complexity (Vishwanath, 2005). Generally, the more complex an innovation's technological features, the lower its rate of adoption (Rogers, 2003). Innovative individuals are more likely to demonstrate a willingness to learn and seek out novel innovations (Lin, 2004; Vishwanath, 2005), including such technical features as higher resolution video displays (e.g., Atkin, Neuendorf, Jeffres, & Skalski, 2003). Another attribute influencing adoption is the technology's "relative advantage," which assesses how an innovation is perceived to be better than another innovation (Rogers, 2003). Davis (1989) developed the perceived usefulness construct to better understand how an innovation can be used advantageously in organizational contexts. Similarly, innovativeness influences how individuals perceive new innovations to have greater utility than an existing product or service (Hirschman, 1980).

Photo-messaging can be considered an innovation developed with a social purpose in mind. Hence, the attributes that propel an individual to use photo-messaging technology are worth exploring, in order to gain a better understanding of the social communication meanings of the adoption and uses of this visually oriented technology. We seek to determine the influence of individual innovativeness on the frequency that people send photographic messages and share images online. Based on the diffusion framework outlined above, our next two hypotheses describe these presumed relationships:

H3a. Innovativeness will be positively related to the perceived usefulness of photo messaging technology.

H3b. Innovativeness will be positively related to the perceived ease of use of photo messaging technology.

A related variable influencing the adoption and use of innovations is technology clusters, to be explored in the section to follow.

1.4. Technology clusters

Technology clusters are the distinct elements of technology that are perceived to be interrelated (Rogers, 2003). Innovations diffusing at the same time are often interdependent and should be treated as such in adoption research (Atkin et al., 2003; Lin, 2004; Rogers, 2003). If a person already uses similar technologies, the