THE IMPACT OF PERCEIVED INTERACTIVITY ON INDIVIDUAL PARTICIPATION IN MICRO-BLOGGING

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Abstract

The purpose of this research-in-progress paper is to explore factors affecting users’ participation in microblogging. Based on literature review and the stimulus-organism-response (S-O-R) framework, a conceptual model is proposed to depict the relationships between the features of microblogging services and users’ behavior. Specifically, the features of micro-blogs such as subscription, broadcasting and interoperability are believed to influence users’ perception of interactivity, which is considered as a key factor affecting individuals’ sense of telepresence and social presence, and eventually affect individuals’ participation in microblogging. The future research and expected contribution is discussed at the end.

Keywords: Features of technology, perceived interactivity, telepresence, social presence, individual participation
1 INTRODUCTION

Microblogging, which could be considered as a combination of blogging and instant messaging, allows users to broadcast short messages within a limit of 140 characters. It provides a lightweight, easy form of communication that enables users to broadcast and share information about their activities, opinions and status (McFedries 2007). Given the rapid growth in numbers of microblog users, it is necessary to explore why so many people adopt this service and become active users. We believe such research will shed some lights on developing other applications. To present, microblogs have attracted great attention from researchers. Some researchers studied online word-of-mouth (OWOM) marketing via microblogs (Jansen, Zhang, Sobel & Chowdury 2009), some explored the relationship between gratification obtained and user behavior (Wang & Zhu 2012). However, few researches have taken the characteristics of IT artefact itself into consideration, as stated by Benbasat (2007). Therefore, few researchers have concerned the relationships between features of microblog itself and individual participation in microblogging. Previous research indicated that perceived interactivity was a major determinant of telepresence and social presence (Animesh, Pinsonneault, Yang & Oh 2011; Fortin & Dholakia 2005; Lee et al. 2011), and also an important factor that affects user’s behavior intention (Lee et al. 2011). In this paper, we will theorize how technology features that influence perceived interactivity in microblogs might shape individual participation.

The stimulus-organism-response (S-O-R) framework (Bitner 1992; Williams & Dargel 2004) is employed as the framework for this study. It suggests that virtual world environmental stimuli influence users’ organismic experiences (i.e., perceived interactivity, telepresence, and social presence), and subsequently affect response (participation in micro-blogging) (Animesh et al. 2011). Since the “virtual world” is micro-blogging services in this paper, the technological features of micro-blogs (i.e., broadcasting, and subscription) are examined as the environmental stimuli. The aim of this paper is to examine individuals’ participation in microblogging, and to find out its determinants. Especially, how the technological characteristics of micro-blogs influence perceived interactivity and users’ behaviors.

As mentioned by previous studies, perceived interactivity plays an important role in influencing users’ participation in micro-blogging, but there are still a lot of researchers concerning the role of “actual interactivity” in virtual world. Actual interactivity could be defined by focusing on the features of a medium, or capabilities of creating interactive content or messages, or potential for interaction in general (Wu 2005). It provides the potential to allow for interaction, but the degree to which actual interactivity is fulfilled depends largely on the perceiver (Song & Zinkhan 2008; Wu 2005). Just as Reeves and Nass noted, “perceptions are far more influential than reality defined more objectively”. Similarly, it is believed that perceived interactivity is more important, and plays a critical role in shaping technological features’ influence on participation.

Previous research also indicated that perceived interactivity does not directly affect the outcome variable (Animesh et al. 2011; Fortin & Dholakia 2005; Lee et al. 2011; Ridings, Gefen & Arinze 2002). Therefore, perceived interactivity in this study is believed to have an impact on virtual experience (i.e., telepresence and social presence). A medium’s ability to provide the feeling that the user is “there” inside the media is defined as telepresence (Nowak & Biocca 2003), and convey the perceived presence of others is defined as social presence (Short, Williams & Christie

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Both telepresence and social presence have been confirmed to influence users’ behavioral intention (Animesh et al. 2011; Fortin & Dholakia 2005; Lee et al. 2011).

2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Telepresence and Individual Participation

Telepresence is defined as “the experience of presence in an environment by means of a communication medium,” i.e., telepresence is the “extent to which one feels present in the mediated environment, rather than in the immediate physical environment” (Steuer 1992). It is also referred to as the “feeling of being a part of the phenomenal environment created by a medium as if they are physically present objects” (Kim & Biocca 1997). Research on physical presence explores this sense of “being in the virtual place,” focusing on ways in which the senses and our actions create a sense of space (Biocca, Harms & Burgoon 2003). As Kim and Biocca found, telepresence was composed of two aspects, which they labeled “arrival” (feeling of being in another environment) and “departure” (feeling of leaving the physical one) (Kim & Biocca 1997; Klein 2003).

Researchers have investigated the role of telepresence in influencing user’s behavioral intention in virtual environment (Animesh et al. 2011; Kim & Biocca 1997; Nah, Eschenbrenner & DeWester 2011). Accordingly, we believe that participants who experience telepresence are less likely to distinguish themselves from a virtual environment. They will present themselves and keep in touch with others just like what they will do in real world. Thus, it is reasonable to assume that users who perceive high telepresence will take an active part in micro-blogging.

H1: Telepresence is positively related to individual participation.

2.2 Social Presence

Social presence is one of the central design principle for social computing technologies and critical in understanding user behaviour (Shen, Yu & Khalifa 2010). As Short et al (1976) stated, social presence represents the degree to which a medium conveys the perceived presence of communicating participants in the two-way exchange. That is exactly “the feeling of ‘being with another’ (Biocca et al. 2003) or the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships” (Short et al. 1976). Because the social presence of the other is mediated by telecommunication technology, it might be more accurately described as mediated social presence or social telepresence(Biocca et al. 2003).

Because of “the feeling of being with another”, people who experience a high presence of other people’s involvement in virtual world would like to communicate more with others to build a virtual identity. This has been verified by several researches (Animesh et al. 2011; Cheung, Chiu & Lee 2011;Lee et al. 2011;Shen et al. 2010). So participants with strong sense of social presence will have closer personal relationships with other participants in the virtual world (Animesh et al. 2011), and will take an active part in micro-blogging service.

H2: Social presence positively influences individual participation.

2.3 Perceived Interactivity of Micro-blogs

2.3.1 Definition and Dimensions of Perceived Interactivity

Interactivity has been widely discussed by researchers from different perspectives in recent years. The definitions can be categorized into four different perspectives: as a feature of technology, as a process of message exchange, as a user’s perception after using a technology or going through a
process, as the combination of the above three perspectives (Zhao & Lu 2012). For the purpose of this research, the following definition of interactivity is adopted. Perceived interactivity is “the extent to which users perceives their experiences as a simulation of interpersonal interaction and sense they are in the presence of a social other” (Thorson & Rodgers 2006). Interactivity is also a multidimensional concept (Wang & Zhu 2012). Some researchers identified key components of interactivity from the perspective of Web site visitors (Dholakia, Zhao, Dholakia & Fortin 2000), and some conceptualizes interactivity as a six-dimensional construct comprising control, responsiveness, and communication (Song & Zinkhan 2008). Also, the term was considered as the control, responsiveness, playfulness, and connectedness by others (Zhao & Lu 2012). Hoffman and Novak distinguish two levels of interactivity: person-interactivity that occurs between humans through a medium and machine interactivity which occurs between humans and machines (Hoffman & Novak 1996). Comprehensively, interactivity in this study consists of three aspects—user control, responsiveness, and connectedness.

User control is considered as the reflection of machine interactivity, which concerned the perception of technology features. Control refers to the extent to which an individual feels in control of his or her interaction through micro-blogging services with other users (Zhao & Lu 2012). It is a concept to measure “the extent to which performing the behavior is up to the actor” (Ajzen 2002), and is named controllability in this paper. Micro-blogging also pays much attention to person-interactivity. As a social media, it facilitates the communication between people and helps users to maintain relationships with people they may not meet in daily life. It concerns more about the feelings that people get from the interaction when he or she is connecting with others. Responsiveness reflects the extent to which an individual perceives how fast and frequently other users of micro-blogging services respond to his or her message (Zhao & Lu 2012). Connectedness captures the feeling of being connected to one another when users share their experiences and feelings through micro-blogging services (Zhao & Lu 2012).

2.3.2 Perceived Interactivity and Telepresence

Research on individuals’ online experience revealed that increased interactivity was positively related to telepresence. (Animesh et al. 2011). In this study, control over the virtual environment is mainly focus on controllability, which defined as “the extent to which performing the behavior is up to the actor” (Ajzen 2002). Perceived user control is an important determinant of telepresence. It enables users become an actor rather than a bystander and makes the brain adapt itself to the virtual world environment, which is a necessary condition for the creation of a sense of telepresence (Animesh et al. 2011; Klein 2003). Through two experimental studies, Klein (2003) also found that as the level of user control in a computer-mediated environment increases, the level of telepresence experienced will increase. So control over the virtual environment enhances the vicarious experience of the participants and makes them feel that they are themselves present in the virtual world (Animesh et al. 2011). Thus, the following is proposed:

H3: Perceived user control is positively related to the sense of telepresence.

2.3.3 Perceived Interactivity and Social Presence

Similar to the role of perceived interactivity in enhancing the sense of telepresence, it also positively relates to the perception of social presence. Previous studies have proved that there is a positive relationship between the degree of interactivity and the social presence (Fortin & Dholakia 2005; Lee et al. 2011). So we can conclude that there is a positive relationship between perceived interactivity and social presence.

In this paper, connectedness is defined as an individual's feeling of being connected to others through the sharing of experiences and feelings. Responsiveness reflects the extent to which an
individual perceives how fast and frequently other users of micro-blogging services respond to his or her message (Zhao & Lu 2012). Though micro-blogging service, users can keep an eye on what happen to people who they care about but can not be together all the time. It helps to create a sense of intimacy and closeness. When an individual post a tweet on her micro-blog, if there is nobody responding to her contribution, then she will feel discouraged. On the other hand, if a user perceives that many users are using the site frequently and she gets responses to her actions, she is likely to feel acknowledged for her inputs and contributes more to keep in touch with others (Sachdev 2007). As explained above, both connectedness and responsiveness are helped to build the social affordances available to the participants. Previous research also found that perceived sociability positively affect users’ perception of social presence (Animesh et al. 2011). With these in mind, we proposed the following:

H4: Perceived connectedness is positively related to the sense of social presence.
H5: Perceived responsiveness is positively related to the sense of social presence.

2.4 Technological Features of Micro-blogs

Micro-blogging, as a new informal communication medium, enabled by a variety of online social networking tools (e.g., Twitter, Jaiku, Pownce, and Facebook), refers to the activity that users broadcast brief text updates about small little things happening in their daily life and work activities, such as what they are reading, thinking, and experiencing, track real time events, and sustain a feeling of connectedness among peoples. Emotionally, people seem to use micro-blogging to achieve a level of cyberspace presence, being “out there” and to feel another layer of connection with friends and the world (Zhao & Rosson 2009).

As micro-blogging service have gained wide popularity and plays an important role in users’ real life, there are some researchers exploring factors affecting micro-blogging service usage and summarizing the features of micro-blogging service. For example, Zhao and Rosson concluded that micro-blogs was characterized by three features, which are brevity, mobility and pervasive access and broadcasting nature (Zhao & Rosson 2009). Based on a thorough review of past studies on features of micro-blogging service, Ling Zhao, and Yaobin Lu summarized that there were five technology features which made micro-blogs different from other computer mediated communication technologies: brevity, interoperability, mobility, broadcasting, and autonomy (Zhao & Lu 2010). In this paper, we choose three specific features of micro-blogging service: subscription, broadcasting, and interoperability.

Subscription refers that users only follow people they care about to gather information interesting and useful for their work and other personal interests (Zhao & Rosson 2009). Today, there is a great deal of information flowing on the internet. People have to get the right information with limit time and energy. Subscription just gives people the chance to realize it. Users can subscribe to people with whom they share similar interests and are active in that field. Then, they can get useful information they want, and with a high credibility. In the meanwhile, they can follow their friends and colleagues who are out of their life cycles to keep a pulse on what is going on in others’ minds (Zhao & Rosson 2009). Though it may not increase the physical proximity with others who are not in our daily work or life activities, it may lead to virtual feelings of proximity (Zhao & Rosson 2009). Besides, we can discover similar experiences and attitudes from the things what they share (Zhao & Rosson 2009). As several researchers believed, proximity, similarity, and exposure to personal events can facilitated the feelings of connectedness (Zhao & Rosson 2009). Therefore, we posit that:

H6a: Subscription positively affects users’ perception of control.
H6b: Subscription positively affects users’ perception of connectedness.
Broadcasting refers to the public feature of micro-blogging. One’s posts would be “pushed” to those who choose to follow him (Zhao & Lu 2010), which makes it easy for people to share and check posts (Zhao & Rosson 2009). David R. Fortin, and Ruby Roy Dholakia had defined interactivity as “the degree to which a communication system can allow one or more end users to communicate alternatively as senders or receivers with one or many other users or communication devices, either in real time (as in video teleconferencing) or on a store-and-forward basis (as with electronic mail), or to seek and gain access to information on an on-demand basis where the content, timing and sequence of the communication is under control of the end user, as opposed to a broadcast basis (Fortin & Dholakia 2005).” So the broadcasting feature of micro-blogging may somewhat decrease users’ perception of control. On the other hand, just because the broadcasting nature, it is easier to reach a lot of people with less cost. When people want to post some modest information, they would never bother to select recipients for sending via IM or email (Zhao & Rosson 2009). They just broadcast it on their own channel to their “subscribed” audience, and it will arouse more attention and acquire more response from potential browsers (Zhao & Rosson 2009; Zhao & Lu 2010). Thus, we proposed the following:

H7a: Broadcasting negatively affects users’ perception of control.
H7b: Broadcasting positively affects users’ perception of responsiveness.

Interoperability refers to the compatibility with other technologies, which allows users to post through different platforms, such as IM, mobile phones or other complementary service (Zhao & Lu 2010). Thus individuals can use micro-blogging service in different way. It is also more convenient to record daily life and share more personal feelings and thoughts as they occur (Zhao & Lu 2010, 2012). More disclosure on personal activities and feelings will increase the perception of proximity, similarity, and intimacy, which will increase the feeling of being connected. In the meanwhile, interoperability with other technologies also makes it easy and convenient for readers to know what was happening to the sender, and response to these messages as quickly as possible (Zhao & Lu 2010, 2012). Then, we hypothesized the following:

H8a: Interoperability positively affects users’ perception of connectedness.
H8b: Interoperability positively affects users’ perception of responsiveness.

Accordingly, the following research model is presented (Figure 1).

3 SAMPLING

To test the hypotheses, we intend to conduct an online questionnaire survey among Sina Weibo users. As Sina Weibo the best known micro-blogging services in China, we believe the data collected will be representative and also be qualified for analysis.

4 CONCLUSIONS AND EXPECTED CONTRIBUTION

The purpose of this study is to explore whether the features of micro-blogging service will influence users’ virtual experiences (i.e., perceived interactivity, telepresence, and social presence), and subsequently affect users’ participation in micro-blogging. We will empirically test the research model in the context of the most popular micro-blogging service in China.

We also expect this study to have some theoretical and practical implications. Academically, many researchers have paid attention to micro-blogging service. However, few have built and examined the relationships between features of technology itself and user’s ultimate behaviour. This study, based on the S-O-R framework, is to find out how perceived interactivity affects individuals’ participation in micro-blogging. As this study will empirically examine the features of
micro-blogging service affecting users’ perception of interactivity, telepresence and social presence, the findings will provide some implications for practitioners to design and maintain other applications.

References


Kim, T. and Biocca, F. (1997). Telepresence via television: Two dimensions of telepresence may have different connections to memory and persuasion. Journal of Computer-Mediated Communication, 3(2).


