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The role of website quality and social capital in building buyers' loyalty

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The Role of Website Quality and Social Capital in Building Buyers'

Loyalty

Abstract

Buyers' loyalty is critical for the success and survival of any online seller. Prior research regards social capital as an important determinant of an individual's behavior. However, current knowledge on how social capital is built in the Consumer-to-Consumer (C2C) e-commerce context is incomplete. Drawing on signaling theory and social capital theory, this study proposes a model to investigate how sellers' website quality (i.e., information quality, system quality and service quality) affects the development of social capital between buyers and sellers, which in turn improves buyers' loyalty in the C2C online shopping context. Data collected from 307 buyers on TaoBao, China's largest C2C online shopping platform, was used to empirically test the research model. The results indicate that not all of these three dimensions of website quality are positively related to cognitive and structural capital. Furthermore, although cognitive and relational capital are positively related to buyers' loyalty, structural capital is not associated with buyers' loyalty. Our findings bridge the literature gap about the formation of social capital in the C2C e-commerce context by demonstrating how website quality dimensions exert different effects on cognitive and structural capital. For online sellers, the results suggest that they should strategically offer appropriate website quality dimensions to build social capital with buyers in order to maintain buyers' loyalty.

Keywords: information quality, system quality, service quality, social capital, loyalty.

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1. Introduction

With the increased popularity of Internet and Communication Technologies (ICTs), Consumer-to-Consumer (C2C) online shopping platforms are facing stiff competition (Chen et al., 2009; Huang et al., 2015). While obviously the failure or success of an online shopping platform cannot be explained by a single factor, there is some consensus that the development of social relationships between buyers and sellers constitutes a critical success factor (Gefen et al., 2003), particularly in the Chinese C2C e-commerce context (Chen et al., 2007; Martinsons, 2008; Ou et al., 2014). However, social capital, which specifically emphasizes the importance of a set of resources that is embedded in the ongoing social relationships among people (Nahapiet & Ghoshal, 1998), has seldom been studied in the context of C2C e-commerce (Huang et al., 2015).

It has been noted that most prior e-commerce studies focused on business-to-consumer (B2C) platforms, while the C2C platform has been largely ignored (Yoon & Occeña, 2015). Nevertheless, C2C platforms are relatively more risky than B2C platforms because it is difficult to “identify the nature of an anonymous trader” (Xu et al., 2010, p. 510). The success of a C2C platform depends on the aggregation of individual buyer-seller relationships, unlike a B2C platform whose vendor has its own brand (Huang et al., 2015). Such differences mean that existing B2C-related knowledge is inapplicable to the C2C context. Moreover, Martinsons (2008) indicated that most of the previous China-focused e-commerce literature is anecdotal, with the majority of researchers focusing on e-commerce in Western contexts. Chinese C2C online platforms are different from those in developed economies, where the solid e-commerce institutional structures obviate the need for social relationships (Pavlou & Gefen, 2004). Buyers on Chinese C2C platforms are more likely to rely on social relationships with sellers to provide psychological support for transactions (Ou et al., 2014), and thus may build social capital with sellers as a corollary to their online purchasing behavior (Chen et al., 2007; Huang et al., 2015). For instance, the success of TaoBao, which has been the leading C2C online shopping platform in China since 2004 (Chen

et al., 2009; Ou et al., 2014), is in part attributable to TaoBao's encouragement of the development of social capital between buyers and sellers by means of an embedded instant communication tool, known as WangWang (Huang et al., 2015). Consequently, social capital between online buyers and sellers should be considered as a significant theoretical construct in research on e-commerce.

Prior studies have investigated the direct effects of social capital on individuals' behaviors, including community participation (Ganley & Lampe, 2009), the use of social networking sites (Yoon, 2014) and knowledge sharing (Hau & Kang, 2016). However, researchers have not yet examined the relationships among social capital dimensions and their direct influence on a buyer's loyalty to a seller in the C2C online shopping context, despite recent arguments that it is important to highlight the valuable consequences that social capital can generate in the organizational context (Carey et al., 2011; Sun et al., 2012). In addition, although many advantages are associated with social capital, such as avoiding opportunistic behavior and developing new transactions, most online sellers place greater emphasis on single-shot transactions while overlooking the need for building social capital in the C2C context. This would impede the development of long-term interests of online buyers and sellers. Incorporating sellers' website quality as a mechanism of building social capital between buyers and sellers is important, especially in C2C online shopping contexts. Zhang et al. (2012) indicated that a C2C online shopping platform primarily serves as an intermediary for transactions, in which individual sellers are distinct in terms of their provision of different information, system and service quality, which we cumulatively refer to as website quality. Liang and Chen (2009) demonstrated that the higher the quality of information, system and service, the greater the willingness of buyers to maintain, deepen and broaden their social relationships with a particular seller. Unfortunately, previous researchers have ignored the effect of website quality on social capital in the C2C online shopping context.

In accordance with the above understanding, we focus on addressing the following questions: (1) How does sellers' website quality affect the development of social capital between buyers and sellers? (2) How are the different dimensions of social capital related to each other? (3) How does social capital influence a buyer's loyalty to a seller in the C2C context?

To answer these questions, drawing on signaling theory (Spence & Michael, 1974) and social capital theory (Nahapiet & Ghoshal, 1998), we examine how sellers' website quality acts as a signal to affect the building of social capital, which in turn influences buyers' loyalty. Signaling theory indicates that IT-supported cues (i.e., website quality in this study) affects the perceptions, attitudes, and behaviors of individuals (i.e., buyers) (Benlian & Hess, 2011; Li et al., 2015). Extending signaling theory in the C2C context, we argue that if a buyer perceives a seller's website to be high quality, a favorable attitude towards the seller will be more likely generated (Chen et al., 2015; Qureshi et al., 2009; Yoon & Ocoña, 2015), and thus the buyer will be more willing to build social capital with the seller. In addition, social capital theory explains why people normally prefer to engage in transactions with those with whom they have built social capital (Jones & Taylor, 2012). Thus, we further argue that social capital between buyers and sellers is useful in improving buyers' loyalty.

This study makes several important contributions to the literature. First, most online shopping platforms, especially Western ones, were characterized by one-time dealings (Ba & Pavlou, 2002), implying the lack of social capital in C2C contexts. Nevertheless, in China, TaoBao has encouraged the development of social capital between online buyers and sellers (Huang et al., 2015). By exploring the impact of social capital on buyers' loyalty, we advance the existing C2C e-commerce literature (Chen et al., 2009) by including social capital, which has seldom been investigated in the C2C context (Huang et al., 2015). Second, although previous researchers (Hsiao & Chiou, 2012; Zimmermann & Ravishankar, 2013) suggested that social capital can be treated as a salient antecedent of individuals' behavior, no attention has been paid to how social capital is built in the C2C context. Drawing on signaling theory, we argue that sellers' website quality can improve social capital building. This thus provides a more holistic explanation for the mechanisms associated with the formation and development of social capital, especially in the C2C context. This explanation can also help online sellers develop and improve their strategy to maintain buyers' loyalty. Third, unlike prior research that focuses on either website quality (Wells et al., 2011) or social capital (Jones & Taylor, 2012), we find that online sellers should not only ensure effective website quality but also cultivate social capital with buyers in order to maintain buyers'

loyalty. Our study suggests that sellers' website quality alone is insufficient to enhance buyers' loyalty; instead, social capital is the means through which website quality is more likely to contribute to loyalty.

2. Theoretical background

2.1. Website quality

In e-commerce, transactions between buyers and sellers are usually conducted on a website (DeLone & McLean, 2004; Liang et al., 2011). Some online sellers' websites attract more traffic than those of other sellers just because of their effective website design features (Hsu et al., 2014). The sellers' website functions and features can be categorized into three phases: pre-sales, online-sales and post-sales (Lin, 2007; Liu & Arnett, 2000). In order to reduce buyers' searching costs, the sellers' website attempts to attract buyers by providing some information (such as product and price-related information) at the pre-sales stage. The online-sales stage includes buyers' electronic purchasing activities, where orders and charges are made electronically through sellers' website facilities. Buyers' service, delivery and problem solving occur during the post-sales stage. The extent to which these three e-commerce phases can be accomplished effectively depends on the quality of the sellers' website (Lin, 2007).

Previous research has emphasized either a technological- or a customer-oriented perspective to investigate the key features of e-commerce. The technological-oriented perspective focuses on system features such as website usability and accurate information, and their effect on customer acceptance of a website (Palmer, 2002). The customer-oriented view focuses on the website's provision of an appropriate level of service quality correspondent with what customers expect (Cenfetelli et al., 2008). Furthermore, Chen et al. (2015) indicated that website quality comprises both technical and service components: information, system and service quality. These findings are consistent with DeLone and McLean's (2004) IS Success Model, which has been adopted by many studies that attempt to measure e-commerce success. Information quality refers to "the customers' perception of the quality of information presented on a website", which is an important determinant of IS success (McKinney & Yoon, 2002, p. 299). Information quality reflects the content of the sellers' website as perceived by an individual as being relevant, sufficient, accurate and up-to-date (Chen et al., 2015; Liang et al., 2011). System quality refers to an

individual's perception of the overall performance of a website system (Chen et al., 2015; Zheng et al., 2013). System quality reflects the degree of access speed, ease of use, visual appeal and navigation (Zhou, 2012). Service quality refers to an individual's evaluation of the quality of online service delivered via the website including reliability, responsiveness, assurance and personalization (Chen et al., 2015; Zhou, 2012).

Prior studies have provided much insight into research on website quality. Sellers tend to attract buyers by providing appropriate technological attributes (Hasan, 2016; Xu et al., 2013), though there are limitations associated with only considering technological attributes (Chiu et al., 2009). As a supplement to a technological approach, building and maintaining social capital between buyers and sellers has also been demonstrated to be important (Huang et al., 2015). Prior researchers have also highlighted the importance of considering *guanxi* in the Chinese online shopping context (Ou et al., 2014). However, the underlying mechanisms for social capital and *guanxi* are different. *Guanxi* embodies a defensive mechanism and it focuses on personal gain and individual-based capital (Fan, 2002). Social capital embodies more normative social mechanisms and it involves trust, cooperation and mutual benefits (Zhai, 2009). This is why it is necessary to include social capital in an examination of online shopping success.

2.2. Social capital theory

Social capital theory has been widely described as a set of social resources embedded in social relationships (Coleman, 1988) and value creation (Nahapiet & Ghoshal, 1998). Social capital refers to “the sum of the actual and potential resources embedded within, and derived from, the network of relationships possessed by an individual or social unit” (Nahapiet & Ghoshal, 1998, p. 243).

Social capital involves cognitive, structural and relational capital (Hau et al., 2013; Nahapiet & Ghoshal, 1998). Cognitive capital refers to the extent to which resources provide a common understanding among individuals (Nahapiet & Ghoshal, 1998). Shared language, a major manifestation of cognitive capital, facilitates the sharing of codes, terms and narrative forms (Nahapiet & Ghoshal, 1998). Structural capital, in the form of social interaction ties, refers to “the strength of the relationships, and the amount of time spent, and communication frequency” between online buyers and sellers (Chiu et al., 2006,

p. 1877). Building structural capital needs social interaction ties to provide the fundamental condition of access to resources (Nahapiet & Ghoshal, 1998). Relational capital refers to assets that are rooted in interpersonal relationships, such as trust and reciprocity, through a history of interaction between actors (Lu & Yang, 2011). In summary, cognitive capital is manifested as shared language, structural capital is manifested as social interaction ties and relational capital is manifested as trust, reciprocity and respect.

Some researchers question whether social capital exists in an e-commerce setting because social capital may be more likely to be established as a result of cooperative behavior among the members of a social network characterized by frequent interaction, close structures and a shared history (Wasko & Faraj, 2005). Nevertheless, given that computer-mediated interactions can supplement or replace face-to-face interactions, accumulated evidence has consistently demonstrated that social capital can exist in the online context, especially in C2C e-commerce settings (Ellison et al., 2007; Huang et al., 2015). Social interactions between buyers and sellers on a C2C platform include either information interaction or emotional interaction (Chen et al., 2009; Huang et al., 2015). Information interaction incorporates the interaction of information about products or transaction-related problems; emotional interaction incorporates the interaction of moods, emotions and affects (Huang et al., 2015).

With an increasing number of social interactions occurring online, a number of researchers have turned their attention from offline to online contexts to investigate the role of social capital (Hau & Kang, 2016; Hsiao & Chiou, 2012; Wang & Chiang, 2009). In particular, previous studies have attempted to elaborate the effects of social capital on individuals' behavior in online contexts, including community participation (Ganley & Lampe, 2009) and knowledge sharing (Hau & Kang, 2016; Wasko & Faraj, 2005). For example, drawing upon social capital theory, Wang and Chiang (2009) empirically investigated the effect of user interaction on online continuance intention in the context of online auctions. Hsiao and Chiou (2012) examined how social capital affects loyalty in a virtual community by developing a tripartite-process model. Yoon (2014) proposed that social capital affects social network service usage through subjective well-being. Pan et al. (2015) studied the influence of social networking support on knowledge exchange in a virtual community of practice. However, to the best of our knowledge, no studies focus on how social capital is formed in C2C online shopping contexts.

3. Research model and hypotheses development

Based on the above discussion, we propose a research model as depicted in Figure 1. Since information asymmetries between buyers and sellers are inherent to a technology-mediated environment, website quality was described as a signal in facilitating exchanges between online buyers and sellers in prior studies (Chen et al., 2015; Wells et al., 2011). Online sellers can use a signaling approach by implementing website quality features to try to persuade buyers to believe that sellers offer sufficient content and quality interaction as well as a confidential online experience (Li et al., 2015). Website quality is proposed as the basis for enabling buyers' positive perceptions and attitudes towards the sellers (Li et al., 2015; Qureshi et al., 2009), which facilitates buyers to have the further intention to build social capital with sellers. Accordingly, based on signaling theory, we first examine how sellers' website quality affects social capital building between buyers and sellers. Furthermore, social capital theory emphasizes the importance of social relationships as a source of value creation (Nahapiet & Ghoshal, 1998) and social action (Coleman, 1988). Social capital can be used to create greater economic capital for a service provider via customer loyalty (Jones & Taylor, 2012). From a buyer's perspective, if common cognition, strong social interaction ties and close relationships can be built with the seller, the willingness to (re)transact with the seller is enhanced. Thus, based on social capital theory, we then examine how social capital influences buyers' loyalty.

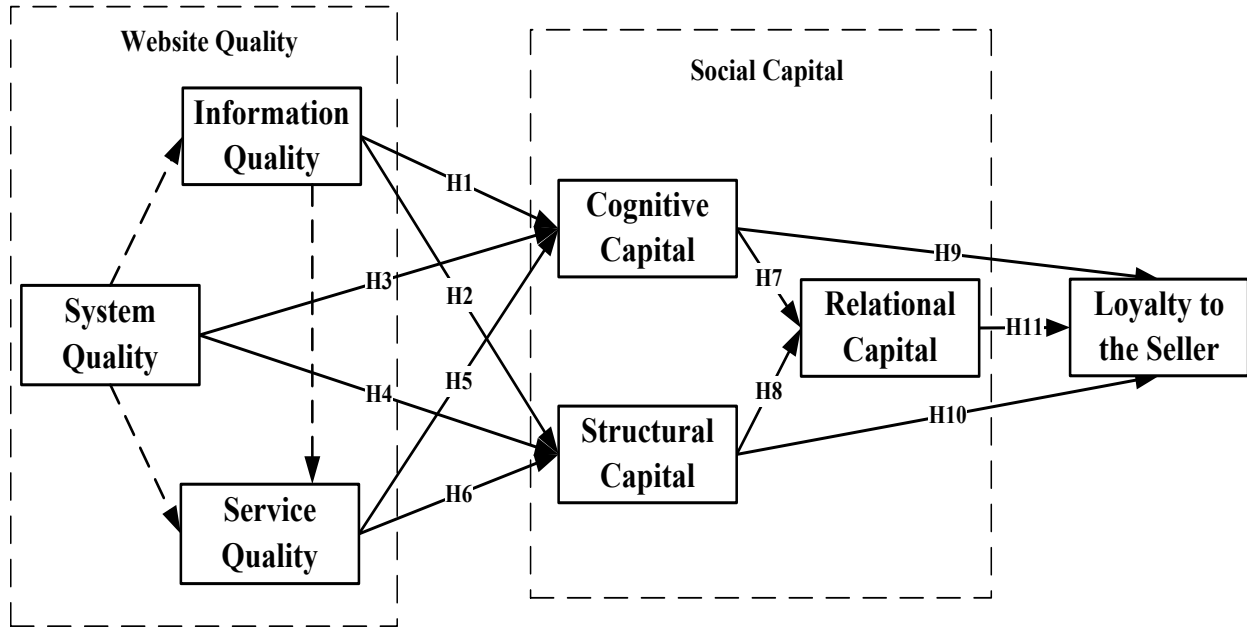


Figure 1. Research Model

3.1. The impact of information quality on cognitive and structural capital

Information quality reflects the quality of information presented on a seller’s website (Liao et al., 2006; McKinney & Yoon, 2002). Information describing products, services and events is fundamental to a seller’s website. Information quality includes the importance of relevance, sufficiency, accuracy and timeliness of information (Zhou, 2012). For instance, in order to facilitate buyers’ understanding of the products and making better purchase decisions, sellers need to provide sufficient and accurate information (e.g., information of detailed product descriptions and transparent price structures) (Yang et al., 2005). In addition, the sellers should also offer relevant and timely information about promotion activity.

High-quality information is important for enhancing cognitive capital between buyers and sellers for two reasons. Firstly, it enables users to obtain useful information. Secondly, it helps them to develop a better understanding of the topic (Zheng et al., 2013). This implies that the provision of high-quality information by sellers can reduce divergence between buyers and sellers. When buyers understand the basic information that pertains to products or services, they will also understand what the sellers wish to convey. This improved understanding will help to minimize any sense of confusion when buyers

communicate with sellers about products or services. In these circumstances, buyers may perceive shared language and common understanding with the sellers given the similar information background, thereby contributing to cognitive capital.

H1: Information quality on a seller's website is positively related to cognitive capital between the buyer and the seller.

Information quality can also lead to the effectiveness of social interaction ties, which is a form of structural capital (Zheng et al., 2013). Ou et al. (2014) indicated that both buyers and sellers communicate and coordinate by sharing and exchanging information during online transactions at TaoBao. By actively providing useful and complete information about products, payment and delivery to buyers on a seller's storefront (Ou et al., 2014), the likelihood of additional searching by buyers can be diminished (Donthu & Garcla, 1999; Peterson et al., 1997). A harmonious social relationship can be achieved in an online transaction through reciprocal exchange of mutual benefits such as offering high quality information (Ou et al., 2014), which in turn can facilitate follow-up social interaction ties between buyers and sellers.

H2: Information quality on a seller's website is positively related to the structural capital between the buyer and the seller.

3.2. The impact of system quality on cognitive and structural capital

System quality is defined as "the customers' perception of a website's performance in information retrieval and delivery" (McKinney & Yoon, 2002, p. 299). In this study, we use accessibility, ease of use, appearance and navigation to evaluate the quality of the system (Zhou, 2012). In particular, sellers on a C2C platform, such as TaoBao, can ensure that their website has well-designed navigation, text and graphics. A high level of system quality helps buyers easily locate information and avoid irrelevant information (Zheng et al., 2013). The development of cognitive and structural capital between buyers and sellers depends on whether the system allows buyers to easily locate information (Jones et al., 2004) and provides the technological tools to enable buyers to interact with sellers (Ma & Agarwal, 2007).

If the system is difficult to use, users need to block junk information and filter out irrelevant information, which leads to information overload (Zheng et al., 2013). An overload of information may

cause misunderstandings between buyers and sellers during their communication process. To minimize information overload, the seller is expected to provide well-organized and clear navigation and search tools. The technical adequacy can facilitate convenience of usage in online transactions (Liang & Chen, 2009), thus, increasing both the effectiveness of communication and the degree of mutual understanding between buyers and sellers. Since shared language emphasizes “the acronyms, subtleties and underlying assumptions that are the staples of day-to-day interactions” (Lesser & Storck, 2001, p. 836), a high level of system quality enables effective communication, which can enhance cognitive capital between buyers and sellers.

H3: System quality on a seller’s website is positively related to cognitive capital between the buyer and the seller.

Furthermore, system quality is technology-based (Ahn et al., 2007), and the technological features are crucial in supporting social interaction ties between people online (Markus, 2005). Liang and Chen (2009) suggested that for the buyer, the magnitude of transaction cost savings depends largely on the convenience and reliability of the system. When buyers perceive that they can benefit from transaction cost savings, buyers may interact more with the sellers. A high level of system quality may also ensure that the shopping experience is more enjoyable and fulfilling (Ahn et al., 2007). If the system enables the transaction process to be more enjoyable, buyers are more likely to have frequent communication and maintain close social relationships with sellers, which can ultimately enhance structural capital between buyers and sellers.

H4: System quality on a seller’s website is positively related to structural capital between the buyer and the seller.

3.3. The impact of service quality on cognitive and structural capital

Service quality is defined as a buyer’s evaluation of the overall service delivered by the sellers’ website (Lin, 2007). Service quality can be evaluated from reliability, responsiveness, assurance and personalization aspects (Zhou, 2012). Buyers evaluate a seller drawing on their experiences of interacting with the seller and post-interaction service aspects. Good service quality not only satisfies buyers’

expectations but also increases buyers' good impressions of the seller (Liang et al., 2011). Service quality can convey a signal to buyers that their transaction activities are supported by the seller (Zhou et al., 2009). Buyers in this condition are more likely to share a common cognition and build structural capital with the seller.

In the C2C online shopping context, any buyer-specific, personalized requests can be satisfied through high-quality services provided by the sellers (Ou et al., 2014). For instance, by using WangWang, sellers can provide services to buyers on TaoBao (Ou & Davison, 2009). Buyers and sellers can negotiate details and listen to each other through an interactive and dyadic communication process, which in turn enables the attainment of an outcome (i.e., mutual understanding) that is satisfactory to both parties (Ou et al., 2014). In addition, the service quality of a seller depends not only on helping buyers to solve problems by offering suggestions of complementary products or services but also on accepting buyer complaints and resolving them in a timely fashion (Ahn et al., 2007). In this way, the differences and contradictions between buyers and sellers can be mitigated through the provision of effective services by sellers. Cognitive capital is built by resolving disagreements between buyers and sellers.

H5: Service quality on a seller's website is positively related to cognitive capital between the buyer and the seller.

Moreover, service quality can mitigate buyers' perceptions of risk and enhance their confidence in transactions because service quality signals the sellers' ability, benevolence and sincerity (Zhou et al., 2009). Therefore, online sellers should provide buyers with personalized information (such as preferred products or services), respond to buyers' inquires and facilitate two-way communication with buyers (Liang & Chen, 2009). Providing such service quality serves to enhance social interaction ties (Liang et al., 2011). For online buyers, the careful attention and friendships expressed by sellers signal the sellers' willingness to engage in communication (Liang & Chen, 2009). This can help buyers and sellers get into each other's minds in depth, thereby leading to more frequent communication and closer social relationships with each other.

H6: Service quality on a seller's website is positively related to structural capital between the buyer and the seller.

3.4. Cognitive capital and relational capital

The relationship between cognitive capital and relational capital has been confirmed by previous research (Tsai & Ghoshal, 1998). We propose that cognitive capital, in the form of shared language, affects trust, reciprocity and respect, which represents relational capital.

Shared language between buyers and sellers makes it easier for buyers to trust sellers because they believe that the sellers will not cheat them (Lu & Yang, 2011). Prior research suggested that trust is likely to be generated with associated norms of behavior as the shared ideologies underpinning the relationship are identified by the parties (Nahapiet & Ghoshal, 1998). Furthermore, shared language may also affect reciprocity and respect between buyers and sellers. It has been found that shared language is a critical influence on the conditions for combination and exchange, and therefore facilitates people to conduct business together (Nahapiet & Ghoshal, 1998). A reciprocal and respectful buyer-seller relationship can be built up with shared language (Lu & Yang, 2011). Since cognitive capital emphasizes the availability of a common belief system and how actors make sense of common experiences, it can enhance relational capital (Nahapiet & Ghoshal, 1998).

H7: Cognitive capital is positively related to relational capital.

3.5. Structural capital and relational capital

It has been demonstrated that structural capital is an important antecedent of relational capital (Lu & Yang, 2011; Sun et al., 2012; Tsai & Ghoshal, 1998). We propose that structural capital, as a conceptualization of social interaction ties, influences relational capital. The relational aspects of the relational capital can be strengthened through social interaction ties as it provides the time, opportunity and motivation (Zaheer et al., 1998).

Previous research indicates that trust stems from social interaction ties (Hsiao & Chiou, 2012; Wang & Chiang, 2009). In the online shopping context, a trusting relationship is developed based on the interactions between buyers and sellers over time, enabling buyers to form the perception that sellers are trustworthy (Lu & Yang, 2011). Frequent social interactions can also help create more reciprocity and respecting relationships (Lu & Yang, 2011). Mutual reciprocity and respect can be achieved if a seller

provides the buyer with a small gift or discount and the buyer offers a positive rating or comment to the seller (Ou et al., 2014).

H8: Structural capital is positively related to relational capital.

3.6. The impact of cognitive capital on loyalty

As the means by which people exchange and discuss information, cognitive capital plays a vital role in social relations (Nahapiet & Ghoshal, 1998; Sun et al., 2012). People who share a common cognition can better understand one another (Chiu et al., 2006; Huang et al., 2015). Common cognition is thus able to promote the buyer to favor an exchange relationship with the seller and be exclusive to this relationship (DiMaggio & Louch, 1998; Jones & Taylor, 2012). A common language and understanding is also related to shared perceptions about an activity; therefore, people can more easily anticipate similarity in values and visions (Sun et al., 2012). When buyers feel that they are affiliated with similar groups as the seller, they may feel obligated to be loyal to the seller (Jones & Taylor, 2012). In short, common cognition between online buyers and sellers can facilitate the meaningful communication needed for the exchange of products or service knowledge, which can improve buyers' loyalty.

H9: Cognitive capital is positively related to a buyer's loyalty to a seller.

3.7. The impact of structural capital on loyalty

Prior researchers contended that interaction frequency, which is an instantiation of structural capital, is a critical factor for enhancing buyers' loyalty (Palmatier et al., 2006). When buyers and sellers first interact online, they may lack first-hand knowledge of each other. Social interaction ties can provide a cost-effective way to access a wider range of knowledge resources (Chiu et al., 2006). By engaging in frequent interaction, buyers and sellers become acquainted. Buyers' loyalty to sellers develops during social interactions as buyers accumulate loyalty-relevant knowledge through experiences with sellers. Frequent social interactions also imply the time and effort buyers and sellers invest into the relationship. Buyers under this condition may (re)transact with the sellers because the buyers sense the costs associated with leaving.

H10: Structural capital is positively related to a buyer's loyalty to a seller.

3.8. The impact of relational capital on loyalty

Relational capital reflects the interpersonal relationships that exist between buyers and sellers, including mutual trust, respect and reciprocity. The effect of trust on loyalty has been identified in previous studies (Chen et al., 2009). It is argued that trust leads to loyalty by reducing social complexity and perceiving risk in transactions (Pavlou et al., 2007). Similarly, reciprocity highlights mutual indebtedness where individuals can gain benefits in social exchange (Lu & Yang, 2011). If one individual obtains benefits from another, they would reciprocate the other's support (Liang et al., 2011). Buyers and sellers also should respect each other (Ou et al., 2014). From the buyers' perspective, when considerable respect can be earned, a strong motivation to purchase again from the same seller is created. With mutual respect, buyers and sellers can reach a result that is mutually satisfying. With mutual reciprocity and respect in an online transaction, Ou et al. (2014) indicated that buyers will be more willing to make a re-purchase decision (a typical behavior of a loyal buyer) from the seller. Prior researchers have demonstrated that close relationships, such as friendships, can enhance buyers' repurchase intentions (e.g., Wulf et al., 2001).

H11: Relational capital is positively related to a buyer's loyalty to a seller.

Furthermore, according to Xu et al. (2013), system quality influences information and service quality, and information quality influences service quality. Thus, although we do not hypothesize these known relationships, we still included them in the research model for theoretical completeness (see Figure 1).

4. Research methodology

4.1. Measurement development

A survey was developed to test the proposed model. We adapted measurement items from prior validated scales where possible. Minor revisions were made to the scales to ensure their suitability for our context. The measurement items for each construct are listed in Appendix A.

The measures of information quality, system quality and service quality were each assessed using four-item scales adapted from Zhou (2012). Cognitive capital was assessed by measuring shared language with three items adapted from Sun et al. (2012). Four items for measuring structural capital through social interaction ties were also adapted from Sun et al. (2012). Relational capital was assessed with a three-item scale adapted from Sun et al. (2012). Loyalty to the seller was measured with a five-item scale adapted from Kim et al. (2009). Finally, we included several demographic variables (i.e., gender, age, online shopping frequency and internet experience) as control variables in the model.

Since the research was conducted in China, we followed Van de Vijver's (1997) guidance to translate the English questionnaire into Chinese. A professional translator who knew nothing about our survey was hired to translate items from Chinese back to English. We found that there were no semantic discrepancies between the translated English questionnaire and the original English version. We also invited three IS PhD students who had online shopping experience on TaoBao to review and critique the measurement items to assess the content validity. In the questionnaire, we used five-point Likert scales, anchored at "strongly disagree" and "strongly agree" for all items.

4.2. Data collection

The context of the data collected for this research was TaoBao, primarily because it is the largest and most well-known C2C online shopping platform in China (Wang et al., 2013). We first selected fifteen tangible product categories (i.e., women; men; mother & child; household; lovers; middle-aged; sports; health & beauty; food; vehicles; insurance software; digital products; decorations; daily life and games). We chose these categories because they are explicitly listed in the TaoBao's homepage. We clicked on the first 10 sellers' storefronts that were randomly offered by TaoBao's platform without any sorting criteria for each of the 15 product categories (i.e., n=750). We clicked on the feedback profile of sellers' storefronts to identify the user names of buyers who had bought products with each of these sellers within the last week. Based on this contact information, we used WangWang to invite five buyers from each seller to complete an online survey. In addition, an incentive of RMB 30 (approximately US\$ 4.6) was offered to fifty randomly selected respondents. The buyers were required to reflect on their most recent

online transaction experience with a seller and then complete the questionnaire about that focal seller. Altogether, 325 questionnaires were returned. Eighteen questionnaires were dropped from the pool due to excessive missing data (a response was considered to have excessive missing data when the respondents did not complete more than half of the measurement items of a construct). Thus, we received 307 useable responses, with a response rate of approximately 41%. The demographic information of the respondents is shown in Table 1.

Table 1. Demographics of respondents (the number of subjects=307).

	<i>Percentage</i>
Gender	
Male	54.1
Female	45.9
Age	
18-20	5.9
21-30	84.0
31-40	9.8
41 and above	0.3
Education	
High school or below	2.3
College	3.2
University	47.9
Graduate school or above	46.6
Online shopping frequency (times in a month)	
1-3	63.5
4-6	26.1
7 or above	10.4
Internet experience (in years)	
1-3	49.5
4-6	41.4
7 or above	9.1

To examine sample representativeness, we further made a comparison between the current information of respondent demographics and the demographics of online buyers in China. According to CNNIC (2015), the typical online shopper in China is male, aged from 20 to 29. In this respect, our demographic data are basically consistent with the statistics from CNNIC. Zhang et al. (2012) also noted

that C2C buyers in China are mainly younger and more educated. Consequently, the representativeness of the sample is not a significant issue for our study.

We also assessed non-response bias as suggested by Armstrong and Overton (1977). The first 25% and last 25% of respondents were compared for all the constructs. T-statistics for construct means were not significantly different, suggesting that non-response bias is not a concern.

4.3. Common method bias

In order to ensure the validity of the study, we tested common method bias because the data collected were perceptual and from a single source at the same time. We first applied Harmon's single-factor method (Hsiao & Chiou, 2012). The results revealed that five constructs with eigenvalues greater than 1.0 accounted for 60.73% of total variance. Meanwhile, the first construct accounted for 15.08% of the variance. Therefore, common method bias is an unlikely contaminant of the results.

Second, we included in the Partial Least Square (PLS) model a direct measure of a common method factor that associated all the principal constructs' indicators (Liang et al., 2007). Each indicator's variances explained by the method factor and the substantive constructs was then calculated. As shown in Appendix B, the results indicate that the substantive constructs explained, on average, 65.9% of the variance, while the average method-based variance of the indicators is 0.3%. The ratio of the average substantively explained variance of the indicators to the average method-based variance of the indicators is very large. Besides, most method factor loadings are insignificant, suggesting that common method bias is unlikely to be a serious concern.

5. Data analysis and results

5.1. Data analysis technique

The measurement validation and the structural model were tested using PLS. PLS was chosen as an appropriate statistical tool in the current research for the following three reasons: First, the loadings (and weights) of indicators on constructs and the causal relationships among those constructs can be estimated by using PLS (Fornell & Bookstein, 1982). Second, compared with a covariance-based SEM tool (such as

LISREL), PLS is robust with fewer issues of statistical identification (Sun et al., 2012). Third, PLS can provide a good approximation of covariance-based SEM in terms of the final evaluations, whereas covariance-based SEM is suitable for theory development (Gefen et al., 2011)

We employed a two-stage methodology to analyze the data (Anderson & Gerbing, 1988). The first step was to analyze the measurement model by testing the validity and reliability of the research constructs. The second step was to test the structural relationships among the constructs.

5.2. Measurement model

In the first step, the construct of validity was assessed by applying confirmatory factor analysis (CFA). We used the individual item loading and Average Variance Extracted (AVE) to test the convergent validity. As shown in Table 2, all measurement items demonstrated adequate convergent validity. The results indicated that all standardized item loadings were above the desired value of 0.7 (Carmines & Zeller, 1979) (See Appendix A). Further, the AVEs for all constructs ranged from 0.618 to 0.694, which were above the recommended value of 0.5 (Fornell & Larcker, 1981). Composite reliability and Cronbach’s Alpha were used to test construct reliability as suggested by Fornell and Larcker (1981). The values of composite reliability ranged from 0.841 to 0.919, which were higher than the benchmark value of 0.7. Cronbach’s Alpha values ranged from 0.709 to 0.887, which were above the threshold of 0.7 (Fornell & Larcker, 1981). The results implied that our measurement model had good reliability.

Table 2. Results of confirmatory factor analysis

Construct	Items	Cronbach’s Alpha	Composite Reliability	AVE
Information Quality (IQ)	4	0.795	0.868	0.621
System Quality (SQ)	4	0.812	0.879	0.647
Service Quality (SerQ)	4	0.788	0.865	0.618
Cognitive Capital (CC)	3	0.747	0.866	0.685
Structural Capital (SC)	4	0.852	0.900	0.693
Relational Capital (RC)	3	0.709	0.841	0.639
Loyalty to the Seller (LS)	5	0.887	0.919	0.694

Furthermore, discriminant validity was assessed by comparing the square root of AVE with the correlations among the constructs (Fornell & Larcker, 1981). As shown in Table 3, the square roots of the

AVEs for all constructs in the diagonal row were larger than the correlations between constructs. Therefore, we concluded that the measurement model possessed good discriminant validity.

Table 3. Means, standard deviation and correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. IQ	3.470	0.653	0.788										
2. SQ	3.551	0.672	0.644	0.804									
3. SerQ	3.502	0.687	0.615	0.568	0.786								
4. CC	3.953	0.739	0.402	0.377	0.326	0.827							
5. SC	2.378	0.876	0.236	0.213	0.292	0.003	0.832						
6. RC	3.541	0.730	0.474	0.384	0.494	0.423	0.269	0.799					
7. LS	3.857	0.720	0.519	0.457	0.465	0.369	0.155	0.449	0.833				
8. Gender	NA	NA	-0.073	-0.078	-0.086	0.032	-0.030	0.046	0.072	NA			
9. Age	NA	NA	-0.032	-0.029	0.017	-0.076	-0.003	-0.039	-0.084	-0.039	NA		
10. Online Shopping Frequency in a Month	NA	NA	0.072	0.008	0.092	0.041	-0.042	0.089	0.199	0.185	0.121	NA	
11. Internet Experience	NA	NA	0.015	-0.115	-0.030	0.020	-0.061	-0.032	0.072	0.070	0.228	0.340	NA

Note: The numbers in the diagonal row are square roots of the average variance extracted.

As shown in Table 3, two inter-construct correlations values were above 0.6, indicating that potential multicollinearity may exist. We thus tested multicollinearity by analyzing the Variance Inflation Factors (VIFs) and the tolerance value. Judging the existence of multicollinearity requires identifying whether a VIF value is above 10 or has a tolerance value that is below 0.1 (Mason & Perreault, 1991). The results indicated that the highest VIF was 2.159. Thus, multicollinearity is not a significant issue.

5.3. Structural model

We used PLS to test the structural model. The bootstrapping resampling method was used with 500 samples and n=307 cases per sample in the model. Figure 2 shows the results of PLS analysis.

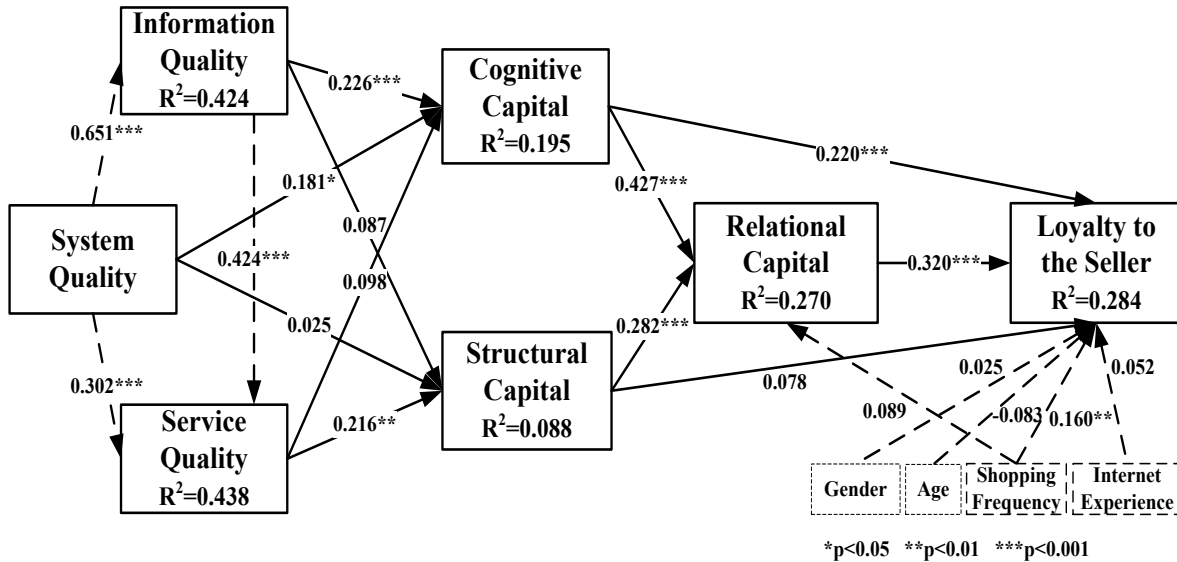


Figure 2. Research Model Results

As shown in Figure 2, both information quality ($\beta=0.226$, $p<0.001$) and system quality ($\beta=0.181$, $p<0.05$) were positively related to cognitive capital, while service quality was not associated with cognitive capital. Hence, H1 and H3 were supported while H5 was not. One possible explanation is that both information and system quality can facilitate information adoption in two parties from a cognitive perspective (Zhang & Watts, 2008; Zheng et al., 2013). This may reduce buyers' dependence on sellers' service quality. Besides, buyers consult with sellers when facing transaction problems. Thus, only when buyers need the sellers to help them solve their transaction problems will they pay relatively more attention to the service quality provided by the sellers.

The paths from service quality and structural capital were positive and significant ($\beta=0.216$, $p<0.001$), supporting H6. Contrary to H2 and H4, the results showed an insignificant relationship between information quality and structural capital, and between system quality and structural capital. Consequently, H2 and H4 were not supported. A possible explanation is that information, system and service quality are interrelated (Xu et al., 2013). Xu et al. (2013) noted that information and system quality positively affect service quality. Thus, information and system quality may indirectly influence structural capital through service quality.

Besides, both cognitive capital ($\beta=0.427$, $p<0.001$) and structural capital ($\beta=0.282$, $p<0.001$) were positively related to relational capital. As such, H7 and H8 were supported. These results are consistent with Tsai and Ghoshal's (1998) and Carey's (2011) proposition of the associations among the three dimensions of social capital. More importantly, unlike previous research showing these interrelationships in offline and organization situations (Tsai & Ghoshal, 1998), the current research demonstrates the existence of interrelationships among these dimensions of social capital in the C2C context as well.

Furthermore, both cognitive capital ($\beta=0.220$, $p<0.001$) and relational capital ($\beta=0.320$, $p<0.001$) were positively associated with buyers' loyalty, while structural capital was not related to buyers' loyalty. Thus, H9 and H11 were supported while H10 was not. A possible explanation is that buyers choose to shop online because of time and effort savings (Chen, 2015). However, strong social interaction ties require buyers to spend more time and emotion on interacting with the sellers; this may reduce their loyalty intention to the sellers.

Finally, all control variables were demonstrated insignificant except for the effect of online shopping frequency on loyalty ($\beta=0.160$, $p<0.01$).

The model explained 19.5% of the variance in cognitive capital, 8.8% of the variance in structural capital, 27% of the variance in relational capital, and 28.4% of the variance in buyers' loyalty. Given that two R^2 scores (19.7% and 9%) were lower than the criteria of 20%, we further analyzed F-test results (see Appendix C) to assess the significance of these R^2 (Falk & Miller, 1992). The results showed that all the R^2 scores were significant at $p<0.05$.

5.4. Post hoc analyses

In order to gain additional insight, we performed post hoc analyses to examine whether cognitive and structural capital mediated the effects of information, system and service quality on relational capital and whether relational capital mediated the effects of cognitive and structural capital on loyalty. In order to test these mediating roles, we followed Subramani's (2004) suggestions by conducting a nested model comparison and individual mediated path analysis. First, to understand the additional contribution of the paths through the nested model comparison, we tested the changes in R^2 between the full mediation model

and the partial mediation model. Table 4 indicates that the additional direct paths from information, system and service quality to relational capital significantly explained the additional variance in relational capital. In addition, the additional direct path from cognitive capital to loyalty significantly explained the additional variance in loyalty, whereas structural capital did not explain such additional variance.

By conducting an individual mediated path analysis, we further tested the significance of the mediating roles of cognitive and structural capital on the relationships between information, system, service quality and relational capital, and the mediating effects of relational capital on the relationships between cognitive, structural capital and loyalty. The analysis was performed on the basis of the path coefficients and standard errors between the independent variables (IVs) and mediating variables (MVs), as well as between the MVs and dependent variable (DV). As shown in Tables 4 and 5, the positive impacts of information and system quality on relational capital were partially mediated by cognitive capital, and the positive effect of service quality on relational capital was fully mediated by structural capital. In addition, we found that relational capital partially mediated the effect of cognitive capital on loyalty, while fully mediated the impact of structural capital on loyalty.

Table 4. Nested model comparison

Direct Path	R² in Mediated Model (no direct path)	R² with Direct Path	f² value^a	Pseudo F^b F(1, 296)	Conclusion
IQ → RC	0.263	0.333	0.105	30.975***	Significant
SQ → RC	0.263	0.299	0.051	15.045***	Significant
SerQ → RC	0.263	0.352	0.137	40.415***	Significant
CC → LS	0.249	0.284	0.049	14.455***	Significant
SC → LS	0.278	0.284	0.008	2.36	Not significant

Note 1: IQ: Information Quality; SQ: System Quality; SerQ: Service Quality; CC: Cognitive Capital; SC: Structural Capital; RC: Relational Capital; LS: Loyalty to the Seller.

Note 1: *** p < 0.001

Note 2: ^a $f^2 = (R^2_{full} - R^2_{excluded}) / (1 - R^2_{full})$.

Note 3: ^b Pseudo F = $f^2 * (n - k - 1)$, with 1, (n-k) degree of freedom, where n is the sample size and k is the number of constructs in the model.

Table 5. Analysis of the individual mediated paths

Mediated Paths	Path Magnitude	Z Stat^c
IQ → CC → RC	0.071	2.905**
IQ → SC → RC	0.023	1.083
SQ → CC → RC	0.065	2.397*
SQ → SC → RC	0.004	0.180
SerQ → CC → RC	0.029	1.154
SerQ → SC → RC	0.040	2.240*
CC → RC → LS	0.148	4.489***
SC → RC → LS	0.118	3.727***

Note 1: ^c $Z = a*b/\text{SQRT}(b_2*s_a^2+a^2*s_b^2+s_a^2*s_b^2)$, where a and b are the path coefficients among IV, MV, and DV, and s_a and s_b are the corresponding standard deviations.

Note 2: * $p < 0.05$, *** $p < 0.001$

6. Implications and limitations

6.1. Limitations and future research

It is important to note several limitations which provide future research opportunities. First, we collected data from buyers on TaoBao, which limits generalization of the results beyond the Chinese online shopping context. It is worthwhile to investigate how much the success of TaoBao can be attributed to the specific characteristics of Chinese buyers. Comparing TaoBao with online shopping platforms in other countries may provide an underlying explanation for the success of TaoBao, relative to other online shopping platforms. Such cross-cultural comparisons, which could be conducted by comparing the impact of website quality factors on social capital building, may help international businesses to achieve competitiveness in online shopping platforms across the globe. Thus, it would be valuable to test the conclusions in different cultural contexts to extend their generalizability.

Second, we test the hypotheses with cross-sectional data; thus we could only infer the posited causal relationships between independent and dependent variables. A longitudinal study in the future would help extend our understanding by exploring the dynamics of C2C online shopping platforms and the role played by social capital. Besides, longitudinal data can also help reduce the common method bias (Podsakoff & Organ, 1986) that undermines the validity of studies with data collected at one point in time.

Third, although potential confounding variables based on sample characteristics are controlled, we should take some other variables, such as buyers' satisfaction, perceived risk and perceived value into

consideration. Since prior research indicates that satisfaction, perceived risk and perceived value can also affect loyalty (Chiu et al., 2014; Huang et al., 2015), future research could investigate these control variables.

6.2. Theoretical implications

This study offers several theoretical implications. First, it sheds some light on the salience of social capital theory in the domain of C2C online shopping. Although social capital has been widely investigated (Hau & Kang, 2016; Sun et al., 2012), relatively little research has focused on the social capital that exists between online buyers and sellers in the C2C context (Huang et al., 2015), despite recent researchers highlighting the importance of social relationships between buyers and sellers in C2C e-commerce (Chen et al., 2009; Ou et al., 2014). This study opens up a new avenue for research exploring how social capital between buyers and sellers helps shape buyers' loyalty by extending social capital theory to the context of C2C e-commerce. Furthermore, the present research provides nuanced insights into the relationships among these three dimensions of social capital. The present study demonstrates that structural capital does not affect buyers' loyalty directly. The effect of cognitive and structural capital on buyers' loyalty is both partially and fully mediated by relational capital (see Tables 4 and 5). Our research findings suggest that mere structural capital is not enough to stimulate buyers' loyalty. Instead, relational capital embodies trust, respect and reciprocity within the buyer-seller relationship, and is the means by which structural capital is more likely to contribute to buyers' loyalty.

Second, previous research focuses on social capital as the antecedent to individual's behavior, such as online community participation (Ganley & Lampe, 2009), social networking sites usage (Yoon, 2014) and knowledge sharing in online communities (Hau & Kang, 2016; Wasko & Faraj, 2005). However, research on how this social capital can be built in the first place in the C2C context has not yet been undertaken. This results in an oversimplification of our understanding of the mechanisms that determine how social capital forms and develops. Our findings fill the existing gap in the literature by highlighting the significance of sellers' website factors in influencing the formation of social capital. It has been proposed that website quality can influence online buyers' perceptions and behaviors (Wells et al., 2011). More

importantly, sellers' website quality can facilitate online interactions (Liang et al., 2011). This implies that sellers' website quality can affect social capital between buyers and sellers. Thus, investigating how different aspects of website quality stimulate social capital building could provide a more complete understanding of the development process of social capital in the C2C online shopping context.

Third, our research indicates that building and enhancing sellers' website quality and social capital between buyers and sellers are basic requirements for cultivating buyers' loyalty. Unlike prior research, which only considered either website quality (Lee & Kozar, 2006) or social capital (Hsiao & Chiou, 2012) to explain a variety of online interpersonal behavior, this study investigates both IT artifacts and social relationship characteristics in the C2C online shopping context by linking sellers' website quality and social capital. Such research could provide additional insights for sellers' loyalty maintaining strategy in C2C contexts. Keiningham et al. (2008) investigated more than 8000 buyers of companies in three industries over a two year period and found that the predictors of loyalty in extant research are not pragmatic. For example, the metrics of service quality are unlikely to help managers to implement specific actions (Chen et al., 2009; Keiningham et al., 2008). Linking sellers' website quality and social capital in this study are regarded as a new metric for predicting buyers' loyalty because it is much easier for sellers to build social capital with buyers.

6.3. Practical implications

This study also offers guidelines in terms of practical implications. First, our findings suggest that in order to maintain buyers' loyalty, sellers should develop strong cognitive and relational capital with buyers. For example, sellers should consider enhancing cognitive capital with buyers by developing a shared language, such as using TaoBao style (a unique jargon) when communicating with buyers. Sellers could also enhance their structural capital with buyers by spending a lot of time for communication. But when considering enhancing structural capital, sellers should also develop their relational capital with buyers at the same time. Online sellers are required to consider enhancing their relational capital with buyers by increasing mutual trust, respect and reciprocity. For instance, in order to facilitate the reciprocal action, the seller may be willing to provide the buyer with a small gift or a favourable discount. In a

situation of relationship reciprocity, the buyer is more likely to provide a positive rating to the seller in the feedback system.

Second, the results reveal that sellers can enhance their cognitive and structural capital with buyers through providing appropriate website quality. However, not all aspects of sellers' website quality can influence cognitive and structural capital. If sellers focus more on developing cognitive capital with buyers, then sellers should offer more relevant information and system quality to buyers. Specifically, sellers can enhance their information quality by providing relevant, sufficient, accurate and up-to-date products and services information to buyers. To enhance system quality, sellers need to present easy-to-use systems with well-designed navigation and visual appeal. If sellers focus more on developing structural capital with buyers, sellers need to enhance their service quality by providing those buyers with reliable and personalized services. It is thus crucial for an online seller to leverage website quality factors to develop social capital with their buyers.

7. Conclusion

Maintaining buyers and facilitating their loyalty are crucial activities for an online seller's long term success. This study extends our understanding of the current research on online sellers by linking sellers' website quality and social capital between buyers and sellers. Specifically, we explore the effect of sellers' website quality on the social capital, and consequently improving buyers' loyalty. The results indicate that both information and system quality are positively related to cognitive capital, but they are not related to structural capital. Service quality is positively related to structural capital, but it is not related to cognitive capital. Both cognitive and structural capital are positively related to relational capital. Furthermore, cognitive and relational capital are positively related to buyers' loyalty, while structural capital is not related to buyers' loyalty. Collectively, the results of this study imply that in order to facilitate buyers' loyalty, sellers need to strategically provide appropriate information, system and service quality to build social capital with buyers.

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Appendix A. Measurement Items

Constructs and Measurement	Sources	Loading
<i>Information Quality</i>		
1. The website of this seller provides me with information relevant to my needs.		0.782
2. The website of this seller provides me with sufficient information.	Zhou (2012)	0.813
3. The website of this seller provides me with accurate information.		0.814
4. The website of this seller provides me with up-to-date information.		0.742
<i>System Quality</i>		
1. The website of this seller quickly loads all the text and graphics.		0.804
2. The website of this seller is easy to use.	Zhou (2012)	0.858
3. The website of this seller is easy to navigate.		0.844
4. The website of this seller is visually attractive.		0.701
<i>Service Quality</i>		
1. The website of this seller provides on-time services.		0.863
2. The website of this seller provides prompt responses.	Zhou (2012)	0.819
3. The website of this seller provides professional services.		0.743
4. The website of this seller provides personalized services.		0.709
<i>Cognitive Capital</i>		
1. When interacting on TaoBao, this seller and me use common terms or jargon (such as TaoBao style).		0.702
2. During the discussion on TaoBao, this seller and me use mutually-understandable communication patterns.	Sun et al. (2012)	0.880
3. When communicating on TaoBao, this seller and me use mutually-understandable narrative forms.		0.887
<i>Structural Capital</i>		
1. This seller and me maintain close social relationships on TaoBao.		0.801
2. This seller and me spend a lot of time interacting with each other on TaoBao.	Sun et al. (2012)	0.815
3. This seller and me have frequent communication with each other on TaoBao.		0.870
4. This seller knows me on TaoBao at a personal level.		0.841
<i>Relational Capital</i>		
1. The relationship between this seller and me is characterized by mutual respect.	Sun et al. (2012)	0.835

- | | |
|---|-------|
| 2. The relationship between this seller and me is characterized by mutual trust. | 0.836 |
| 3. The relationship between this seller and me is characterized by high reciprocity. | 0.722 |
| 4. The relationship between this seller and me is characterized by personal friendship* | |

Loyalty to the Seller

- | | |
|---|-------|
| 1. If I were to buy the same product again, I would likely buy it from this seller on TaoBao. | 0.859 |
| 2. I am likely to return to this seller on TaoBao for my next purchase. | 0.860 |
| 3. I am likely to make another purchase from this seller on TaoBao in the next year. | 0.857 |
| 4. I intend to continue to purchase from this seller on TaoBao. | 0.857 |
| 5. I will recommend this seller on TaoBao to friends. | 0.724 |

Kim et al. (2009)

*Items were removed from further analyses.

Appendix B. Common Method Bias Analysis

Construct	Indicator	Substantive Factor Loading (R ₁)	R ₁ ²	Method Factor Loading (R ₂)	R ₂ ²
IQ	IQ1	0.702***	0.493	0.097	0.009
	IQ2	0.881***	0.776	-0.083	0.007
	IQ3	0.757***	0.573	0.069	0.005
	IQ4	0.814***	0.663	-0.087	0.008
SQ	SQ1	0.842***	0.709	-0.049	0.002
	SQ2	0.807***	0.651	0.065	0.004
	SQ3	0.843***	0.711	0.001	0.000
	SQ4	0.721***	0.520	-0.026	0.001
SerQ	SerQ1	0.830***	0.689	0.041	0.002
	SerQ2	0.784***	0.615	0.044	0.002
	SerQ3	0.736***	0.542	0.008	0.000
	SerQ4	0.796***	0.634	-0.110	0.012
CC	CC1	0.698***	0.487	0.007	0.000
	CC2	0.873***	0.762	0.012	0.000
	CC3	0.897***	0.805	-0.018	0.000
SC	SC1	0.812***	0.659	-0.031	0.001
	SC2	0.794***	0.630	0.058	0.003
	SC3	0.843***	0.711	-0.006	0.000
	SC4	0.878***	0.771	-0.020	0.000
RC	RC1	0.904***	0.817	-0.102*	0.010
	RC2	0.836***	0.699	0.000	0.000
	RC3	0.642***	0.412	0.118	0.014
LS	LS1	0.814***	0.663	0.059	0.003
	LS2	0.898***	0.806	-0.051	0.003
	LS3	0.903***	0.815	-0.060	0.004
	LS4	0.843***	0.711	0.018	0.000
	LS5	0.694***	0.482	0.040	0.002
Average		0.809	0.659	-0.0002	0.003

Note: *p<0.05, **p<0.01, ***p<0.001

Appendix C. F-test for R²

	R ²	F	P(F)
Cognitive Capital	0.195	24.466	0.000
Structural Capital	0.088	7.285	0.000
Relational Capital	0.270	37.356	0.000
Loyalty to the Seller	0.245	23.878	0.000