

Effect of Overseas Warehouse Delivery Timeliness Perception on Cross-border Consumers' Purchase Intention

-- Based on the Theory of Perceived Value

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Abstract

Based on the theory of perceived value, this study discusses the influence of overseas warehouse delivery timeliness perception on cross-border consumers' purchase intention, and the intermediary role of functional value perception and emotional value perception in it. The relevant data of 196 cross-border consumers were collected through questionnaire survey, and analyzed by structural equation model. The results show that the perception of delivery timeliness has a significant positive impact on the perception of functional value and emotional value, thus significantly enhancing consumers' purchase intention. Both functional value perception and emotional value perception play a significant intermediary role between distribution timeliness perception and consumers' purchase intention, among which emotional value perception is more prominent. The research provides theoretical basis and practical guidance for cross-border e-commerce platform to optimize services, improve consumer satisfaction and loyalty, and emphasizes the importance of paying attention to consumers' emotional needs while providing efficient distribution services to enhance their purchase intention.

Keywords

Perception of Distribution Timeliness; Cross-border Consumers; Willingness to Buy; Perceived Value Theory.

1. Introduction

Driven by globalization and digitalization, cross-border e-commerce has developed rapidly and become an important part of international trade. With the improvement of consumers' requirements for shopping experience, the perception of delivery timeliness, as a key factor affecting consumers' satisfaction and loyalty, has attracted more and more attention [1]. Perceived value theory provides a new perspective for understanding consumer behavior, in which functional value and emotional value are two important dimensions that affect consumers' purchase intention [2]. However, most of the existing research focuses on a single value dimension, and there is relatively little systematic research on how the perception of delivery timeliness affects consumers' purchase intention through functional value perception and emotional value perception. The purpose of this study is to explore the mechanism of overseas warehouse delivery timeliness perception on cross-border consumers' purchase intention, and analyze the intermediary effect between functional value perception and emotional value perception based on the theory of perceived value, with a view to providing theoretical basis and practical guidance for cross-border e-commerce platforms to optimize services and enhance consumer satisfaction and loyalty.

2. Literature Review and Research Hypothesis

2.1. Distribution Timeliness Perception and Perceived Value

In the current academic research, perceived value, as an important concept, has been widely used in many fields, especially in discussing the relationship between distribution timeliness perception and perceived value, and many scholars have conducted in-depth analysis from different angles. Lin pointed out in his research that perceived value has a significant impact on audience loyalty in the process of media communication. Although his research mainly focuses on the media field, the components of perceived value mentioned in it, such as functional value and emotional value, provide a theoretical basis for understanding how the perception of delivery timeliness affects consumers' overall perceived value of services [3]. Wang and Chen believe that customer perceived value is the key factor that affects exhibition brand image and customer loyalty [4]. In exhibition service, the perception of delivery timeliness is one of the important dimensions for customers to evaluate service quality. Timely distribution of exhibits can ensure the smooth progress of the exhibition, thus enhancing customers' perception of functional value. At the same time, this efficient service can also enhance customers' perception of emotional value and make customers have positive emotional associations with exhibition brands. In addition, good delivery timeliness can also enhance customers' perception of social value, because timely display of exhibits will help to enhance the reputation and image of exhibitors in the industry, and then affect customers' evaluation of the overall value of the exhibition. Tang et al thinks that perceived value includes functional value, emotional value and social value [5]. In the sense of timeliness of distribution, timely product distribution can ensure that tourists can get relevant cultural and creative products in time during the visit, thus enhancing tourists' sense of functional value. At the same time, this timeliness can also enhance the emotional value perception of tourists, because tourists can get souvenirs related to the exhibition in time during the visit, which enhances their visit experience. Xu et al discussed the mediating effect of perceived value. They pointed out that perceived value plays an important intermediary role in consumer decision-making process. In distribution service, timeliness perception, as an important dimension of perceived value, directly affects consumers' purchase decision and satisfaction [6]. Timely delivery can enhance consumers' perception of functional value, because consumers can get the goods they buy faster. To sum up, the relationship between distribution timeliness perception and perceived value has been reflected in different degrees in many fields. This study draws lessons from scholars' research and divides perceived value into functional value and emotional value. Therefore, this study puts forward the following assumptions:

H1a: The perception of distribution timeliness has a significant positive impact on the perception of functional value.

H1b: The perception of delivery timeliness has a significant positive impact on the perception of emotional value.

2.2. Perceived Value and Consumers' Willingness to Buy

The relationship between perceived value and consumers' purchase intention is an important topic in current business research, and many scholars have conducted in-depth discussions on it from different angles. Chen pointed out that perceived value is a multi-dimensional concept, including functional value, emotional value and social value, and these dimensions work together on consumers' purchase decisions [7]. The promotion of perceived value can significantly enhance consumers' willingness to buy, and its mechanism is mainly achieved by influencing consumers' cognitive evaluation and emotional experience. When consumers perceive higher value, they are more inclined to form a positive evaluation, and then turn it into a purchase intention. Wu and Mao found that the interaction between anchors and product

demonstrations can enhance consumers' perceived value, especially emotional value, thus enhancing consumers' emotional trust in anchors and ultimately promoting their purchase intention [8]. Perceived value plays an important intermediary role in this situation, which shows its core position in consumer decision-making. Yang and Ren focused on cross-border online shopping, and discussed how external situational cues affect purchase intention by influencing perceived functional value and emotional value [9]. They pointed out that clear product information and good user evaluation can enhance consumers' perception of functional value, while the aesthetics and shopping convenience of the website enhance their perception of emotional value, which together promote their purchase intention. Li explored the intermediary role of consumer participation and perceived value [10]. Effective brand marketing strategy can enhance the participation of consumers, and then enhance the perceived value. Consumer participation not only enhances brand awareness and emotional connection, but also promotes purchase intention by enhancing perceived value. Perceived value plays an important intermediary role in this process, highlighting its key position in brand marketing and consumer decision-making. To sum up, although the influence mechanism of perceived value on consumers' purchase intention is different in different business situations, its core position remains unchanged. Perceived value can significantly affect consumers' purchase decisions, whether by enhancing functional value, emotional value or by enhancing social value perception. Therefore, this study puts forward the following assumptions:

H2a: Functional value perception has a significant positive impact on consumers' purchase intention.

H2b: Emotional value perception has a significant positive impact on consumers' purchase intention.

To sum up, this study puts forward the following conceptual framework, as shown in Figure 1.

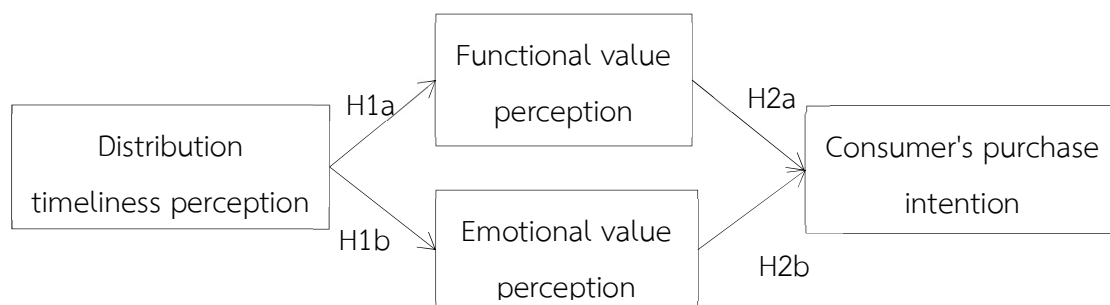


Figure 1. Conceptual Framework

3. Research Design and Methods

3.1. Questionnaire Design

When designing the questionnaire of this study, the overall structure of the questionnaire is divided into two parts. The first part is the collection of basic information, which mainly covers the basic contents such as consumers' age, gender, occupation, average monthly income and monthly cross-border shopping expenditure. This information is helpful for the subsequent analysis of the different performance of different consumer groups in related variables and provides more comprehensive background support for the research. The second part is the topic of the scale around the core variables, which are the perception of timeliness, functional value, emotional value and consumer purchase intention of overseas warehouse distribution. When designing the title of the scale, we draw lessons from the mature scale verified by previous scholars in related fields, and make appropriate adjustments and optimizations in combination with the specific situation of this study to ensure the scientificity and applicability of the scale. The questionnaire is in the form of Likert 5 scale, which gives 1-5 points from "very

different" to "very agree". This scale is easy to understand and can better reflect the attitude tendency of the respondents. See Table 1 for the specific topics of the scale. Through these topics, consumers' perception of timeliness, functional value, emotional value and purchase intention of overseas warehouse distribution can be comprehensively and meticulously measured, thus providing a reliable data basis for exploring the relationship between variables.

Table 1. Questionnaire Scale

Variable	Item	References
Distribution timeliness perception	The delivery time meets my expectations.	Parasuraman et al [11]
	I am satisfied with the delivery speed.	
	Delivery arrives on time	
	There is no unnecessary delay in the delivery process.	
	Delivery time is within the acceptable range.	
Functional value perception	Cross-border e-commerce shopping function is good	Yang & Ren [9]
	Cross-border e-commerce shopping is reliable	
	Cross-border e-commerce shopping has well met my needs.	
Emotional value perception	Cross-border e-commerce shopping will make me feel acceptable.	Yang & Ren [9]
	Cross-border e-commerce shopping will make me want to use it.	
	Cross-border e-commerce shopping is what I will like.	
Consumer's purchase intention	I will seriously consider buying imported goods from cross-border e-commerce platforms.	Wan et al [12]
	I am willing to buy imported goods on the cross-border e-commerce platform.	
	I will now buy imported goods on the cross-border e-commerce platform.	
	I will buy imported goods on the cross-border e-commerce platform within six months.	

3.2. Data Collection

In this study, data collection is aimed at consumers who have had shopping experience on cross-border e-commerce platforms. This group has rich relevant consumption experiences and can provide real and valuable information for the study. Questionnaires are distributed through the platform of Questionnaires. With its convenience and extensive user base, it is ensured that the questionnaires can reach the target quickly and accurately. A total of 200 questionnaires were distributed, and after a period of collection, 196 valid questionnaires were finally collected, with a recovery rate of 98%. This high recovery rate means that the collected data are highly representative and reliable, which lays a solid data foundation for further in-depth analysis of the role of overseas warehouse delivery timeliness perception on cross-border consumers' purchase intention and the intermediary role of perceived value in it.

4. Data Analysis and Results

4.1. Reliability and Validity Analysis

(1). Reliability analysis

Reliability analysis is an important step to ensure the reliability of the research results. According to the reliability analysis results of the questionnaire in Table 2, Cronbach's Alpha values of all variables are above 0.7, indicating that the questionnaire has good internal

consistency. Specifically, Cronbach's Alpha value of distribution timeliness perception is 0.846, functional value perception is 0.758, emotional value perception is 0.718, and consumers' purchase intention is 0.863, all of which are higher than the general standard of 0.7, indicating that there is a high correlation between the questions in each scale, and the questionnaire is reasonable in design and can effectively measure all variables. In particular, Cronbach's Alpha value of consumers' purchasing intention is the highest, reaching 0.863, which shows that the scale has high reliability. On the whole, these reliability analysis results provide a solid foundation for subsequent data analysis and research conclusions, and ensure the reliability and effectiveness of the research results.

Table 2. Reliability Analysis of Questionnaire

Variable	Cronbach's Alpha
Distribution timeliness perception	0.846
Functional value perception	0.758
Emotional value perception	0.718
Consumer's purchase intention	0.863

(2). Validity analysis

Validity analysis is the key step to evaluate whether the questionnaire can accurately measure the research construct. According to the results of questionnaire validity analysis in Table 3, KMO sampling suitability measure is 0.801, which is higher than the general standard of 0.7, indicating that the data is suitable for factor analysis, the questionnaire design is reasonable and can effectively reflect the research structure. At the same time, the approximate chi-square value of Bartlett sphericity test is 1135.64, the degree of freedom is 548, and the significance level is 0.000, far less than 0.05, which shows that there is a significant correlation between variables, and the factor structure of the questionnaire is stable and has good structural validity. These results show that the questionnaire can accurately measure the perceptions of distribution timeliness, functional value, emotional value and consumers' purchase intention, which provides a solid foundation for subsequent data analysis and research conclusions, and ensures the validity and reliability of the research results.

Table 3. Validity Analysis of Questionnaire

KMO sampling suitability quantity		0.801
Bartlett sphericity test	Approximate chi-square	1135.64
	freedom	548
	Significance	0.000

4.2. Descriptive Statistical Analysis

In this study, the basic information of 196 respondents was analyzed by descriptive statistics. In terms of age distribution, 20% are 18 to 25 years old, 35% are 26 to 35 years old, 30% are 36 to 45 years old, and 15% are over 46 years old, which is relatively uniform as a whole. In terms of gender, men account for 40% and women account for 60%, and women are more active in cross-border shopping. In the distribution of occupations, office workers account for the highest proportion, reaching 50%, students and freelancers account for 20% and 15% respectively, and other occupations account for 15%. In terms of average monthly income, 30% is from 3,000 to 5,000 yuan, 40% is from 5,000 to 8,000 yuan, 20% is from 8,000 to 12,000 yuan, and 10% is above 12,000 yuan, which shows that the income level of cross-border shopping consumers is relatively stable. The monthly distribution of cross-border shopping expenditure shows that consumers from 100 to 300 yuan account for 25%, those from 300 to

500 yuan account for 35%, those from 500 to 1000 yuan account for 30%, and those above 1000 yuan account for 10%, indicating that cross-border shopping has become a part of many consumers' daily lives, and the consumption amount is relatively reasonable. The distribution of these basic information provides a solid foundation for the follow-up analysis, and helps to deeply understand the behavioral differences of different consumer groups in terms of delivery timeliness perception, functional value perception and emotional value perception.

4.3. Correlation Analysis

In-depth discussion on the impact of overseas warehouse distribution timeliness perception on cross-border consumers' purchase intention, correlation analysis provides intuitive data support. As can be seen from the data in Table 4, there is a significant positive correlation between consumers' purchase intention and the perception of delivery timeliness, functional value and emotional value. Specifically, the correlation coefficient between consumers' purchase intention and delivery timeliness perception is 0.781, which shows that the optimization of delivery timeliness can significantly enhance consumers' purchase intention. At the same time, the correlation coefficient between consumers' purchase intention and perceived functional value is 0.731, and the correlation coefficient of perceived emotional value is as high as 0.802, which shows that consumers' perception of emotional value has a particularly significant impact on their purchase intention in cross-border shopping. These data emphasize the key role of perceived value in enhancing consumers' willingness to buy, and provide a clear optimization direction for cross-border e-commerce platforms. By enhancing consumers' perception of delivery timeliness, functional value and emotional value, consumers' purchasing decisions can be effectively promoted, which is of great significance to enhance the market competitiveness of e-commerce platforms.

Table 4. Correlation Analysis of Variables

Variable	Distribution timeliness perception	Functional value perception	Emotional value perception	Consumer's purchase intention
Distribution timeliness perception	1			
Functional value perception	0.436**	1		
Emotional value perception	0.365**	0.524**	1	
Consumer's purchase intention	0.781**	0.731**	0.802**	1

*P<0.05,**P<0.01

4.4. Structural Equation Model Analysis

(1). Path analysis

Through path analysis, this paper reveals the interaction among distribution timeliness perception, functional value perception, emotional value perception and consumers' purchase intention. The data in Table 5 shows that the perception of distribution timeliness has a significant positive impact on the perception of functional value, with the standardized coefficient of 0.364, the non-standardized coefficient of 0.321, the standard error of 0.015, the critical ratio CR of 2.698 and the P value of 0.000, which shows that the perception of distribution timeliness has significantly improved consumers' perception of functional value. The perception of delivery timeliness also has a significant positive impact on the perception of emotional value, with a standardized coefficient of 0.235, a non-standardized coefficient of

0.245, a standard error of 0.051, a critical ratio of CR of 2.482 and a p value of 0.000. In addition, the effects of functional value perception and emotional value perception on consumers' purchase intention have also been verified, with standardized coefficients of 0.254 and 0.348, non-standardized coefficients of 0.364 and 0.258, critical ratios of CR of 2.481 and 2.485, and P values less than 0.05. These results show that by enhancing the perception of functional value and emotional value, consumers' purchasing intention can be effectively enhanced, which provides a clear optimization direction for e-commerce platforms. Therefore, it is assumed that H1a, H1b, H2a and H2b are established.

Table 5. Path Coefficient Test of Structural Equation Model

Suppose	Path			Standardization coefficient	Non-standardized coefficient	S.E.	C.R.	P	Conclusion
H1a	Distribution timeliness perception	-- ->	Functional value perception	0.364	0.321	0.015	2.698	0.000	support
H1b	Distribution timeliness perception	-- ->	Emotional value perception	0.235	0.245	0.051	2.482	0.000	support
H2a	Functional value perception	-- ->	Consumer's purchase intention	0.254	0.364	0.045	2.481	0.003	support
H2b	Emotional value perception	-- ->	Consumer's purchase intention	0.348	0.258	0.051	2.485	0.000	support

***p<0.001; S.e.: standard error; C.R.: critical ratio

(2). Intermediary effect

Table 6. Test Results of Intermediary Effect

Path	Effect type	Effect value	Bootstrapping 1,000 times 95% CI		p
			Lower	Uper	
Distribution timeliness perception-> Functional value perception-> Consumers' purchase intention.	Direct effect 1	0.136	0.006	0.364	0.007
	Indirect effect 1	0.197	0.011	0.145	0.004
	Total effect 1	0.168	0.041	0.318	0.016
Perception of distribution timeliness-> Perception of emotional value-> Consumers' willingness to buy.	Direct effect 2	0.156	0.064	0.341	0.008
	Indirect effect 2	0.184	0.036	0.264	0.005
	Total effect 2	0.163	0.025	0.391	0.000

The intermediary effect test in Table 6 shows that the influence of the perception of delivery timeliness on consumers' purchase intention is partly realized through the perception of functional value and emotional value. Specifically, the direct effect of distribution timeliness perception on functional value perception is 0.136, and the direct effect on emotional value perception is 0.156. The 95% confidence intervals of both of them do not include 0, and the p values are 0.007 and 0.008, respectively, which shows that their effects are significant. Further analysis shows that the indirect effects of functional value perception and emotional value perception on consumers' purchase intention are 0.197 and 0.184, respectively, and the 95% confidence interval does not include 0, and the p values are 0.004 and 0.005, respectively, indicating that they play a significant intermediary role between the perception of delivery timeliness and consumers' purchase intention. In addition, the total indirect effects of distribution timeliness perception on consumers' purchase intention through functional value perception and emotional value perception are 0.168 and 0.163, respectively. The 95%

confidence interval does not include 0, and the P value is 0.016 and 0.000, respectively, further confirming the existence of intermediary effect. This shows that functional value perception and emotional value perception play an important intermediary role in the process of influencing consumers' purchase intention by the perception of delivery timeliness, which provides theoretical basis and practical guidance for cross-border e-commerce platforms to optimize services and enhance consumer satisfaction and loyalty.

5. Conclusion

Through in-depth analysis of the relationship between timeliness perception, functional value perception, emotional value perception and consumers' purchase intention, this study draws a series of meaningful conclusions. It is found that the perception of delivery timeliness has a significant positive impact on the perception of functional value and emotional value, which shows that timely delivery service can not only enhance consumers' evaluation of service functions, but also enhance their emotional experience. Further analysis shows that functional value perception and emotional value perception play a significant intermediary role between the perception of delivery timeliness and consumers' purchase intention, indicating that consumers' purchase intention can be effectively enhanced by enhancing their functional value perception and emotional value perception. This discovery has important practical significance for cross-border e-commerce platforms. The platform can improve the delivery timeliness by optimizing delivery services, thereby enhancing consumers' perceived value and promoting consumers' purchase behavior. In addition, the study also found that emotional value perception has a particularly significant impact on consumers' purchase intention, which suggests that e-commerce platforms should pay more attention to consumers' emotional needs in addition to functional value when providing services, and enhance consumers' purchase intention by providing personalized and emotional services. Generally speaking, this study provides theoretical basis and practical guidance for cross-border e-commerce platforms to improve service quality and enhance user satisfaction and loyalty.

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