

# Factors Influencing Chinese Consumers' Continuous Use Intention for Cross-Border E-Commerce

**I-Ching Tung**

Stamford International University, Thailand

i-ching.tung@stamford.edu

**Yue Huang**

Stamford International University, Thailand

316346676@qq.com

**Jia Zhao**

Kunming University of Science and Technology, China

705895863@qq.com

**Wari Chokelumlerd**

Stamford International University, Thailand

wari.chokelumlerd@stamford.edu

**Areewan Cheewaprapanan**

Stamford International University, Thailand

areewan.cheewaprapanan@stamford.edu

## Abstract

This quantitative study investigates the factors influencing the continuous use intention of mobile terminal buyers to use cross-border e-commerce platforms for purchases. Data was collected during the period December 2020-January 2021 through online questionnaires and convenience sampling. 559 Chinese consumers who have had experience in cross-border online shopping in the past 6 months on cross-border mobile e-commerce platforms such as AliExpress, Amazon, eBay, and Wish in Yunnan province, China, were surveyed. Based on the psychological distance theory and the commitment trust theory, a theoretical model of influencing factors of user's continuous use intention was developed and a Structural Equation Model (SEM) analysis conducted. The results show that psychological distance (spatial, temporal, and social), communication quality, and customer satisfaction have a significantly positive impact on consumers' trust towards cross-border e-commerce platform and that opportunistic behavior is negatively related to consumers' trust. In the meantime, customer satisfaction, inputs cost, and relationship benefits have a positive impact on relationship commitment. In addition, both trust and relationship commitment turn out to have a significant effect on continuous use intention. These findings could provide cross-border e-commerce platforms marketers and merchants with valuable insights for developing effective marketing strategies and trust mechanisms between users and platform to improve platform service and enhance user stickiness.

**Keywords:** Commitment Trust Theory, Continuous Use Intention, Cross-Border E-Commerce, Psychological Distance Theory, Yunnan Province

## 1. Introduction

Cross-border e-commerce is commonly defined as consumer online shopping from merchants located in different areas or countries (Accenture, 2012). Transactions are made through internet and delivery/reception of the goods occurs via cross-border logistics. Another definition by Wang (2014) describes cross-border e-commerce as international e-commerce among different countries where “deals and transactions are made through an e-commerce platform, and goods are delivered through cross-border planning and management agreements” (p.141). When on November 11, 2014, Alibaba Group launched the Singles' Day Shopping Carnival for the first time, it focused on cross-border e-commerce, covered 217 countries and regions, generated 278 million logistics orders throughout the day and achieved a total turnover of 57.1 billion yuan, of which mobile phone accounted for 42.6 percent (Jing & Liang, 2011).

Cross-border e-commerce can help small and medium-sized foreign trade enterprises to expand overseas distribution channels, enhance international brand awareness, increase the transaction volume of goods, achieve sales growth, and promote China's import and export trade. Over the last decade, cross-border e-commerce has gradually become an important part of China's foreign trade as it has been boosted by the popularization of mobile phone terminals, the maturity of mobile communication technology and what it offers to people, most notably mobile banking, mobile payment and mobile shopping. Yet, research on mobile commerce combined with cross-border e-commerce, i.e., cross-border mobile e-commerce, is still in its infancy. In China, there is little research on cross-border mobile e-commerce. Most of the existing research on domestic local e-commerce buyers take PC-end e-commerce as a research perspective. This leads to a mismatch between supply and demand from a research perspective as, in spite of the fact that more mobile-end e-commerce findings are needed, most results pertain to PC-end e-commerce. Compared with PC-end e-commerce, what characterizes mobile e-commerce is portability, mobility, immediacy, identity identification, etc. (Zhang & Liu, 2011).

This study adopts the perspective of mobile terminal to study the influencing factors of individual buyers' willingness to continue using cross-border e-commerce platform. Mobile terminals are currently widely popular and will dominate e-commerce in the future. Much of the existing literature on mobile e-commerce focuses on local mobile e-commerce. Few studies examine cross-border mobile e-commerce even though global trade and cross-border mobile e-commerce business represent the future and are at the core of the development strategy of multinational corporations. It is therefore of great significance to study the continuing willingness of cross-border mobile e-commerce buyers with regard to both e-commerce platforms and businesses.

## 2. Literature Review and Hypotheses Development

### - *The Psychological Distance Theory*

Psychological distance refers to the cognitive distinction between the self and other instances such as people, events, or timeframe (Baltatescu, 2014; Huang, Burtch, Hong, & Polman, 2016). According to Trope, Lieberman, and Wakslak (2007), psychological distance includes four dimensions, temporal distance (e.g. early or late), spatial distance (e.g. far or near), social distance (e.g. familiar or unfamiliar to oneself) and hypothetical distance (e.g. the certainty and ambiguity of something).

### **- Relationship between Psychological Distance and Trust**

In general, an individual can perceive psychological distance through his direct experience (Liberman & Trope, 2008). While the increase of psychological distance will challenge trust and a sustained relationship, the decrease of psychological distance will increase trust and promote the establishment of a relationship (Harwood & Lin, 2010). Psychological distance plays a crucial role in influencing consumer behavior. A number of studies on psychological distance have confirmed its influence on consumer behavior. For example, Jin, Hu, and He (2014) determined that comments by buyers on recently purchased goods will more strongly influence other consumers' short-term purchase decisions. It has been shown that when two individuals are dissimilar, their psychological distance will increase (Mussweiler, Riiter, & Epstude, 2004). Therefore, when a consumer makes a comment or a recommendation, consumers with similar habits are more likely to be influenced than consumers without similar habits (Duhan, Johnson, Wilcox, & Harrel, 1997).

Several studies also indicate that geographical distance will affect consumers' judgment and final decision on goods (Fujita et al., 2006; Henderson, Fujita, Trope, & Liberman, 2006; Liviatan, Trope, & Liberman, 2008). In addition, Darke, Brady, Benedictus, and Wilson (2016) found that for e-commerce companies, photos showing physical stores will help to reduce the psychological distance of consumers. Naturally, cross-border e-commerce is more geographically distant than local e-commerce. Psychological distance is therefore more important for building trust – by far the most essential factor in e-commerce – and establishing a relationship between consumers and merchants across borders. Reducing psychological distance has become the key to the success of cross-border e-commerce.

As we just saw, psychological distance has four dimensions: temporal, spatial, social, and hypothetical (Trope et al., 2007). However, only four dimensions of psychological distance are applicable to mobile e-commerce, namely, temporal, spatial, and social distance. Thus, only these three dimensions will be selected for this study. They are three of a number factors affecting m-commerce trust, which, as we will see in subsequent sub-sections, include several other constructs influencing cross-border m-commerce. Each of these three distances will now be discussed.

#### *(i) Spatial Distance*

In mobile e-commerce, spatial distance indicates that mobile e-commerce connectivity is possible everywhere, i.e., it can be used conveniently almost anywhere and is not bound by the location of people. As Morgan and Hunt (1994) noted, regular communication enhances long-term relationships and narrows the distance between people. With the exponential growth of cross-border online shopping, it has become very convenient to use mobile phones. It makes people feel the need of products even if they are far away and make them feel that they are close on hand. Therefore, reducing the sense of spatial distance can significantly increase people's trust in cross-border mobile e-commerce. In this study, spatial distance is therefore defined as mobility, which means that a mobile end-client could make a transaction from any place (Schierz, Schilke, & Wirtz, 2010).

#### *(ii) Temporal Distance*

Temporal distance originally referred to the time at which something happens. In mobile e-commerce, it refers to the instantaneous connectivity of mobile e-commerce, that is, whenever

people wish to go shopping online, including across borders, they can do so through their mobile phones. Transient connectivity is considered to be one of the main reasons why mobile e-commerce exceeds traditional e-commerce (Lee & Park, 2006). As a non-economic benefit, instantaneous connectivity help reduce time costs and provide convenience. Both advantages relate to its perceived value (Kim, Chan, & Gupta, 2007). Mobile phone users can access internet service anytime and anywhere, and through Internet mobile phone users can communicate with retailers more quickly. Moorman, Deshpande, and Zaltman (1993) and Morgan and Hunt (1994) found that timely communication fosters trust. Besides, the faster communication, the greater the perception of interactivity. Thus, the reduction of temporal distance significantly increases people's trust in cross-border mobile e-commerce. When an individual makes a purchase decision, it is possible that he/she is not in a position to make that purchase due, for example, to a lack of internet connection, so he/she may end up postponing the decision to the near future. M-commerce overcomes the temporal distance. In this study, temporal distance refers to the fact that mobile phone users can conduct transactions more conveniently at any time through mobile terminals. In the context of m-commerce, temporal distance is reduced (Clarke, 2011). Therefore, this study uses immediacy to measure temporal distance.

### *(iii) Social Distance*

Social distance refers to the perception of familiarity or strangeness. People are willing to trust those around them, such as relatives, friends and colleagues, but remain suspicious of strangers. Social distance in mobile commerce relates to social influence and subjective norms. Venkatesh, Morris, Davis, and Davis (2003) defined social distance as an individual's perception of what important people around him/her think he/she should or should not do. For example, a person may be inclined to shop at a store but his/her friends and relatives all think it is very convenient to use online shopping and believe that it is quite outdated not to shop online. This person may end up shopping online instead under the influence of his/her friends and their social impact. In studies on mobile commerce, social influence has also been shown to affect user acceptance level (Chong & Chan, 2013), perceived usefulness, and intention behavior (Kalinic & Marinkovic, 2016). When users are encouraged by their colleagues, family, or friends, they tend to perceive that m-commerce is useful to them. Information from people close to them or important to them is more trustworthy and more influential. This is because people who share the information with them are likely to be similar to them one way or another. Since they are socially close, they are likely to share some preferences (Hernandez-Ortega, 2017). The language and behavior of these people who are relatively important will deeply influence our own language and behavior. This is known as social influence (Venkatesh, et al., 2003). In the context of m-commerce, this means that when an individual's relatives or friends shop with mobile phones, it is likely that that individual will think that if he/she cannot shop with a mobile phone, his/her friends will think he/she is outdated. Therefore, in this paper social distance will be measured in terms of social influence.

Since, as emphasized in the above discussion, from the perspective of cross-border buyers on mobile terminals, these three components of psychological distance may significantly affect trust and the building of a consumer-merchant relationship, the following hypothesis can thus be developed:

**H<sub>1</sub>.** *The reduction of the perceived spatial distance of mobile e-commerce positively*

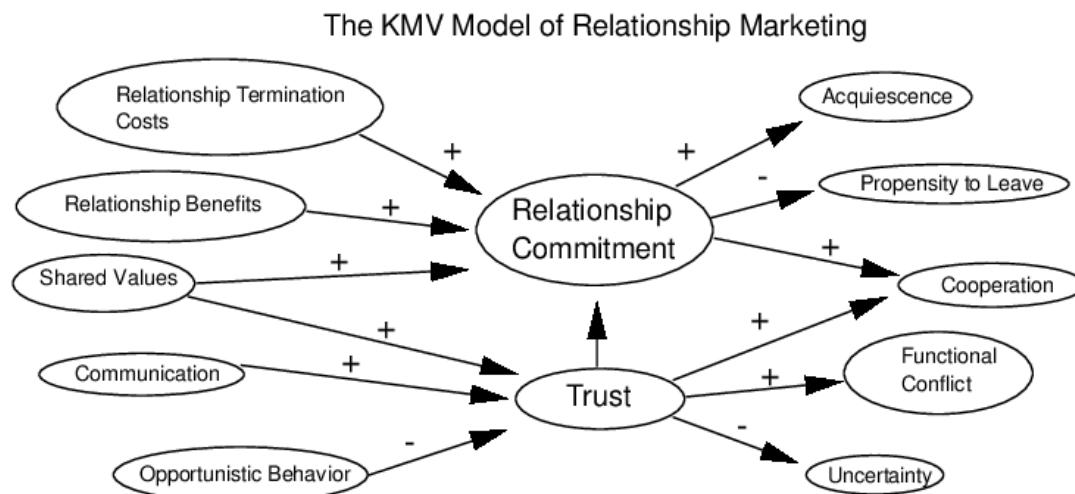
affects users' trust in cross-border mobile e-commerce.

**H<sub>2</sub>.** The narrowing of the perceived temporal distance of mobile e-commerce positively affects users' trust in cross-border mobile e-commerce.

**H<sub>3</sub>.** The reduction of the perceived social distance of mobile e-commerce positively affects users' trust in cross-border mobile e-commerce.

#### - The Commitment-Trust Theory (CTT)

The Commitment-Trust Theory (CTT) was first articulated by Morgan and Hunt in 1994 to describe a long-term business partnership (Li, Browne, & Wetherbe, 2006). It is based on the assumption that only when trust and commitment co-exist, can individuals and organizations become more efficient and productive (Mukherjee & Nath, 2007). In general, CTT is used to explore the reasons for the success and failure of strategic alliances (Mayer, Davis, & Schoorman, 1995). To show the basic factors and behaviors affecting trust and commitment, Morgan and Hunt (1994) developed the Key Mediating Variable model (KMV) of relationship marketing as shown in Figure 1.



**Figure 1:** The KMV Model of Relationship Marketing.

Source: Morgan and Hunt (1994)

The five antecedent variables of commitment and trust, which include relationship termination costs, relationship benefits, shared values, communication, and opportunistic behavior, will be discussed at length in the next several paragraphs since they either will be taken as constructs for this study or will serve as the basis for closely related constructs. In a nutshell, relationship termination costs refer to all the costs of switching from one relationship to another due to a lack of reliable alternative. They include a whole range of losses resulting from the termination of the relationship. Relationship benefits refer to the additional value that both parties derive from a business relationship. Shared values means that online distributors and consumers share the same values to enhance the relationship. Communication refers to the timely exchange of information between two parties in a relationship through formal or

informal means. As to opportunistic behavior, it refers to the act of cheating or violating the common interest to damage the relationship due to self-interest Morgan and Hunt (1994). Relationship commitment suggests that in long-term relationships, individuals will have a sense of commitment and feel dependent on their partner. They will be willing to establish a long-term relationship for mutual benefits and will develop a sense of trust and make decisions and take action accordingly, thereby reducing the perception of uncertainty (Mayer et al, 1995). As noted earlier, both commitment and trust are instrumental in building and maintaining strong relationships.

A number of researchers in the field of information systems have applied CTT to the study of online consumer behavior. Wang, Wang, and Liu (2016), for example, combined the Information System Success model with CTT to study consumer stickiness to group buying websites from the dual perspectives of technology and relationship. They found that satisfaction, relationship commitment and trust were the main components of stickiness. Mukherjee and Nath (2007) focused on the digital business environment and found that in addition to the five antecedent variables mentioned in CTT, privacy and security issues also affect consumer behaviors in terms of word of mouth, purchase intention and sticking relationship. Li et al. (2006) applied CTT to B2C trading companies and determined that two other factors, investment scale and satisfaction, also positively affected commitment relationship and trust. Given the presence of CTT in the Internet business environment, this study applies the model to cross-border mobile e-commerce. For one, mobile e-commerce is more convenient and faster than traditional e-commerce (Ko, Eun, & Lee, 2009). The use of CTT will help to determine how successful cross-border mobile e-commerce is in terms of commitment relationship.

#### *- Communication Quality*

Anderson and Narus (1990) defined communication as sharing timely and meaningful information in a formal or informal manner. Communication quality is crucial to the development of trust and a better conveyance of information (McAllister & Daniel, 1995). People not only use communication as the main way of exchanging information, but also as a way of deepening the understanding of one another, increasing feelings, and cultivating mutual trust.

Communication quality is an essential component of trust in the e-commerce field (Li et al., 2006). It is easy to imagine that if we desire to buy goods through e-commerce or mobile e-commerce, both the uncertainty of goods and the precautionary psychology of merchants will reduce our trust in this platform, thus reducing our purchase intention. Therefore, communication between the platform's customer service staff and buyers as well as between merchants and buyers play a pivotal role. Customers' perception of costs can be reduced and the perception of benefits increased through the platform's services and merchants' detailed explanations. As a result, customers may have a more "adventurous spirit" in purchasing behavior (Li et al., 2006).

Compared with traditional e-commerce, communication in mobile commerce is more convenient since it can be carried out anytime and anywhere, as we just saw. Buyers can ask questions to platforms and merchants anytime and anywhere. Due to the time difference

between buyers and sellers in cross-border e-commerce, the immediacy of communication becomes more vital. With mobile e-commerce, buyers do not have to wait until they get home to log on to the website and merchants do not have to wait until they go to the office to answer questions (Kim et al., 2007). Through timely and effective communication, trust between buyers and sellers can be established more quickly (Wang, 2014). In this study, communication quality thus refers to whether the mobile commerce application could remind customers of its new functions, provide customers with timely information and activity opportunities and take into account the suggestions and advice of customers to carry out marketing. Therefore, we propose the following hypotheses:

**H4.** *Communication quality positively influences users' trust in cross-border mobile e-commerce.*

#### **- Opportunistic Behavior**

Lewicki and Bunker (1995) defined opportunistic behavior as the deliberate violation of rules or deliberate distortion of information by both parties to an agreement that is extremely damaging to trust. Any unanticipated tampering of information and failure to perform obligations that should be performed are considered opportunistic (John, 1984). For e-commerce, the honesty of merchants is closely related to the probability of opportunistic behavior, which is also a prerequisite for consumer trust (Lee & Turban, 2001). In the context of cross-border m-commerce, opportunistic behavior affect both buyers and sellers (Guo et al., 2017). Although opportunistic behaviors often occur in e-commerce due to information asymmetry and lack of experience, more and more platforms and merchants are paying attention to their monitoring and elimination. This is because the consequences of speculation are so serious that, even if only once, the platform will lose customers' trust, merchants will hurt consumers, and even the brands and related stores will be affected.

Opportunistic behavior has a great negative impact on the integrity of online shopping, where high standards and professional ethics are the opposite of opportunistic behavior. Whether merchants have high or low moral standards will greatly reduce opportunistic behaviors (Cho & Lee, 2017). In e-commerce, whether merchants have high standards of ethics is particularly important for online transactions and the establishment of trust (Mukherjee & Nath, 2007). In this study, opportunistic behavior thus has to do with: whether the mobile commerce platform slightly changes the fact; whether it promises to do something but does not actually do it; whether it provides consumers with the support they are supposed to provide; and whether there is no formal or informal agreement for the benefits of the platform. As a result, the following hypotheses can be developed:

**H5.** *Opportunistic behavior negatively affects users' trust in cross-border mobile e-commerce.*

#### **- Consumer Satisfaction**

In this study, unlike in the KMV model, shared values will not be used as a variable in the framework model. The concept of customer satisfaction will be used instead. For one, satisfaction represents in part shared values since as long as consumers and businesses share the same values, consumers will tend to be satisfied with those that share the same values. For another, satisfaction is often used as a major variable in studies in the field of e-commerce and

its influence on other variables can also be significant. Shared values refer to people's shared beliefs about behaviors, ideas, goals, and norms, and the cognitive patterns of these perceptions. In short, it is the belief that certain actions, ideas, goals, or norms are important, correct, and appropriate (Morgan & Hunt, 1994). As a comprehensive evaluation, satisfaction is more influential than opportunistic behavior. Rusbult (1983) empirical study shows that satisfaction has a positive impact on relationship commitment. Focusing on mobile commerce, Lin et al. (2014) also treated satisfaction as one of the main factors associated with trust. In this research, consumer satisfaction mainly reflects consumers' comprehensive satisfaction with the platform, pleasure of the platform experience, and estimation of the platform's ability to meet their own needs. Therefore, the following hypothesis can be formed:

**H<sub>6</sub>.** *Customer satisfaction positively influences users' trust in cross-border mobile e-commerce.*

**H<sub>7</sub>.** *Customer satisfaction positively influences users' relationship commitment to cross-border mobile e-commerce.*

#### **- Input Costs**

Relationship termination costs may be defined as all anticipated losses arising from the termination of the relationship, including lack of potential partners, termination costs, and switching costs (Morgan & Hunt, 1994). Relationship termination costs can be incurred as well in the e-commerce industry between consumers and the e-commerce platform and are mostly related to consumers' input in the platform and the store. These inputs include both time and economic inputs and are known as consumer input costs (Li et al, 2006). Input costs are ubiquitous for both local and cross-border e-commerce companies. However, input costs are more influential in the relationship commitment of users in the context of cross-border e-commerce, because cross-border e-commerce is not yet as prevalent or pervasive as local e-commerce, and there is less selectivity than in local e-commerce. Once the buying and selling relationship is established, and once input costs are incurred, it is very difficult to change the platforms or merchants. In light of the above, in this study, relationship termination costs will therefore mainly refer to the time users spend on mobile e-commerce websites, the weight of mobile e-commerce in consumers' lives, the perceived cost of learning to use mobile e-commerce, and comparisons with the usage of similar platforms. Therefore, the following hypotheses can be developed:

**H<sub>8</sub>.** *Input costs positively influence users' relationship commitment to cross-border mobile e-commerce.*

#### **- Relationship Benefits**

Relationship benefits refer to the customer value, which partners give to each other in the process of cooperation (Gusarova, Fraser, & Alderson, 2012). The value arises from the connection and a sense of belonging between them. It is reflected in the personalization of the service and the reward of loyalty (Mukherjee & Nath, 2007). For example, if a website provides consumers with more personalized information or a higher amount of information, which they are interested in, then consumers will perceive this information as a relationship benefit. Consumers also benefit from sites that offer special promotions or provides offers tailored to their individual needs. Over time, consumers will subconsciously form a sense of belonging to

the site, something known as relationship commitment. In this study, relationship benefits will thus be measured in terms of whether merchants will give special discounts and rebates to common customers, whether cross-border mobile e-commerce platforms will provide users with the information they need, whether merchants will acknowledge users' complaints, and whether advertising and preferential activities provided by cross-border mobile e-commerce platforms are based on personal preferences. Hence the following hypotheses:

**H9. Relationship benefits positively influence users' relationship commitment to cross-border mobile e-commerce.**

#### **- Trust, Relationship Commitment, and Continuous Use Intention**

Trust is crucial for the establishment and maintenance of a relationship between partners. The existence of trust greatly reduce perceived uncertainty (Mayer et al, 1995). The more trust there is, the more interdependent cooperation there will be and the more satisfied and adventurous partners will be with each other. Another major factor in promoting win-win cooperation is relationship commitment, which can give both parties a sense of belonging (Moorman, Zaltman, & Deshpande, 1992) In a long-term cooperative relationship, distrust or suspicion reduce the commitment to each other as well as mutual dependence and a sense of belonging, whereas trust increases commitment and belongingness (Mukherjee & Nath, 2007). Trust and relationship commitment play complementary roles in maintaining the stable development of cooperative relationships and future cooperation (Morgan & Hunt, 1994). Some studies have shown that trust and relationship commitment are positively correlated in investment model and commitment trust theory (Mukherjee & Nath, 2007; Wieselquist, et al., 1999). With regard to e-commerce, trust and relationship commitment have also been proved to significantly influence intentional behaviors in terms of positive words of mouth, purchase intention, and continuous use intention (Li et al, 2006; Mukherjee & Nath, 2007).

It is not difficult to imagine that if a consumer is accustomed to buying a certain product from a certain merchant, then this consumer will become dependent on that merchant. This kind of dependence not only comes from the trust generated by the daily transaction behavior but also from the consumer's sense of belonging to the business. He/she will feel that if he/she wants to buy this item, there is no reason or lingering doubt to search for another long-term cooperative merchant to buy from because this merchant can be trusted and this consumer has developed a sense of belonging to this merchant. This phenomenon is also applicable to mobile e-commerce. Wang, Shen, and Sun's (2013) study on consumer behavior toward mobile e-commerce shows that trust is an important prerequisite factor affecting consumers' purchase intention.

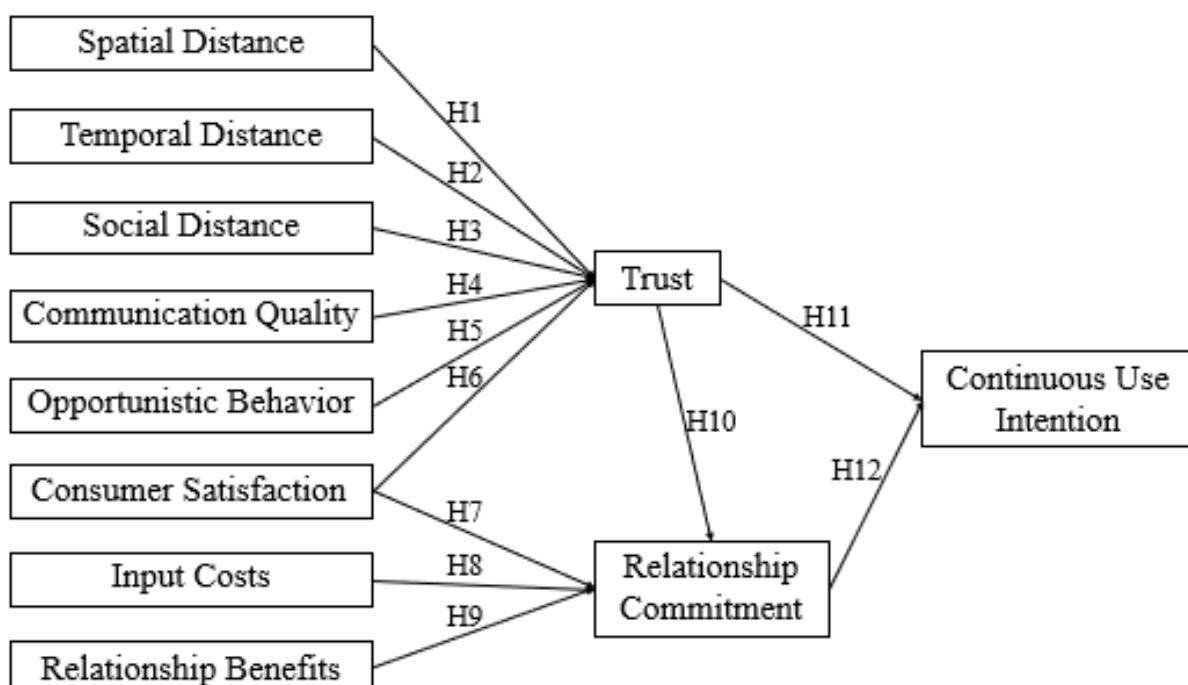
Based on the above, in this study, trust in the context of cross-border mobile e-commerce therefore refers to users' comprehensive evaluation of the most commonly used cross-border mobile e-commerce applications and involve considerations such as whether they can be trusted and meet consumers' needs as promised by merchants and whether consumers' interests are put first. As to relationship commitment, it is essentially about whether users' hope that the cross-border mobile e-commerce application will continue developing is met and whether it is therefore worth the effort maintaining relations with the cross-border mobile e-commerce application. It is also about whether users will miss the application when the cross-border mobile e-commerce application disappears and whether they have a sense of belonging with

these platforms. Finally, continuous use intention has to do with whether consumers will use the cross-border mobile e-commerce application in the near future, whether they feel they are becoming more and more interested in the cross-border mobile e-commerce application, and whether they will recommend its use to their friends and relatives. Therefore, the following hypothesis can be proposed:

**H<sub>10</sub>.** *Users' trust in cross-border mobile e-commerce positively influences their relationship commitment to cross-border mobile e-commerce.*

**H<sub>11</sub>.** *Users' trust in cross-border mobile e-commerce positively influences their continuous use intention.*

**H<sub>12</sub>.** *Users' relationship commitment to cross-border mobile e-commerce positively influences their continuous use intention.*



**Figure 2:** Conceptual Framework (Developed by the Authors for this Study)

### 3. Research Methodology

#### - Sampling and Data Collection

The population of this quantitative study comprises Chinese consumers in Yunnan province who have had experience in cross-border online shopping in the past 6 month with cross-border mobile e-commerce platforms such as AliExpress, Amazon, eBay, or Wish to name a few. A self-administered survey questionnaire was used as the main research instrument and distributed electronically during the period December 2020-January 2021. Data was collected using the convenience sampling approach and the sample size calculated using Cochran's formula at a confidence level and error term of 95% and 5%, respectively (Cochran, 1977). The sample size was 385. A total of 760 questionnaires were received. After eliminating insincere or incomplete responses through data filtering, a sample of 559 usable responses was ultimately used for analysis.

*- Measurement Development*

The questionnaire is divided into 2 sections: The first section pertains to demographic information and includes such questions as gender, age, education, occupation, etc. The second section contains 44 items designed to measure constructs as recommended in the conceptual framework developed for this study. Each construct was rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The items in the questionnaire were developed by adjusting measures validated by other researchers or by converting the definition of the constructs into a questionnaire format. The constructs in this model were adapted from previous studies and multi-item scales were used for these constructs. The detailed measurement items of the constructs are presented in Table 1.

**Table 1:** Sources of Measurement Item in the Questionnaire

Construct	Measurement Item	Source
Spatial Distance SD)	I can use mobile e-commerce anywhere. I can use mobile e-commerce while traveling. It is very convenient to use mobile e-commerce because I always have my mobile phone with me.	Kalinic & Marinkovic (2016)
Temporal Distance (TD)	I can use mobile e-commerce any time. I can confirm orders any time through my mobile phone. Mobile e-commerce provides me with timely services and updates information I am interested in. Mobile e-commerce can answer my questions at any time.	Ko, Eun, & Lee (2009)
Social Distance (SoD)	The people who influenced my use of mobile ecommerce want me to keep using it. The people who matter to me think I should keep using mobile e-commerce. My friends think I need to continue using mobile e-commerce.	Lu (2014)
Communication Quality (CQ)	This mobile cross-border e-commerce platform will remind me of its new features. This mobile cross-border e-commerce platform gives me first-hand information. The mobile cross-border e-commerce platform is reluctant to give me a lot of useful information. This mobile cross-border e-commerce platform is eager to provide me with frequent activity opportunities. This mobile cross-border e-commerce platform will heed my advice for marketing.	Li. et al. (2006)

<b>Opportunistic Behavior (OB)</b>	This mobile cross-border e-commerce platform will distort reality slightly.	
	This mobile cross-border e-commerce platform promises things it won't actually do.	
	This mobile cross-border e-commerce platform failed to provide the support that should have been provided.	
	This cross-border mobile ecommerce platform will ignore any formal and informal agreements to protect its own interests.	
<b>Consumer Satisfaction (CS)</b>	I am very satisfied with this cross-border mobile e-commerce application.	
	My shopping experience on this cross-border mobile e-commerce application was very enjoyable	
	This cross-border mobile e-commerce application makes me happy.	
	This cross-border mobile e-commerce application can meet my needs.	
<b>Input Costs (IC)</b>	I have invested a lot of time in this cross-border mobile e-commerce application.	
	Many aspects of my life relate to this cross-border mobile e-commerce application.	
	I spent a lot of time learning how to use this cross-border mobile e-commerce application.	
	I spend a lot of time on this cross-border mobile e-commerce application.	
<b>Relationship Benefits (RB)</b>	I spent more on this cross-border mobile e-commerce application than any other application.	Mukherjee & Nath (2007)
	Platform merchants will offer special offers to frequent users.	
	Platform merchants will give regular users some rebates.	
	This cross-border mobile e-commerce application will provide users with the information they need.	
	Platform vendors pay attention to user complaints.	
<b>Trust (TR)</b>	This cross-border mobile e-commerce application offers ads and promotions based on personal preference.	Kim, Ferrin,
	Cross-border mobile e-commerce applications	

	are trustworthy.	& Rao (2009)
	Merchants on this cross-border mobile e-commerce application gave me the impression that they kept their promises.	
	I believe that this cross-border mobile e-commerce application catered to my best interests.	
<b>Relationship Commitment (RC)</b>	I hope this cross-border mobile e-commerce platform will continue to develop.	Wang. et al. (2016)
	My relationship with this mobile cross-border e-commerce platform is worth the effort.	
	I would be sorry if this mobile cross-border mobile ecommerce platform disappeared.	
	I have a sense of belonging to this mobile cross-border mobile e-commerce platform.	
<b>Continuous Use Intention (CUI)</b>	I would like to continue to use this mobile cross-border mobile e-commerce platform for shopping.	Kalinic & Marinkovic (2016)
	I will look at this mobile cross-border mobile e-commerce platform as a common way of shopping.	
	I will recommend this cross-border mobile e-commerce platform to my friends, relatives, and others.	
	I will increase the frequency shopping on this platform.	

#### - Data Analysis

Structural equation modeling (SEM) was used to analyze the data and test hypothesis. SEM is a combination of confirmatory factor analysis and path analysis. Since, as a multivariate technique it can estimate a series of interrelated dependent relationships simultaneously, it is considered the most appropriate method of data analysis to test multi-level conceptual frameworks such as the one developed for this study and shown in Figure 2. It applies the multivariate analysis to the model in a holistic manner (Hair et al., 2013).

## 4. Results

#### - Descriptive Analysis

Out of the 559 respondents, 391 were female users and 168 male users. The higher number of female respondents is most likely due to the fact that generally women prefer shopping more than men. The population surveyed was young (between 18 and 30 years old) and well educated; most of the respondents were middle-or low-income students and office workers with a bachelor degree or above. A majority of them had 6-9 years of experience shopping online. In addition, in terms of amount spent on purchases on cross-border e-commerce platforms, most

respondents spent between RMB500 and RMB1,500 per month. Table 2 provides detailed demographic information.

**Table 2:** Demographic Profile of the Respondents

<b>Demographics Characteristics</b>		<b>Frequency</b>	<b>% (n=559)</b>
<b>Gender</b>	Male	168	30.05%
	Female	391	69.95%
	Under 18	35	6.26%
<b>Age</b>	19-30	257	45.97%
	31-40	190	33.99%
	41-50	52	9.30%
<b>Education Level</b>	Above 51	25	4.47%
	High school or less	62	11.09%
	Diploma	79	14.13%
<b>Years of Internet Use</b>	Bachelor's Degree	263	47.05%
	Master's Degree	139	24.87%
	Doctoral Degree	16	2.86%
<b>Occupation</b>	< 2 Years	47	8.41%
	3-5 Years	126	22.54%
	6-9 Years	315	56.35%
<b>Amount of Monthly Purchase on Cross-border E-commerce Platforms</b>	> 10 Years	71	12.70%
	Student	267	47.76%
	Office worker	256	45.80%
<b>Occupation</b>	Self-employed	29	5.19%
	Others	7	1.25%
	<500RMB	36	6.44%
<b>Amount of Monthly Purchase on Cross-border E-commerce Platforms</b>	501–1,500 RMB	243	43.47%
	1,501–2,500 RMB	127	22.72%
	2,501–3,500 RMB	92	16.46%
<b>Occupation</b>	>3,501 RMB	61	10.91%

*- Reliability and Validity Assessment*

Reliability is “an assessment of the degree of consistency between multiple measurements of a variable” (Hair et al., 2013, p.123). Cronbach’s alpha was used to measure the reliability of the measures. Based on Hair et al. (2013), the value of Cronbach’s alpha coefficient of 0.7 was taken as the threshold level in order to ensure the stability and consistency of the instruments. As shown in Table 3, the Cronbach’s alpha value of all constructs were above 0.7. The reliability of the construct was established.

Validity focuses on identifying the extent to which the research concept is correctly represented by the measures (Hair et al., 2013). In this study, construct validity was measured by utilizing convergent and discriminant validity. Convergent validity was assessed using Composite Reliability (CR), Factor Loadings, and Average Variance Extracted (AVE). If the value of CR reached 0.7 or above and if the value of Factor Loadings and AVE both reached 0.5 or above, this meant that the measurement model had good convergence validity (Hair et al., 2013). As can be seen in Table 3, all indicators met the standards, indicating that the measurement model in this study had good convergent validity. In order to determine discriminant validity, the square root of AVE of each construct was compared to the squared correlations of other constructs. As shown in Table 4, the square root of the AVE value of each construct was greater than the squared correlations of this construct as compared to any other construct. Therefore, the discriminant validity was established (Hair et al., 2013).

**Table 3:** Results of Validity and Reliability Analysis

Factor	Indicator	Factor Loading	AVE	CR	Cronbach's Alpha
Spatial Distance (SD)	SD1	0.821	0.782	0.954	0.934
	SD2	0.804			
	SD3	0.726			
Temporal Distance (TD)	TD1	0.785	0.886	0.949	0.928
	TD2	0.739			
	TD3	0.788			
	TD4	0.820			
Social Distance (SoD)	SoD1	0.866	0.788	0.925	0.912
	SoD2	0.859			
	SoD3	0.818			
Communication Quality (CQ)	CQ1	0.793	0.854	0.936	0.903
	CQ2	0.825			
	CQ3	0.837			
	CQ4	0.941			
	CQ5	0.918			
Opportunistic Behavior (OB)	OB1	0.890	0.833	0.913	0.899
	OB2	0.893			
	OB3	0.924			
	OB4	0.855			
Consumer	CS1	0.861	0.865	0.948	0.931

<b>Satisfaction (CS)</b>	<b>CS2</b>	0.853			
	<b>CS3</b>	0.842			
	<b>CS4</b>	0.883			
<b>Input Costs (IC)</b>	<b>IC1</b>	0.936	0.779	0.935	0.914
	<b>IC2</b>	0.955			
	<b>IC3</b>	0.917			
	<b>IC4</b>	0.865			
	<b>IC5</b>	0.922			
<b>Relationship Benefits (RB)</b>	<b>RB1</b>	0.959	0.883	0.937	0.922
	<b>RB2</b>	0.897			
	<b>RB3</b>	0.834			
	<b>RB4</b>	0.858			
	<b>RB5</b>	0.899			
<b>Trust (TR)</b>	<b>TR1</b>	0.961	0.874	0.958	0.938
	<b>TR2</b>	0.914			
	<b>TR3</b>	0.912			
<b>Relationship Commitment (RC)</b>	<b>RC1</b>	0.906	0.835	0.966	0.941
	<b>RC2</b>	0.907			
	<b>RC3</b>	0.874			
	<b>RC4</b>	0.924			
<b>Continuous Use Intention (CUI)</b>	<b>CUI1</b>	0.912	0.827	0.935	0.952
	<b>CUI2</b>	0.908			
	<b>CUI3</b>	0.925			
	<b>CUI4</b>	0.913			

**Table 4:** Discriminant Validity of Scale Test

Variable	SD	TD	SoD	CQ	OB	CS	IC	RB	TR	RC	CUI
<b>SD</b>	<b>0.832</b>										
<b>TD</b>	0.656	<b>0.912</b>									
<b>SoD</b>	0.684	0.589	<b>0.903</b>								
<b>CQ</b>	0.621	0.559	0.725	<b>0.854</b>							
<b>OB</b>	-0.596	-0.498	-0.662	-0.795	<b>0.891</b>						
<b>CS</b>	0.696	0.623	0.596	0.745	-0.722	<b>0.836</b>					
<b>IC</b>	0.638	0.663	0.689	0.702	-0.781	0.789	<b>0.877</b>				
<b>RB</b>	0.735	0.678	0.739	0.751	-0.596	0.741	0.781	<b>0.882</b>			
<b>TR</b>	0.759	0.639	0.781	0.795	-0.689	0.681	0.792	0.742	<b>0.896</b>		
<b>RC</b>	0.781	0.628	0.775	0.698	-0.781	0.669	0.772	0.778	0.815	<b>0.935</b>	
<b>CUI</b>	0.753	0.602	0.628	0.706	-0.692	0.731	0.715	0.713	0.768	0.841	<b>0.941</b>

*- Measurement and Structural Model Analysis*

It is generally accepted that if the implied covariance structure of the model is similar to that of the sample data, as implied by the acceptable value of the goodness of fit index (GFI), the model is considered appropriate (Cheung & Rensvold, 2002). The authors first verified and evaluated the measurement model and then analyzed and fitted the structural model. As indicated in Table 5, the  $\chi^2/df$  of the structural equation model is 2.011 (P=0.000), which is less than 3. RMSEA is 0.043, which is smaller than the minimum standard of 0.05. CFI is 0.925, AGFI is 0.926, NFI is 0.936, and GFI is 0.969, all of which are greater than the minimum standard of 0.9 (Kline, 2011). Therefore, all the indices of the model met the evaluation standard, thereby indicating that the theoretical model presented in the study aligned with the actual survey data.

**Table 5:** Fit Indices of Measurement and Structural Models

Fit indices	$\chi^2 /df$	GFI	AGFI	NFI	CFI	RMSEA
<b>Recommended Values</b>	<3	>0.9	>0.8	>0.9	>0.9	<0.05
<b>Measurement Model</b>	2.032	0.923	0.928	0.932	0.968	0.045
<b>Structural Model</b>	2.011	0.925	0.926	0.936	0.969	0.043

*- Results of Hypotheses Testing*

Table 6 shows the standardized path coefficient and path significance for each of the hypotheses and indicates that all the hypotheses proposed in this paper were all supported. With regard to H<sub>1</sub>, H<sub>2</sub>, and H<sub>3</sub>, it can be observed that there is a significant and positive correlation between psychological distance, including spatial distance ( $\beta= 0.351$ , p<0.001), temporal distance ( $\beta= 0.169$ , p<0.001) and social distance ( $\beta= 0.234$ , p<0.001), and user trust in cross-border mobile e-commerce, which means that H<sub>1</sub>, H<sub>2</sub>, and H<sub>3</sub> were supported. As to H<sub>4</sub>, H<sub>5</sub>, and H<sub>6</sub>, communication quality ( $\beta= 0.198$ , p<0.001) and consumer satisfaction ( $\beta= 0.432$ , p<0.001) have a significantly positive effect on user trust in cross-border mobile e-commerce, whereas opportunistic behavior ( $\beta= -0.265$ , p<0.001) was found to have a negative effect on user trust, thereby supporting H<sub>4</sub>, H<sub>5</sub>, and H<sub>6</sub>.

Similarly, a positive link existed between relationship commitment and consumer satisfaction ( $\beta=0.195$ , p<0.001), input cost ( $\beta=0.136$ , p<0.001) and input cost ( $\beta=0.298$ , p<0.001), which means that H<sub>7</sub>, H<sub>8</sub>, and H<sub>9</sub> were all supported. When H<sub>10</sub> and H<sub>11</sub> were examined, it was found that user trust was positively correlated with both relationship commitment ( $\beta=0.426$ , p<0.001) and continuous use intention ( $\beta=0.485$ , p<0.001); H<sub>10</sub> and H<sub>11</sub> were supported. The standardized path coefficients also presented an obvious positive correlation between relationship commitment and continuous use intention ( $\beta=0.598$ , p<0.001). Hence, H<sub>12</sub> was fully verified.

**Table 6:** Test Results of Research Hypothesis

Hypothesis	Path	Path Coefficient ( $\beta$ )	S.E.	C.R.	Results
H <sub>1</sub>	SD→TR	0.351	0.042	6.720***	Supported
H <sub>2</sub>	TD→TR	0.169	0.029	4.358***	Supported
H <sub>3</sub>	SoD→TR	0.234	0.046	5.365***	Supported
H <sub>4</sub>	CQ→TR	0.198	0.058	4.529***	Supported
H <sub>5</sub>	OB→TR	-0.265	0.056	-4.962***	Supported
H <sub>6</sub>	CS→TR	0.432	0.043	5.298***	Supported
H <sub>7</sub>	CS→RC	0.195	0.039	8.519***	Supported
H <sub>8</sub>	IC→RC	0.136	0.042	5.289***	Supported
H <sub>9</sub>	RC→RC	0.298	0.038	4.526***	Supported
H <sub>10</sub>	TR→RC	0.426	0.049	7.956***	Supported
H <sub>11</sub>	TR→CUI	0.485	0.041	8.925***	Supported
H <sub>12</sub>	RC→CUI	0.598	0.034	9.513***	Supported

Note: \*P< 0.05; \*\*P<0.01; \*\*\*P<0.001

## 5. Discussion

Recall that the aim of this study was to investigate a number of factors that influence Chinese consumers' trust towards cross-border e-commerce platforms and the continuous use intention. These include psychological distance (spatial, temporal, and social), communication quality, customer satisfaction, opportunistic behavior, inputs costs, and relationship benefits. It is expected that the findings of this research study can help Chinese people involved in cross-border e-commerce development and enhance China's cross-border trade position in the global economy. From the research results, we extracted six factors that were found to be conducive to promoting the use behavior of buyers, and one factor that hinders buyers from using cross-border mobile e-commerce.

Firstly, the positive influence of the perceived distance (both spatial and temporal) inherent in mobile e-commerce on trust in cross-border mobile e-commerce can affect users' behavior using mobile e-commerce. This finding is consistent with Kim, Zhang, and Li's (2008) study, in which it was found that users' behavior toward the use of mobile e-commerce was impacted by the psychological distance of users and products. Perceived distance mainly reflects the fact that mobile e-commerce has characteristics that can be used anytime and anywhere. This is precisely the main difference – and advantage – of mobile e-commerce as compared with traditional PC terminal e-commerce. Therefore, e-commerce platform enterprises and cross-border e-commerce platform enterprises can market their products to consumers based on the

convenience of mobile terminal. In particular, cross-border e-commerce platform enterprises could channel PC customers to mobile phones through marketing means so as to reduce customers' perception of cross-border distance and, as a result, increase their trust in cross-border e-commerce.

Secondly, social distance is another personal perception factor that influence users' willingness to continue using. This result is in keeping with Liu and Xu's (2015) findings. They found that social distance affected the choice of consumers' preferences. This is mostly due to people's herd mentality, especially their willingness to follow people close to them, such as for example, relatives, friends, or colleagues. Thus, e-commerce platform enterprises may take advantage of this trend to promote mobile e-commerce and cross-border mobile e-commerce. They could increase the utilization rate of customers through exclusive preferential activities or coupons, recommendation and reward mechanism on mobile phones. Compared with enterprises' direct promotion of the system or products to customers, interpersonal promotion is more effective, particularly among those familiar with the system. This would greatly increase customers' trust in the system and products and thus promote their use behavior.

Thirdly, communication quality positively affects users' trust in e-commerce platform enterprises. The result is consistent with a previous research by Li et al. (2006) who determined that communication is a key factor influencing user's trust in online shopping. Compared with traditional e-commerce, convenience is the biggest advantage of mobile e-commerce. This is not only reflected in the browsing of product information and the purchase of products, but also in the instant communication with platforms and merchants. Communication quality also stems from the ability to solve customer problems and the willingness to communicate effectively. Due to cultural, time, and language differences, communication issues are quite critical in cross-border situations. Therefore, the professionalism and attitude of the platform in communicating with customers and sellers largely determine whether a cross-border e-commerce platform has the ability to attract more users and become quite successful.

Fourthly, among all the variables in this study, opportunistic behavior is the only factor that has a negative effect on trust. Whether it is traditional or mobile e-commerce and local or cross-border e-commerce, the impact of opportunistic behavior on consumers and sellers is extremely serious. This result is consistent with Guo et al.'s (2017) study, in which a significant relationship between opportunistic behavior and users' trust was found. The platform should clearly describe the rules and regulations applicable as well as the policies and fees charged by the seller. As to customers, the platform should be accountable to them. On the one hand, platforms cannot cheat consumers by "peddling power for personal gain," increase profit or reduce economic losses. On the other hand, the platform needs to strictly control the opportunistic behaviors of sellers. It can find out the opportunistic intentions of sellers through user evaluation and the transaction record tracking of sellers in order to avoid dishonest and fraudulent behaviors. Meanwhile, sellers who engage in opportunistic behaviors should be strictly punished and customers whose interests have been compromised should be compensated twice as part of trying to reduce the recurrence of opportunistic behaviors and prevent the loss of customers' trust in the platform.

Fifthly, customers' satisfaction with the platform can determine customers' trust in the platform and their sense of belonging to the platform. It is a factor in users' decision to continue or not to use the platform. This is supported by a study by Leninkumar (2017) who found that there was a significant positive relationship between customer satisfaction and customer trust. According to the law of trigonometry in customer relationship management, customer satisfaction is equal to customer experience minus customer expectations. Hence, customer expectations need to be guided and maintained at an appropriate level and be aligned with customer experience. In cross-border e-commerce, customer perceived value is not just the product's own value (including product quality, product price, product function, product design, product packaging, and product taste) but more importantly, it is the spiritual value of the product. This is because of customers perceiving the product through direct contact. Therefore, e-commerce platforms should improve the spiritual value of customers through the following three ways of improving customer satisfaction. One is visual satisfaction, including the seller's web page design, content design, enterprise design, etc. A second one is behavioral satisfaction, including behavioral mechanism satisfaction, behavioral rules satisfaction, advertising behavior satisfaction, and online etiquette satisfaction. A third one is service satisfaction, including service reliability, immediacy, accuracy, completeness, and emotion.

Sixthly, the results of this study indicate that input cost could increase consumers' sense of belonging to the platform. The amount of input positively influences the sense of belonging and lead to repeated use and participation. This is in keeping with Li et al.'s (2006) determination that input costs significantly influence the relationship commitment of users in the context of e-commerce. The input costs in the context of e-commerce mainly includes material resources cost and financial resources. Material cost essentially refers to time cost, that is, the time spent on cross-border e-commerce platform. As a result, many sites have user check-ins and offer different promotions every day. These functions are designed to increase the amount of time users spend on the site and thus increase their input. On the other hand, website tries to attract more merchants to provide more products with high quality and low price for promoting consumers' consumption behavior, which in turn increases the cost to consumers of their financial resources. This also increase customer stickiness to the website.

Finally, relationship benefits between customers and platforms have a positive significant effect on the relationship commitment to cross-border e-commerce platforms. This finding is consistent with studies by Li et al. (2006) and Mukherjee and Nath (2007) in which it was found that relationship benefits have a great influence on the relationship commitment of customers. Relationship benefits refer to the special benefits that consumers can obtain transacting or interacting with websites. These kinds of special benefits are benefits that platform websites provide to consumers in order to increase their sense of belonging. Special interests include financial benefits as well as perceived interests. Financial benefits consist of regular offers of more gifts, vouchers, discounts, and loyalty rewards. In terms of perceived benefits, this is mainly reflected in paying attention to consumer feedback, solving consumer problems, and actively providing consumers with information and advertisements about products catering to personalized needs. Once established, these relationships give consumers a sense that the platform is tailored to their needs, rather than leave them with a "grocery market" experience.

**- *Implications***

This study make some theoretical contributions. Firstly, it proposes a powerful research model to study consumers' trust and belonging through the combination of the psychological distance theory and commitment trust theory. This model clearly explains the influencing factors of consumers' acceptance of cross-border mobile e-commerce from the perspective of consumers themselves and the relationship between consumers and businesses. Secondly, this study proposes a new variable for the perception of mobile e-commerce and cross-border mobile e-commerce, namely the perceived distance of mobile e-commerce. This variable describes the inherent advantage of mobile phone over PC, which is encapsulated in the formula "anytime and anywhere". Thirdly, this study confirms the validity of the psychological distance theory and commitment and trust theory in the field of cross-border mobile e-commerce.

In terms of practical implications, this study first illustrates the importance of perceived distance in mobile e-commerce, especially cross-border mobile e-commerce. Therefore, cross-border mobile e-commerce enterprises should focus on publicizing the advantages of cross-border mobile e-commerce in terms of perceived distance compared with traditional cross-border e-commerce. This would help them improve consumers' willingness to keep using them. For example, in line with the anytime and anywhere nature of mobile phones, advertisements could promote slogans such as "the cheapest and fastest shopping malls are at your fingertips." In addition, improving instant messaging systems in order to make communication faster and more accurate, or adding features such as language services, could reduce consumers' perceived distance, especially in cross-border situations where time differences and language differences exist. Moreover, satisfaction is crucial for trust and relationship commitment. Thus, both platforms and enterprises should give priority to consumers' satisfaction with regard to any business decision, communication with consumers, and the handling of emergencies. In special cases, such as when seeking to resolve disputes, sacrificing benefits in order to keep customers satisfied should even be an option.

***-Limitations and Recommendations for Further Research***

This study has several limitations. Firstly, the research sample consists of Chinese consumers, and the vast majority of respondents conduct transactions through domestic platforms. Therefore, in the questionnaire survey, respondents' answers relate to domestic platforms. Future research needs to expand the sample, which also needs to be diversified. For example, future researchers could conduct research on different platforms, both from China and from other countries. It is also necessary to conduct classified research on buyers from different countries, so as to find out the differences among them and determine feasible business strategies and opinions for cross-border e-commerce platform enterprises according to their strategic target locations more accurately. Furthermore, this research used only a quantitative research methodology and closed questions. If respondents answered "strongly disagree" to a question, the researchers were unable to find out the reasons for the disagreement and obtained detailed explanations. Anderson (2010) suggests that to ensure greater effectiveness, interviews should complement the survey. A mixed methodology would help to produce more in-depth data and improve analysis outcomes in qualitative aspects.

Therefore, in future studies, open-ended questions should be used to seek opinions of and suggestions from respondents. These would greatly help obtaining more inputs on what would be the most influential factors toward customer continuous use intention. Finally, in terms of research content, there are many factors that can affect the success of cross-border e-commerce platforms, including national policies, infrastructure construction, national economic conditions, etc., as well as enterprise operation, management ability and enterprise capital. While the main factors considered in this study pertain to user behavior, future research should not be limited to these factors but instead be expanded horizontally and include national policies, enterprise capital, enterprise operation capacity, the interaction between buyers and sellers, and any other relevant factors.

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