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Exploring stickiness intention of B2C online shopping malls: A perspective from information quality

Abstract

Purpose – The purpose of this paper is to explore the roles of flow experience and e-trust in online consumers' stickiness intentions from a perspective of information quality and discuss how to retain these consumers.

Design/methodology/approach – The authors proposed a research model by integrating three dimensions of information quality, flow experience and e-trust. These factors were analyzed respectively to explore the direct and indirect effects on consumers' stickiness intention. Online questionnaires were adopted to collect data, and 259 valid samples were analyzed by structural equation modeling approach.

Findings – The findings show that information quality provided by B2C online shopping malls can indirectly affect consumers' stickiness intention through the mediation effects of flow experience and e-trust. Besides, flow experience can also significantly affect e-trust and then indirectly influence stickiness intention.

Research limitations/implications – The findings suggest that information quality can trigger the effects of flow experience and e-trust to keep stickiness of online consumers. Besides, in the context of online shopping, flow experience would promote consumers' trust toward e-retailers. Some other theoretical and practical implications are also provided.

Originality/value – This study indicates the effects of flow experience and e-trust on stickiness intention from an information quality perspective. Meanwhile, the authors also intends to discuss the relationship between consumers' flow experience and e-trust in the context of B2C online shopping.

Keywords stickiness intention, information quality, flow experience, e-trust, B2C online shopping mall

1. Introduction

With the fast development of e-commerce, B2C online shopping has become one of the most common activities conducted

over the Internet (Purcell, 2011). Some famous online shopping malls, such as Amazon.com and Tmall.com have been developed into well-established platforms for individuals' daily purchasing. Moreover, in recent years, the popularity of portable devices (smartphones and tablet PCs) and wireless Internet have further accelerated this trend (Cao *et al.*, 2015; Einav *et al.*, 2014). For consumers, online shopping has become a both computer-mediated and smartphone-mediated activity allowing them to browse and buy any goods without limitations of time and place. But on the other hand, although B2C online shopping has attracted a variety of consumers, how to keep them is not easy. This is because services, products, and price premiums provided by different e-retailers are becoming more and more similar now, and therefore fierce competitions among different online shopping malls inevitably exist. Chiu *et al.* (2014) argued that customers' loyalty and repeat purchasing behaviors are critical for the survival and success of any retail. Thus, in the context of B2C online shopping, understanding how to build deep and lasting relationships with consumers is essential for e-retailers.

When exploring consumers' online shopping behaviors, flow experience and e-trust are two important perspectives of analysis. More than ten years ago, Gefen and Straub (2004) have already indicated that trust should be more important in B2C online shopping because online services and products typically are not immediately verifiable. Besides, C.-L. Hsu *et al.* (2012) empirically proved that flow experience was significantly and positively related to online purchasing intention; Moreover, when the extent of a customer's trust propensity was high, the effect of flow experience on online shopping behaviors would be promoted. In addition, based on the characteristics of Gen Y (millennials), Bilgihan (2016) indicated that for these customers, trust was the most important factor of e-loyalty in online shopping, and at the same time, online flow experience can also positive and significant affect e-loyalty as an antecedent. In a word, these studies indicate the flow experience and e-trust are two important promoters of consumers' satisfaction, loyalty and continuance intention. But on the other hand, when discussing the formation of these two promoters, researchers often analyzed it from perspectives of consumers themselves, such as consumers' characteristics or subjective feelings rather than considering some basic and objective factors in information systems (IS). To fill this gap, L. Gao *et al.* (2015) examined the antecedents of flow experience and e-trust from an IS perspective when exploring continuance intention towards mobile purchase. The IS

success model was selected as a research framework, and in this framework, information quality was considered as one of the critical factors to affect consumers' flow experience and trust. In addition, Wang *et al.* (2016) integrated the e-commerce success model and commitment–trust theory to reveal that relationship commitment, trust, and satisfaction were key determinants of stickiness intention, and in the e-commerce success model, information quality is an antecedent to promote consumers' trust and satisfaction. However, although these studies indicate some objective factors related to information systems (IS), especially the important role of information quality in promoting flow experience and e-trust, they always treat information quality as an entirety and therefore could not fully display how it works. According to Zo and Ramamurthy (2009), information quality can be divided into three different dimensions in e-commerce. Under the background of B2C online shopping, our aim is to explore how flow experience and e-trust influence consumers' stickiness intention from a perspective of multi-dimensional information quality.

The main contribution of this study is that the roles of flow experience and e-trust in promoting stickiness intention of B2C online shopping mall are indicated from different dimensions of information quality for the first time. In the analysis process, we divided information quality into three dimensions and regarded them as antecedents, and then every dimension was examined in detail to reveal its effect on online consumers' stickiness intention through flow experience and e-trust. Besides we also tried to discuss the relationship between flow experience and e-trust in the context of B2C online shopping.

The remainder of this paper is organized as follows. In the next section, we discuss the theoretical background from which we put forward research hypothesis and present the conceptual model. Then we describe the research methodology in Section 3, followed by a test mode, data analysis and results in Section 4, and finally in Section 5, we discuss the results and conclude the research with implications, limitations and suggestions for future research.

2. Theoretical background and hypotheses

2.1 E-trust

Trust can be regarded as the depth and assurance of feeling based on limited evidences (Rahimnia and Hassanzadeh, 2013).

It is a subjective belief that the behaviors of trusted party will be consistent with the expectations of trusting party. Prior

studies have indicated that trust is significant in relationship building process, because it is one of the most effective methods to reduce complexity, especially for some situations in which existing rules and regulations cannot be fully applied (Fukuyama, 1995; Gefen, 2000). In other words, trust can be regarded as a convenient way to reduce transaction costs when individuals cannot easily judge whether opportunisms and uncertain situations will emerge. With the popularity of Internet and e-commerce in the late 1990s, the range of trust has been expanded into the new context and usually been called e-trust. Tan and Sutherland (2004) argued that e-trust is a process which consumers trust specific abilities, skills and expertise of some e-vendors. Meanwhile, McKnight *et al.* (2002) revealed that e-trust is related to Internet infrastructures, and the structural characteristics of the Internet (such as support systems) influence consumer e-trusts. This study integrates the two viewpoints and defines that in the context of B2C online shopping, e-trust is the degree of customers' belief or confidence about the words or promises provided by e-retailers based on their operation abilities, reputations, and support systems (e.g. products distribution, payment, and privacy protection).

Some studies have proved customers who trust an e-retailer will be more likely to visit his or her shopping website which include making actual purchases or just a repeated visit (M.-H. Hsu *et al.*, 2015; Kim and Niehm, 2009). It is predicted that when a product provider is trusted by consumers, long-term relationships among them will be more likely to maintain. Therefore, e-trust can be considered as a critical role in loyalty, stickiness, and relationship development between customers and e-retailers. Hence, we proposed the following hypothesis:

H1. E-trust can positively influences stickiness intention of B2C online shopping mall.

2.2 Flow experience

Flow experience was firstly pointed out by Csikszentmihalyi (1975). It is a state of absolute absorption or intense concentration in activities where unrelated cognition was blocked-out. Previous literature indicates that flow experience can be regarded as a form of focused concentration, perceived control, lack of self-consciousness, time distortion, or enjoyment experience (Hoffman and Novak, 2009; Novak *et al.*, 2000), and in such an environment, people will immerse themselves in an activity they are engaging in, and thus they are free from outside interferences. With the rapid development of

e-commerce in recent years, flow experience in an online marketing environment has been gained more and more attention. Teng *et al.* (2012) argued that flow experience could be regarded as an important construct to explain consumer behaviors in computer-mediated environments. It has been widely discussed in the e-commerce, such as online shopping (S.-H. Chang *et al.*, 2016; C.-L. Hsu *et al.*, 2012) and online financial services (Xin Ding *et al.*, 2009; Zhou, 2011). Therefore, in this study, we explored consumers' stickiness intention of B2C online shopping malls from the perspective of flow experience is promising and appropriate.

Novak *et al.* (2000) pointed out that flow experience could attract consumers and affected their subsequent attitudes and behaviors significantly. In flow state, consumers' cognitive sensitivity regarding shopping websites can be enhanced and their undesirable consequences in e-commerce (such as negative attitudes and website avoidance) will be reduced, which have positive impacts on building trust (Bilgihan *et al.*, 2015). Gradually, consumers will not focus on some disadvantages of an online shopping mall. Besides, in this state, consumers may feel satisfied and enjoyable about the experience gained from the website, and then be willing to spend more time on it. Thus, some researchers revealed that flow experience represented an optimal experience, because it was one of the significant determinants of consumer attitudes toward a website which would increase individuals' intention to revisit and spend additional time on the website (Kabadayi and Gupta, 2005; Mathwick and Rigdon, 2004). Therefore, consumers' stickiness intentions may be strengthened. Based on the above analysis, the following two hypotheses are proposed:

H2. Flow experience positively influences stickiness intention of B2C shopping mall.

H3. Flow experience positively influences consumers' e-trust.

2.3 Information quality

Although some prior IS literature has discussed this topic (Dickson *et al.*, 1977; Lee *et al.*, 2002), in this study, we examined it mainly based on the context of B2C e-commerce. Lim *et al.* (2012) argued that high information quality facilitated through information technology (IT) enabled consumers to assess products which they like to experience prior to purchase. Generally speaking, when purchasing online, customers will first browse different kinds of product information

and then decide which to buy. Therefore, information can be considered as one of the fundamental parts of websites and its quality can be employed to “guarantee the smooth execution of transactions” (Xu and Koronios, 2005). For online shopping, information quality means the usefulness of the available information about the attribute of a product which can help decision makers evaluate the product (J. Gao *et al.*, 2012). High quality information can facilitate a consumer’s evaluation of products and promote their final purchases. Previous research has assessed the effect of information quality on consumers’ attitudes from a lot of perspectives, such as its accuracy, relevance, presentation, and security (Liu and Arnett, 2000); timeliness, accessibility, and understandability (Salaün and Flores, 2001); accessibility, coherence, comparability (Miller, 1996). Based on these existing literature and the context of e-commerce, in this paper, we divided information quality into three dimensions:

Information content quality. It reflects the usefulness of the contents on B2C online shopping websites including introduction of an online shopping mall, descriptions of its products and services, transaction details (e.g. payment processes, shipping options) or some other contents critical for online consumers to make consumption decisions (Carlson and O’Cass, 2011). It is reasonable to predict that useful, accurate, and objective information about provided products or services in a B2C online shopping mall will give consumers a sense of assurance. Moreover, these information will also leave consumers an impression of integrity and reliability and then improve trustworthiness of these e-retailers. Additionally, accessing accurate, easy-to-understand, and up-to-date information related to products or services will help consumers improve decision making ability when they make choices and help them overcome the feel of uncontrollable. Therefore, consumers may be easily led to a more concentrated or immersed shopping state. For example, they would read detailed introductions about some goods and compare some similar products carefully. That is why some researches indicated that information content quality could influence the formation of flow experience (Fan *et al.*, 2013; Hausman and Siekpe, 2009). Therefore, based on the context of B2C online shopping, we hypothesized the following:

H4a. Information content quality can positively affect e-trust.

H4b. Information content quality can positively affect flow experience.

Information representation quality. With the continuous improvement of multimedia technology, there are diversified forms to display information of products or services in the context of B2C e-commerce. For B2C online shopping malls, information representation quality means how well their shopping websites can present the information of their products (Zo and Ramamurthy, 2009), such as visual appearance, content organization, and layout design of a website. Previous research proved that consumers' evaluation of products and services could be influenced by visual attractiveness of a website (Carlson and O'Cass, 2011; Collier and Bienstock, 2006). Such visual attractiveness would enrich consumers' online shopping experiences by giving them a sense of enjoyment and creating a positive shopping atmosphere. Therefore, Carlson and O'Cass (2011) argued that visually appealing will be more likely to provide consumers flow experience, because aesthetic elements within the e-commerce environment play an important role in involving consumers in a website. Besides, Isen (1987) pointed out that positive environments would allow individuals to handle more information and predict more positive consequences. For online consumers, it is logical to predict that high level of design consistency, visual attractiveness and aesthetics of shopping websites can ease consumers' cognitive burden and promote them to repeatedly browse those sites. Gradually, trust toward the website may be built. Accordingly, the following hypotheses are proposed:

H5a. Information representation quality can positive and significant influence e-trust.

H5b. Information representation quality can positive and significant influence flow experience.

Information interactivity quality. Interactivity refers to "the extent to which users can participate in modifying the form and content of a mediated environment in real time" (Steuer, 1992). In the context of online shopping, C. H.-J. Wu *et al.* (2014) defines it as the freedom of navigation and the feedback speed felt by consumers when they browse a website. With the help of interactivity, higher control and reciprocal communications during information searching process will be perceived or experienced by consumers.

Communication and information exchange are important factors of interactivity. Carlson and O'Cass (2011) argued that if consumers can perceive a high communication performance of a shopping website, then they are more likely to feel pleased. In other words, interactivity may help consumers enjoy the processes of browsing or selecting goods, and thus increase their

satisfaction with products or services provided by online shopping malls. Therefore, it can be predicted that online consumers will be promoted to concentrate more on their purchases and perceive more flow experience from continuous responses and feedbacks in a shopping website. At the same time, some researchers have argued that interactivity can be the foundation of building trust (Lagace *et al.*, 1991; J. J. Wu and Chang, 2005) because it can show retailers' willingness to act in buyers' best interests. With proper interactivities, retailers can show their knowledge to consumers and thus demonstrate their ability to offer satisfied products or services (Bao *et al.*, 2016). Gradually, trust will be built and lead to the possibility of long-term cooperation. Hence, the following hypotheses are proposed:

H6a. Information interactivity is positively related to e-trust.

H6b. Information interactivity is positively related to flow experience.

In summary, Figure 1 presents our research model and the hypothesized relationships of this research based on flow experience, e-trust and information quality. It hypothesizes that flow experience and e-trust will be triggered by three dimensions of information quality and then in turn influence consumers' stickiness intention. In other words, information content quality, information representation quality and information interactivity quality have indirect effect on repeat purchase intention through flow experience and e-trust which work as mediators and have significant effects on the stickiness intention.

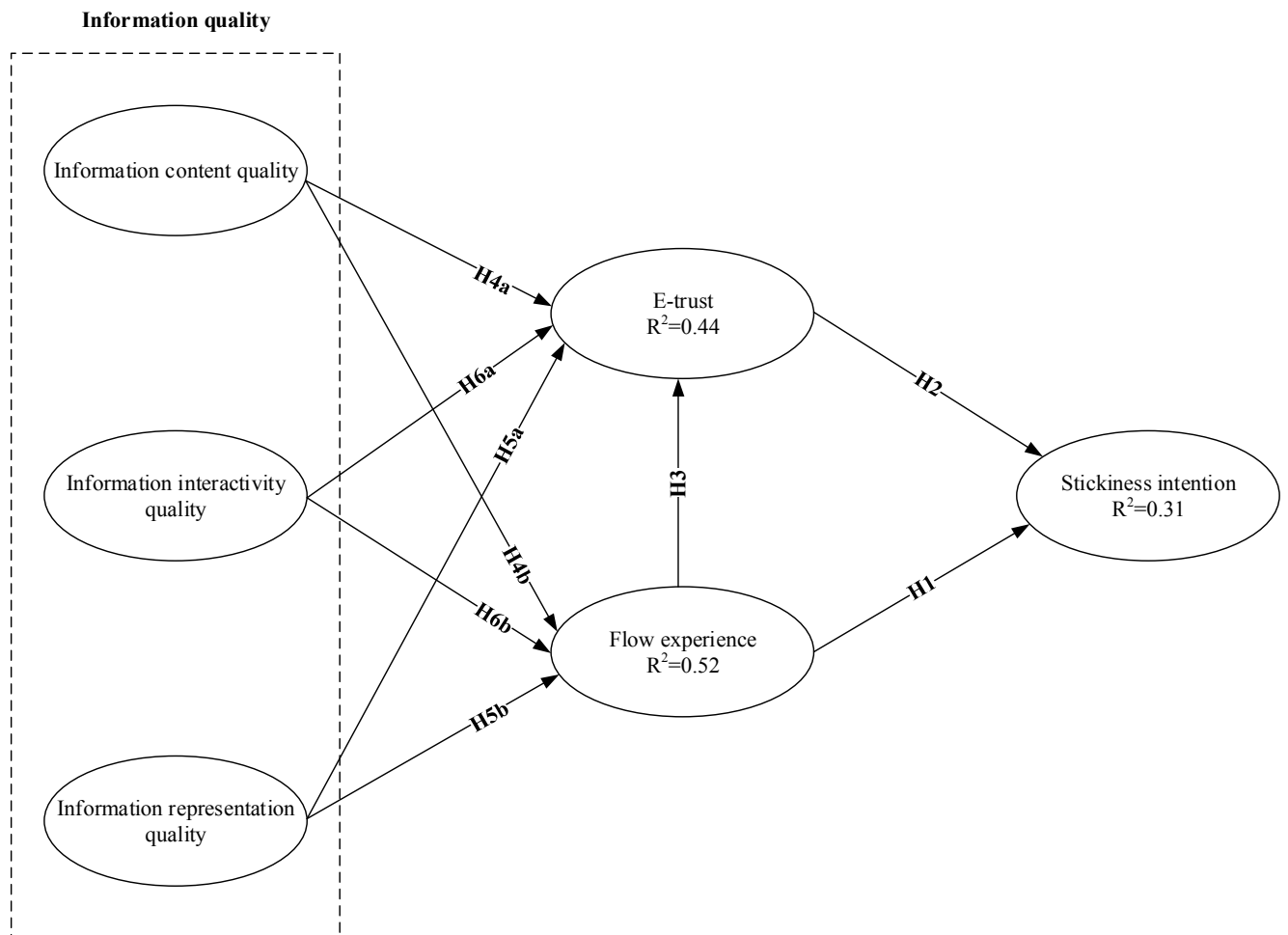


Figure 1. Research model

3. Methodology

3.1 Sample and data collection

To test the research model and all hypotheses, the samples of our research were selected from students and faculties in a comprehensive university located in an eastern province in China PR. Previous studies have proved that college students are more likely to be familiar with e-commerce, and they can be considered as a representative sample of the e-commerce shopper population (Lightner *et al.*, 2002; Ozok and Wei, 2010). That is why we mainly selected them as our respondents. Then a questionnaire website was employed to display our questionnaire and collect data (www.wenjuan.com/). We cooperated with the student union of this university to promote this survey. With the help of them, we could post the hyperlink of our online questionnaire on the official micro-blogging and bulletin board systems (BBS) of this university. Respondents were requested to answer all questions based on their online shopping experiences. In order to avoid

replications, we checked the IP address of every respondent when online questionnaires were received. To encourage participation, 20 percent of respondents were randomly selected to reward an album of campus postcards.

Data were collected from November to December, 2016. In total, 300 respondents were invited to participate in our online survey. After removing incomplete responses and some respondents who selected the option that “never have online shopping experiences before”, a total of 259 valid responses remained. Table 1 shows the detailed sample demographics.

Table1
Sample demographics

Measure	Item	Frequency	Percentage
Gender	Male	118	45.6%
	Female	141	54.4%
Age	Less than 20	35	13.5%
	20-29	153	58.7%
	30-39	39	15.1%
	40-49	26	10.0%
	50 or over	5	2.7%
Online Shopping frequency (average times in a month)	1 or less	84	32.4%
	2-3	102	39.4%
	4-5	56	21.6%
	6 or more	17	6.6%

3.2 Measurement development

To design a questionnaire, we adapted measurement items from previous literatures pertaining to the six constructs, including information content quality, information representation quality, information interactivity, flow experience, e-trust and stickiness intention. We adopted three measurement items for each construct, and all items were measured with a seven-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (7). The items for information content quality and information representation quality were adapt from Zo and Ramamurthy (2009). The items for information interactivity quality were adapted from Xin Ding *et al.* (2009) and Aljukhadar and Senecal (2016). E-trust items were adapted from Ke *et al.* (2016) and Jin *et al.* (2008). Items for flow experience were adapted from C.-C. Chang (2013). Last, items for stickiness intention were adapted from Kuo *et al.* (2013) and C.-L. Hsu *et al.* (2014).

We translated all measurement items into Chinese and employed “Tmall.com” to replace difference online shopping web sites among original measurement items. That is because Tmall (www.tmall.com) is the biggest B2C online shopping mall

in China, and it contains an enormous amount of sellers and buyers (Zhao *et al.*, 2016). Almost every online consumer in China has shopping experiences at Tmall.com or at least has ever heard about this B2C online shopping mall. Therefore, it is appropriate to be regarded as a case to measure consumer behaviors when shopping online. A pilot study with 20 students and 5 IS scholars was adopted to access the logical consistency and ease of understanding of the questionnaire. The Appendix of this paper lists all items.

4. Data analysis and results

A two-step approach for data analysis was used in this paper (Anderson and Gerbing, 1988). It tests the measurement model and structural relationship among the latent constructs.

4.1 Tests of the measurement model

The first stage of data analysis analyzed the measurement properties of constructs, including the internal consistency (reliability), convergent validity and discriminant validity of the constructs. We used confirmatory factor analyses (CFA) to assess the measurement model via AMOS 21.0.

To test internal consistency (reliability), Cronbach's α and composite reliability (CR) were employed. As shown in Table 2, Cronbach's α of each construct is more than 0.70, meeting the accepted level recommended by Hinkin (1998), and the composite reliabilities (CR) of all constructs exceed 0.70, meeting the suggested threshold (Nunnally and Bernstein, 1994). It indicates good reliability and stability for the measurement items of each construct.

Convergent validity was checked with three standards. First, each item loaded significantly on its respective construct, and none of the loadings were below the cutoff value of 0.60 (Hair *et al.*, 1998). Second, CR for each construct should be larger than 0.7 (Bagozzi and Yi, 1988). Last, the average variance extracted (AVE) should be above 0.5 (Bagozzi and Yi, 1988). As Table 2 shows, in our measurement model, the indicator factor loadings of all items of the measuring mode are greater than 0.70. The value of CR for all constructs ranges from 0.795 to 0.832. The AVE for each construct exceeds 0.50.

Table 2
Statistics of construct items

Items	Loadings	t-statistics	CR ^a	AVE ^b	α^c
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<i>Information content quality</i>					
ICQ1	0.775		0.795	0.564	0.794
ICQ2	0.757	10.809			
ICQ3	0.720	10.448			
<i>Information representation quality</i>					
IRQ1	0.728		0.801	0.573	0.797
IRQ2	0.793	11.081			
IRQ3	0.748	10.204			
<i>Information interactivity quality</i>					
IIQ1	0.781		0.804	0.578	0.802
IIQ2	0.747	11.077			
IIQ3	0.753	10.603			
<i>E-trust</i>					
ET1	0.786		0.803	0.576	0.803
ET2	0.740	10.645			
ET3	0.750	10.688			
<i>Flow experience</i>					
FE1	0.792		0.832	0.624	0.831
FE2	0.832	13.045			
FE3	0.743	11.644			
<i>Stickiness intention</i>					
SI1	0.815		0.831	0.621	0.830
SI2	0.811	12.279			
SI3	0.736	11.521			

Notes: ^aComposite reliability; ^baverage variance extracted; ^cCronbach's α

Discriminant validity was tested by comparing the square root of the AVE for every construct with the correlations between that and other constructs (Fornell and Larcker, 1981). The square roots of AVE should exceed all correlations between that construct and other constructs. In Table 3, the diagonal elements are the square roots of AVE for the constructs. It shows that all square roots of AVE are larger than any correlations between that construct and other constructs. Therefore, discriminant validity in our research was established.

Table 3
Discriminant validity

Construct	ICQ	IRQ	IIQ	FE	ET	SI
ICQ	0.751					
IRQ	0.607	0.757				
IIQ	0.462	0.589	0.760			
FE	0.595	0.626	0.588	0.790		
ET	0.574	0.577	0.416	0.561	0.759	
SI	0.369	0.379	0.316	0.492	0.493	0.788

Notes: ICQ, information content quality; IRQ, information representation quality; IIQ, Information interactivity quality; ET, e-trust; FE, Flow

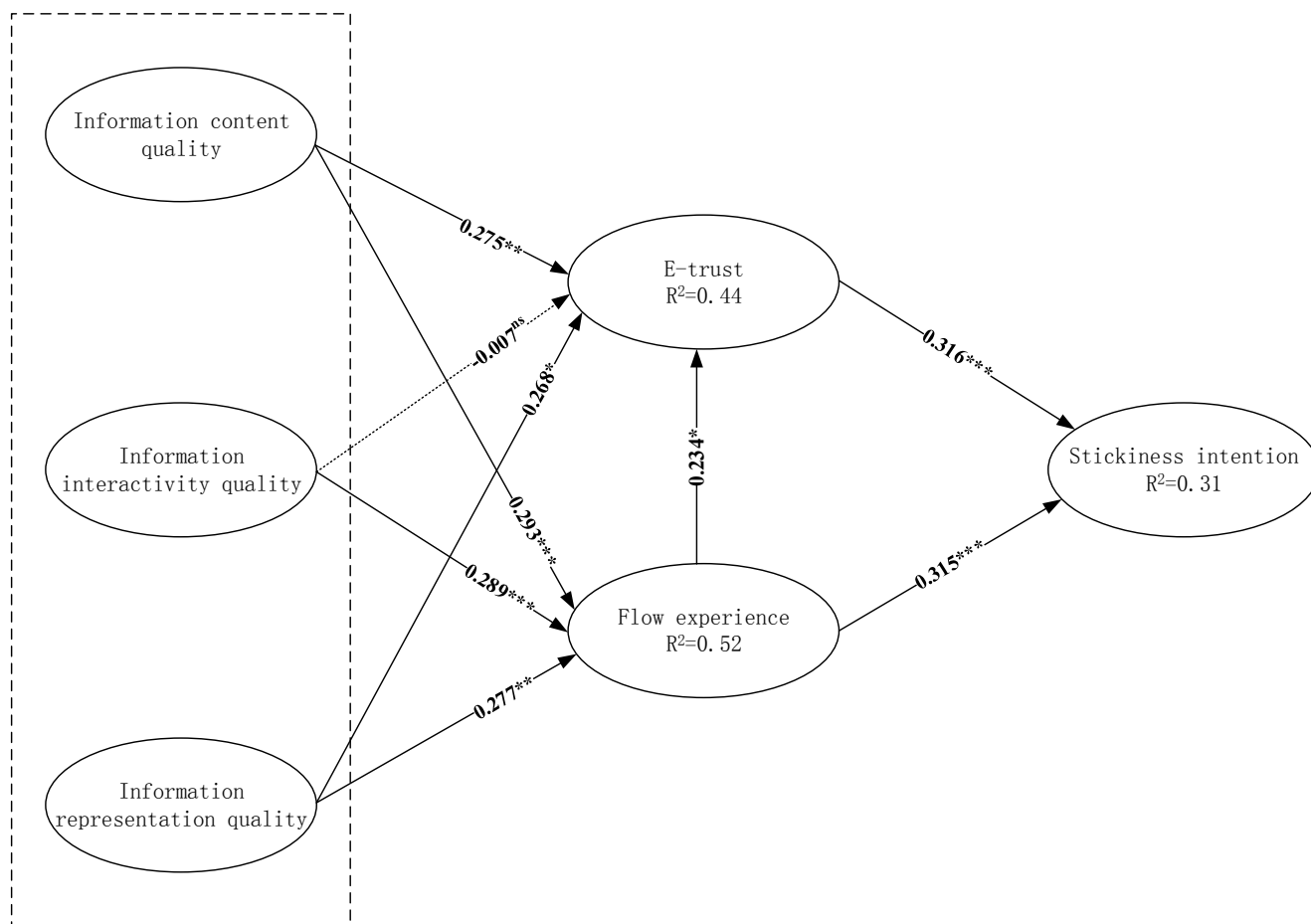
experience; SI, Stickiness intention

4.2 Tests of the structural model

We tested the structural model by using AMOS 21.0. The model-fit indices had proved that the structural model is of a good model fit ($\chi^2/df = 1.432$, GFI = 0.930, AGFI = 0.903, NFI = 0.919, CFI = 0.974, RMSEA = 0.041). Then we examined the structural paths and variance explained (R^2). Figure 2 shows the standardized path coefficients, path significances and R^2 by each path. The significance of all of the paths has been assessed via 1,000 bootstrap runs. The model explains 31 percent of the variance in stickiness intention. In addition, the explained variance of flow experience and e-trust is 52 and 44 percent, respectively.

Flow experience and e-trust have positive impacts on stickiness intention (H1: $\beta = 0.315$, $p < 0.001$; H2: $\beta = 0.316$, $p < 0.001$); thus H1 and H2 are supported. At the same time, flow experience has positive impacts on e-trust (H3: $\beta = 0.234$, $p < 0.05$). Therefore, H3 is supported. Among the three dimensions of information quality, information interactivity quality has positively impact on e-trust (H6b: $\beta = 0.289$, $p < 0.001$), but it does not have significant effects on flow experience (H6a: $\beta = -0.007$, $p = 0.944$), so H6b is supported, and H6a is not supported. Besides, information content quality and information representation quality can all positively influence flow experience and e-trust (H4a: $\beta = 0.275$, $p < 0.01$; H4b: $\beta = 0.293$, $p < 0.001$; H5a: $\beta = 0.268$, $p < 0.05$; H5b: $\beta = 0.277$, $p < 0.01$), hence, H4a, H4b, H5a, and H5b are supported. Generally, the results of this study support all the hypotheses, except the H6a.

In addition, we employed variance inflation factors (VIF) to test the degree of multicollinearity. A regression analysis was conducted by modeling stickiness intention as the dependent variable and the other five variables as the independent variables. The resulting VIF values range from 1.44 to 1.69, which are well below the suggested threshold of 10 (Mason and William D. Perreault, 1991). Therefore, multicollinearity is not a significant issue in this study.



* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$, ns = not significant.

Figure 2. Structural model results

4.3 Testing mediation effects

We also tested the mediator effects of flow experience and e-trust by observing their confidence intervals. As the bootstrap procedure of AMOS 21.0 can only provide total indirect effects and confidence intervals in the output file, this paper employs a two-stage process to test mediation effects. First, we used the bootstrap procedure of AMOS 21.0 to test total indirect effects and their confidence intervals with the data of unstandardized estimates. Then the program PRODCLIN (MacKinnon and Fritz, 2007) was employed to test specific indirect effects and their confidence intervals. As shown in Table 4, all the 95 percent confidence intervals (CI) of the indirect effects do not overlap with zero, except IIQ→ET→ST (-0.070, 0.072). That means information interactivity quality does not have a significant effect on stickiness intention through e-trust (mediator), but the mediation effects of other mediators in paths all exist. This result further confirms some

of the previous hypotheses.

Table 4

Confidence intervals for mediation effects (Unstandardized estimates)

Model pathways	Bootstrapping				Estimated effect (Unstandardized)
	Bias-Corrected 95% CI		PRODCLIN2 95% CI		
	Lower bonds	Upper bonds	Lower bonds	Upper bonds	
Total indirect effect from ICQ to ST	0.120	0.341			0.208
ICQ→FE→ST			0.027	0.193	0.095
ICQ→FE→ET→ST					0.022
<i>ICQ→FE→ET</i>			0.006	0.160	
<i>FE→ET→ST</i>			0.008	0.198	
ICQ→ET→ST			0.020	0.194	0.090
Total indirect effect from IRQ to ST	0.112	0.347			0.215
IRQ→FE→ST			0.022	0.207	0.097
IRQ→FE→ET→ST					0.023
<i>IRQ→FE→ET</i>			0.005	0.171	
<i>FE→ET→ST</i>			0.008	0.198	
IRQ→ET→ST			0.015	0.214	0.094
Total indirect effect from IIQ to ST	0.021	0.256			0.130
IIQ→FE→ST			0.033	0.210	0.107
IIQ→FE→ET→ST					0.025
<i>IIQ→FE→ET</i>			0.008	0.163	
<i>FE→ET→ST</i>			0.008	0.198	
IIQ→ET→ST			-0.070	0.072	-0.002 ^{ns}

Notes: ICQ, information content quality; IRQ, information representation quality; IIQ, Information interactivity quality; ET, E-trust; FE, Flow experience; SI, Stickiness intention

5 Discussion

5.1 Theoretical implications

First, this research contributes to the B2C e-commerce literature and reveals the roles of flow experience and e-trust in consumers' stickiness intention from a new perspective. In our research model, flow experience and e-trust can be directly or indirectly impacted by information quality which contains content quality, representation quality, and interactivity quality, and then influence consumers' stickiness intention. Besides, as shown in Figure 2 and Table 5, the total indirect effects of the three dimensions of information quality on stickiness intention are all significant. It means flow experience and e-trust can work as mediators and be triggered information quality. Although, some prior researchers have indicted the important roles of flow and trust in online shopping, this paper extends them by exploring this topic from a perspective of

multidimensional information quality. Therefore, it offers a new understanding of how consumers' stickiness intention can be promoted.

Second, this research indicates the relationship between flow experience and e-trust in the context of B2C online shopping. To the best of our knowledge, until now, there is no consistent result of the relationship between flow and trust. For example, Zhou (2011) argued that trust can positively affect flow experience when he explored mobile banking user adoption, while Bilgihan *et al.* (2015) pointed out the flow experience on a hotel booking website has a positive effect on trust when they examined consumers' booking experiences. Therefore, it can be concluded that there can be a positive effect in both ways. In this study, we mainly discussed the positive effect of flow experience on e-trust. This is because in online markets, consumers' cognitive attitudes toward websites can be influenced by their flow experiences (Bilgihan *et al.*, 2015). When shopping online, consumers and retailers have no chance to conduct face-to-face contacts and touch physical products, and thus traditional ways to build trust would not be effective. At this moment, consumers' sense of flow can be one of the new approaches to promote e-trust.

Third, the structural model of this research reveals that information interactivity quality is not significantly related to the flow experience but can promote consumers' e-trust. To our surprise, as shown in Figure 2, information interactivity quality cannot positively and significantly affect flow experience. One possible explanation is the phenomenon of "information overload". According to the classic definition of information overload, the quality of an individual's decisions can be improved with the amount of information he or she receives, but if further information is still provided beyond a certain point, then the quality of decisions will rapidly decline (Chewning and Harrell, 1990). In the context of online shopping, information overload would happen when information input surpasses a consumer's capacity to receive and subsequently limits of one's cognitive process. Overloaded information (such as too much irrelevant information and advertisements) not only lead consumers to a worse subjective state when they make decisions, but also make them feel dissatisfied toward online shopping malls. Then consumers may doubt e-retailers' motivations and do not trust their recommendations.

5.2 Practical implications

First, this research provides a new perspective for B2C online shopping malls to consider how to retain their consumers. It reveals how information quality would support online purchasing rather than showing traditional information searching processes. As indicated in this paper, consumers' flow experience and e-trust can be triggered by the three dimensions of information quality. Therefore, as online retailers, they should pay more attention to improve the information quality about their products or services. Providing detail and accurate information; making online shopping services pleasant appeal and aesthetics; and ensuring shopping websites load rapidly and respond quickly to consumers' each click or touch (mobile devices) are three necessary rules.

Second, based on the results of this study, B2C online retailers should try to create an optimal shopping atmosphere to promote flow experience and build the image of credibility and benevolence of their online shopping services. Using attractive and accurate information about products or services, including text, icons, images, and videos to provide entertainment and enrich online shopping experiences is essential. At the same time, responsiveness and helpfulness of the services provided by e-retailers are also important. They can promote consumers totally involved in the shopping and make them feel time elapses rapidly. Besides, e-retailers should try to avoid exaggerated product introduction or even fraud, because customers are more likely to trust a retailer with a good reputation rather than a retailer with a poor or no reputation (Jin *et al.*, 2008). Trustworthiness perceptions toward an online retailer can increase customer intentions to return to it, which can in turn produce customers' stickiness intention.

Third, our results also suggest that B2C online retailers should avoid information overload when promoting their products or services. Large amount of information may not produce as many benefits as e-retailers' imagine. As online consumers, confronting excessive information may derive poorer subjective states towards their decisions (Chen *et al.*, 2009). E-retailers should not offer too much irrelevant information or advertisements when consumers use some navigating functions (e.g. "categories" and "sort by") of their online shopping websites. Moreover, excessive worthless information will not only make consumers feel bored, but also lower the expertise and professionalism perceived by consumers toward a

B2C online shopping mall, and then weaken e-trust. Besides, based on relevant researches (Chen *et al.*, 2009), creating user-friendly interfaces and decreasing the loading time between consumers' actions and a site's responses will be another important approach to ease information overload.

5.3 Limitations and suggestions for future research

Although we made every effort to this research, some limitations still exist. First, we employed college students and faculty members as research samples. Although according to previous literature, this crowd of people can be considered as appropriate to survey, respondents from other demographic groups may have different attitudes toward online shopping. Further studies should invite online consumers from different demographic groups (e.g. working staffs, elderly people) to participate in our investigations. Second, in this study, we selected Tmall.com as a case to collect data and analyzed consumers' attitudes toward online shopping. This B2C shopping platform is one of the largest and most famous online mall, whereas it cannot cover all consumers. There still exist consumers who are more willing to purchase from Amazon.com or JD.com. These B2C shopping malls may provide different shopping experience. Further studies should attempt to inquire consumers purchasing from different kinds of B2C shopping malls. Third, in this paper, we divided information quality into three dimensions based on some previous literatures. Although the three dimensions can present the features of information quality acquired by consumers from different perspectives to some extent, some more detailed classifications by combining other perspectives of information, such as creative and unique features can be considered for deep exploration.

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Appendix. Measurement items

Information Content Quality (ICQ)

ICQ1: Tmall.com provides information that was easy-to-understand.

ICQ2: Tmall.com provides timely/up-to-date information.

ICQ3: Tmall.com provides accurate information.

Information Representation Quality (IRQ)

IRQ1: This site and information presented had pleasant appeal & aesthetics.

IRQ2: Tmall.com has an attractive visual appearance.

IRQ3: The presentation of information on Tmall.com was well organized.

Information Interactivity Quality (IIQ)

IIQ1: There is very little waiting time between my actions and the site's responses.

IIQ2: Tmall.com has interactive features that help me with navigating.

IIQ3: Tmall.com can save my preferences and offers me additional services or information based on these preferences.

E-trust (ET)

ET1: Overall, Tmall.com is a capable and proficient Internet seller
ET2: I trust the claims and promises Tmall.com makes about a product.
ET3: I trust what Tmall.com says about its products

Flow experience (FE)

FE1: When I was browsing Tmall.com, I felt totally captivated
FE2: When I was navigating Tmall.com, time seemed to pass very quickly
FE3: When I visited Tmall.com, nothing seemed to matter to me

Stickiness intention (SI)

ST1: I will continue to purchase goods from Tmall.com in the future.
ST2: I expect to repeat purchase from Tmall.com in the near future
ST3: My intentions are to continue to use Tmall.com than other online shopping websites.