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Gender differences in information quality of virtual communities: A study from an expectation-perception perspective

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ABSTRACT

Knowing the effect of user characteristics on information quality is important to optimize the quality of content and provide a satisfactory user experience. In this paper, we investigate gender differences in the assessment of information quality in virtual communities. To understand the influence of gender on information quality, this paper measures information quality by the discrepancy between expectation and perception. The proposed conceptualized model is validated by 144 survey observations being collected at a public university. Then, the multivariate analysis of variance is used to analyze the data. The results show that gender could indeed have an influence on information quality through expectations or perceptions. Specifically, males assess representational data quality more highly than females. Females have higher expectations of representational data quality than males. Males regard accessible data quality more highly than females. Managers of virtual communities need to realize that the same information may be perceived differently by different genders. They need to take the gender of users into account and provide customized information accordingly.

1. Introduction

Virtual communities have grown exponentially in recent years (Huang, Wei, & Lim, 2003; Huang, Wei, Watson, & Tan, 2003; Lee, Vogel, & Limayem, 2003). A virtual community is a social aggregation that emerges from the Internet when many people carry on public discussions long enough, with sufficient human feeling, to form personal relationships in cyberspace (Ridings & Gefen, 2004). One important nature of virtual community is a type of relationship bonded by common interests among people on the Internet (Dennis, Pootheri, & Natarajan, 1998). An important aspect of virtual community is the Internet, using computer-mediated spaces or cyberspace (Lee et al., 2003). Members of virtual communities probably do not previously know each other, which is different from online social network services (e.g., Facebook) where people are friends before joining (Rau, Gao, & Ding, 2008; Zhang et al., 2015). An important motivation to join a virtual community is to exchange information (Ridings & Gefen, 2004). It is vital for virtual communities to provide high information quality, as information quality is an important antecedent for information system success (DeLone & McLean, 2003). If members think that information quality is bad, they may stop participating in the virtual community.

Users characteristics, such as gender, age, education level and occupation, would affect judgement of information systems (Gefen & Straub, 1997; Gilroy & Desai, 1986). However, information is observer-independent and situation-independent (Dretske, 1981; Hjørland, 2007). While it is reasonable to expect that different people have the same assessment of information quality in a virtual community, in reality, females and males often have different assessments of the same information. So in virtual communities, do different individuals have the same assessment for information quality? In this research, we focus on only one characteristic of users: gender.

There are two reasons for this approach. First, gender difference is one of the most fundamental differences among individuals, as males and females have different decision-making processes (Venkatesh & Morris, 2000). Prior research in information systems has also found gender differences in individual adoption and usage of technology in the workplace (Venkateshprofile, Morrisprofile, & Ackermanprofile, 2000; Weiser, 2000). For example, males consider perceived usefulness to a greater extent than females in making decisions regarding the use of a new technology. On the other hand, perceived ease of use is more salient to females compared to males. Additionally, others' opinions (friends, family members, et.al.) are more important to females than males (Venkatesh & Morris, 2000). Second, information quality is an

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important construct in Information System Model (DeLone & McLean, 2003). To ensure continued success, virtual communities should provide users with satisfying information quality. Practitioners could effectively manage gender segments (i.e., males vs. females) with different marketing strategies (Chih-Hung, Ju-Yu, Cheng-Chung, Sue-Huei, & Cheng-Fang, 2005).

2. Related literature

2.1. Information quality

2.1.1. Definition and dimensions of information quality

In this paper, "data" is equivalent to "information", as in much research (Wang & Strong, 1996). Some definitions of information quality emphasize that information quality should meet the objective requirements of a particular activity (e.g., (Roberts, 1988)). Other definitions highlight that information quality should meet the user's subjective expectations (e.g., (Hilligoss & Rieh, 2008)). This research adopts the more general definition of information quality – fitness for use – which includes both subjective and objective aspects (Ge & Helfert, 2007; Wang & Strong, 1996). Much research has concluded that quality is based on a comparison between expectations of customers and actual perceptions (Parasuraman, Zeithaml, & Berry, 1985). In this study, information quality is measured by the gap between expectations and perceptions of quality level for a series of quality characteristics.

There is much research on information quality as a multi-dimensional concept (Arazy & Kopak, 2011; Hilligoss & Rieh, 2008; Wang & Strong, 1996; Knight & Burn, 2005). Studies by Wang and Eppler are the most representative and extensively cited on information quality dimension structures. In this paper, we adopt Wang's Information Quality Framework. In this framework, there are four dimensions of information quality, including intrinsic information quality, contextual information quality, representational information quality and accessibility information quality. The dimensions and definitions of these categories are shown in Table 1 (Ghasemaghaei & Hassanein, 2015).

2.2. Social role theory

Social role theory (SRT) holds that gender differences in social behavior come from the socialization process (Eagly, 1987). Although social role theory was developed primarily in Western cultures, it is reasonable to apply to theory in this research, as China is similar to Western cultures in masculinity versus femininity (MAS) values (Chen & Zahedi, 2016; Sia et al., 2009). According to SRT, many researchers have claimed that females are characterized as more communal, while males are characterized as more agentic (Archer, 1996; Eagly & Wood, 1988; Franke, Crown, & Spake, 1998). Communal traits refer to "unselfish, friendly, concerned with others, and emotionally expressive," while agentic traits are described as "independent, assertive, masterful, and instrumentally competent" (Eagly & Wood, 1988). Many aspects of gender differences could be explained by communion and agency (Archer, 1996). For instance, in Dittmar and Helga (1989), females are found to value materials more from an emotional standpoint, while males value more from an instrumental perspective. For example, females may participate in a virtual community because it provides an opportunity to express emotion, and males may participate because it provides useful information. Additionally, Djamasbi and Loiacono (2008) apply SRT to the decision-making context and propose that females and males react differently to feedback. Specifically, outcome feedback, in particular the more negative outcome feedback, improves the decision accuracy of female users to a greater extent than their male counterparts. The overall moods of female subjects are significantly less positive after completing a task and receiving such negative feedback, while the moods of male subjects do not change.

Table 1
IQ dimensions and definitions.

IQ categories	Dimensions and definitions
Intrinsic IQ	Believability, accuracy, objectivity, reputation. Information may have innate correctness regardless of the context in which it is being used.
Contextual IQ	Value-added, relevancy, timeliness, completeness, appropriate amount of data. Perceived quality may vary according to the particular task.
Representational IQ	Interpretability, ease of understanding, representational consistency, concise representation. The degree to which the information being assessed is presented in a clear manner.
Accessibility IQ	Accessibility, access security. The ease with which the information sought is obtained.

3. Hypotheses development

3.1. Intrinsic information quality and gender

Intrinsic IQ denotes that information has quality in its own right (Lee, Strong, Kahn, & Wang, 2002). Dimensions of intrinsic IQ usually can be assessed by a reference standard, such as spelling mistakes (Shreeves et al., 2005). In general, intrinsic IQ attributes are persistent, depend little on context, and could be measured objectively (Shreeves et al., 2005). As the standard is objective, it is reasonable to conclude that females and males do not experience intrinsic information quality differently, both expectation and perception. Thus we propose:

H1a. Females and males do not have difference in the expectation of intrinsic information quality.

H1b. Females and males do not have difference in the perception of intrinsic information quality.

H1c. Females and males do not have difference in the intrinsic information quality.

3.2. Contextual information quality and gender

In traditional technology usage, males' technology usage decisions are more influenced than females' by perceptions of usefulness in the workplace (Venkateshprofile et al., 2000). In other words, males are more pragmatic, task oriented and motivated by productivity-related or task-oriented factors (e.g., usefulness) than females (Zhou, Jin, & Fang, 2014). However, virtual communities are more hedonic in comparison to many traditional technologies. Males tend to use traditional task-oriented (i.e., utilitarian) technologies in the workplace (e.g., using emails in an organizational setting) primarily for fulfilling instrumental needs, but use more hedonic or entertaining technologies (e.g., VCs) primarily for entertainment. Females are more process-oriented which means females are not limited by the specific nature of the target technology (e.g., usefulness) but more open to various possible applications throughout the whole process of usage (e.g., ease of use and enjoyment) (Zhou et al., 2014). Applied to this study, In the context of this study, the literature suggests that females tend to be less hedonic but more balanced toward other benefits (e.g., utilitarian benefit). We therefore propose

H2a. Females have higher expectation scores of contextual information quality than males.

Research shows that gender affects perceptions of usefulness in e-mail use (Gefen & Straub, 1997). In general, although intimacy and independence are shared needs of both genders, females focus more on creating intimacy while males focus more on asserting independence. Thus, compared to males, females are more likely to have face-