Research Report

User perceptions of e-quality of and affinity with virtual communities: The effect of individual differences

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ABSTRACT

Following the information systems (IS) success model, this study explores the effect of individual differences on users' perceptions of virtual communities in terms of e-quality (namely, information quality, system quality and service quality) of and affinity with virtual communities given individual differences are crucial in determining how individuals think and respond to the environment. This study examines the effect of individual differences on virtual community success dimensions from both physical and psychological perspectives, which we think presents a new view for virtual community research and practice alike. Data collected from users of virtual communities were used for data analysis. First, the cluster analysis was applied and five personality trait clusters were identified in terms of extraversion, agreeableness, openness to new experience, conscientiousness and neuroticism. Then, the independent sample t test and one-way analysis of variance (ANOVA) were employed. The effect of individual differences in terms of gender, age, position, experience with virtual communities as well as the five personality trait clusters on users' perceptions of e-quality of and affinity with virtual communities was explored and discussed.

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1. Introduction

Virtual communities are described as "online social networks in which people with common interests, goals, or practices interact to share information and knowledge, and engage in social interactions" (Chiu, Hsu, & Wang, 2006, p. 1873). A virtual community is a virtual space which provides a platform for people with common interests to interact and communicate with each other to generate and exchange specific information. It enables users to perform common functions, learn from each other, share knowledge, and contribute to the community (Governatori & Iannell, 2011). Consequently, virtual communities not only bring users together to meet some of their social needs, but also aggregate information and resources (Rothaermel & Sugiyama, 2001), thus becoming an integrated part of the information seeking landscape (Ostrander, 2008). Individuals can come to virtual communities to find relevant information they are interested in whether they have explicit queries or not, because virtual communities are likely to be congenial information environments (Burnett, 2000). In this study, we focus on the context of China, where there are many popular

virtual communities such as Baidu Know, Baidu Document, ScienceNet Blog, Chinese Wikipedia and Sina Microblog, each of which attracts millions of users. Given the phenomenal growth, virtual communities are facing increasing competition to attract and retain online members. That is to say, the success of virtual communities can be achieved only when there are a significant number of users who are willing to stay and exchange information with others (Cheung & Lee, 2009).

The information systems (IS) success model has been widely used to assess the success of information systems, virtual communities being no exception (e.g., Lin, 2008; Lin & Lee, 2006; Rodgers, Negash, & Suk, 2005; Yang, 2007). The IS success model was proposed in 1992 and updated in 2003 by DeLone and McLean (1992, 2003). According to the updated IS success model (DeLone & McLean, 2003), IS success dimensions concern system quality (technical success), information quality (semantic success), service quality, as well as intention to use/use, user satisfaction and net benefits (effectiveness success). In the present study, we use the term e-quality to refer to information quality, system quality and service quality of virtual communities. Affinity with virtual communities is defined as the degree of importance that users place on virtual communities (Mafé & Blas, 2006; Perse, 1986) and the degree to which users feel bonded to them (Li, 2011). We suggest affinity with virtual communities can be used to measure one

important aspect of effectiveness success of virtual communities. Previous studies have paid a great deal of attention to the relationship among IS success dimensions (e.g., Barnes & Pressey, 2011; Li, 2011, 2008; Lin & Lee, 2006). However, to the best of our knowledge, the effect of users' individual differences especially the personality traits on their perceptions of virtual communities in terms of e-quality and affinity has been largely overlooked in the literature.

Individual differences affect the way people think and react to the environment (Lu & Lee, 2010). In this study, individual differences include physical and psychological differences. Specifically, physical differences refer to gender, age, position and experience with virtual communities. Psychological differences refer to individuals' personality traits which consist of extraversion, agreeableness, openness to new experience, conscientiousness and neuroticism (Zhou & Lu, 2011). Although users' personality traits may be crucial factors leading them to engage in virtual communities (Correa, Hinsley, & de Zúñiga, 2010), previous research examined the distinct dimension of personality traits independently. For example, users with a high level of openness to new experience tend to use virtual communities more heavily (Ross et al., 2009). Extravert users are more likely to use Facebook (Jenkins-Guarnieri, Wright, & Hudiburgh, 2012). Özgüven and Mucan (2013) investigated the relationship between social media use and users' personality factors. Correa et al. (2010) used a national sample of US adults to investigate the relationship between three dimensions of the Big-Five model (extraversion, emotional stability and openness to experience) and social media use. Given individual's personality is formed by a unique combination of different levels of each of the five trait dimensions (Heinström, 2005), this study employs cluster analysis to identify the personality trait clusters in terms of extraversion, agreeableness, openness to new experience, conscientiousness and neuroticism. Furthermore, this study uses the identified personality trait clusters as the grouping criterion to explore the effect of psychological differences on users' perceptions of e-quality of and affinity with virtual communities. The research questions of this study are: Do physical differences in terms of gender, age, position and experience with virtual communities have effects on users' perceptions of e-quality of and affinity with virtual communities? Do psychological differences in terms of personality trait clusters have effects on users' perceptions of e-quality of and affinity with virtual communities? This study explores the effect of both physical differences and psychological differences on virtual community success dimensions, which we think provides a new view for virtual community research and practice alike.

Following this introduction, we review the research background, paying attention to virtual communities and e-quality, user affinity with virtual communities, and personality traits. Then, we describe the research methodology and data collection. Finally, the results of the research and the discussion and implications are presented.

2. Research background

2.1. Virtual communities and e-quality

Formed on the Internet, virtual communities are computer-mediated spaces where there is an integration of content and communication with an emphasis on user generated content (Lee, Vogel, & Limayem, 2003), expected to serve users' needs for communication, information and entertainment (Lin, 2006). There are various types of virtual communities on the Web, such as learning communities, health communities, communities supporting political activities and so on (Zorn, 2004). Characterized by anonymity

and voluntary (Lin, 2008), virtual communities can lower the participation barrier and support the creation and maintenance of weak ties among strangers (Ellison, Steinfield, & Lampe, 2007). Users can gain knowledge of their interested area and develop relationship with others having similar interests (Gupta & Kim, 2004). Burnett (2000) suggested that virtual communities function for their users not only as social settings, but also as information neighborhoods within which they can engage in ongoing information sharing activities. Moreover, virtual communities serve as a valuable channel for purposeful everyday life information seeking (Sin & Kim, 2013). Users can screen and judge the characteristics of these information sources based on the profile information and other characteristics of virtual communities (Obal, Burtch, & Kunz, 2012).

Quality reflects "a degree of excellence" (Babalhavaeji, Isfandyari-Moghaddam, Aqili, & Shakooii, 2010, p. 594). The updated IS success model formed the important starting point to assess the quality of IS artifacts (Cody-Allen & Kishore, 2006), covering three important quality dimensions, namely, system quality measuring technical success, information quality measuring semantic success, and service quality (DeLone & McLean, 2003). Service quality was derived from product quality and customer satisfaction literatures (DeLone & McLean, 2003; Lin, 2007). In the IS success model, DeLone and McLean did not mention what kind of success service quality can measure and we suggest service quality can potentially measure application success of IS. Following Delone and McLean (1992, 2003), e-quality in this study refers to information quality, system quality and service quality. Specifically, information quality is defined as "the quality of outputs the information system produces which can be in the form of reports or online screens" (Gorla, Somers, & Wong, 2010, p. 213), associated with completeness, accuracy and currency (Zhou, 2011). System quality is defined as "the quality of the information system processing itself, which includes software and data components, and it is a measure of the extent to which the system is technically sound" (Gorla et al., 2010, p. 212), associated with reliability, effective navigation, and clear layout (Zhou, 2011). Service quality is defined as "the level of service delivered by IS service providers to users in terms of reliability, responsiveness, assurance, and empathy" (Gorla et al., 2010, p. 208), concerning dependability, promptness, personalization and professionalization (Zhou, 2012).

Researchers have paid a great deal of attention to e-quality issues in recent years due to the importance of virtual communities in people's everyday lives. Cho and Lee (2008) indicated that information seeking in an online environment would be rationally driven by the search for quality information. Pearson, Tadisina and Grifin (2012) examined the role of e-service quality and information quality in creating perceived value and web site loyalty. Lin (2008) examined the impact of system characteristics on the success in virtual communities and found information quality and system quality could affect members' satisfaction with virtual communities. Lin and Lee (2006) stated that quality-perception dimensions were the key antecedents of the effectiveness of online communities. Lu and Lee (2010) explored blog quality, the need of cognition and social influence as the antecedents of blog stickiness, and the results suggest that males consider system quality to be a significant factor in deciding whether to revisit whereas females only focus on content quality. Lim and Kwon (2010) examined gender differences in information behavior concerning Wikipedia and found that male students reported having more positive experiences with the information quality of Wikipedia than their female counterparts. Lim (2009) found that students have positive past experiences with Wikipedia; however, their perceptions of its information quality are not correspondingly high. Jin, Cheung, Lee, and Chen (2009) revealed that individuals would continue to use the information in a computer-supported social network when