

# The Influence Path of Customer Gratitude on Repeat Purchase Intention Based on SEM: An Analysis of Chain Mediation Effect

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**Abstract.** This paper expands research on the relationship marketing model of “customer gratitude → repeated purchase intention” by focusing on customers’ psychological and introducing customer psychological ownership, brand attachment, and product attitude as three mediator variables into the SOR theory. The PLS-SEM method is applied to analyze 283 questionnaires. The results are as follows. (1) Customer gratitude is an essential factor for customer psychological ownership, which has a significant positive impact on brand attachment and product attitude. (2) Brand attachment and product attitude are critical factors for consumers’ repeated purchase intention. (3) The mediating effects of customer psychological ownership, brand attachment, and product attitude were further confirmed. This paper can provide references for companies and service personnel on optimizing services and maximizing profits during competition.

**Keywords:** customer gratitude, customer psychological ownership, brand attachment, product attitude, repeated purchase intention, SEM.

## 1. Introduction

At the end of 2019, an outbreak broke out in Wuhan. In the face of the menacing COVID-19 epidemic, China adopted a strict prevention and control mode to curb the spread of the epidemic at all costs [1]. Short-term mandatory prevention and control measures, such as suspension of work and school, restrictions on daily travel, and restrictions on inter-regional and international population movements, have effectively curbed the development trend of the epidemic, but also posed huge challenges to smooth economic development and high-quality development [2]. The Report on the Work of Chinese government in 2021 stated that the consumer price index increases of around 3% and efforts to maintain economic operation in a reasonable range were among the main objectives of economic development that year. However, according to the data of the National Bureau of Statistics, after the outbreak of the new corona pneumonia in January 2020, the per capita expenditure of China in the first quarter of 2020 was 12.5% lower than that of the same period of the previous year. According to the 2021 China Household Survey Yearbook, the nominal and real growth rates of per capita expenditure declined by 8.2 per cent and 12.5 per cent respectively in the first quarter, and per capita consumption expenditure declined by 4 per cent in 2020 compared with the previous year, indicating a significant decline in domestic consumption. In the 2022 Chief Economist Forum, Sheng Songcheng pointed out that consumption recovery slowed down with the weakening of consumer willingness. At the same time, with the continuation of the epidemic, market entities face deep tests, resulting in further decline in consumptive power. Therefore, against the backdrop of the normalization of epidemic prevention and control, it is necessary to stimulate consumers’ purchase intention to safeguard stable economic development, which will help promote economic recovery and boost economic growth.

Repeated purchase intention refers to the tendency of consumers to buy or accept services again after purchasing a certain product or receiving a certain service [3]. There are many factors affecting consumers’ repurchase intention, for example, Olaru’s [4] research results show that customer perceived value has a significant positive impact on consumers’ repeated purchase intention; Xu Hongbo et al. [5] proved that customer satisfaction is an important factor affecting consumers’ repurchase intention in their research on the influence mechanism of consumers’ repeated intention on O2O fresh food e-commerce platform. Customers psychological ownership,

which occupies a place in the field of transaction marketing, has been shown to exert a crucial impact on consumption intention by improving consumers' evaluation of products [6] and purchase intention by virtue of the "pseudo endowment effect" in the decision-making process before they own products [7]. Customer psychological ownership can affect consumers' purchase intention, and what about the impact on repeated purchase intention? Most previous studies used consumer perceived value, trust, satisfaction, switching costs, habits, etc. as antecedents to predict repeat purchase intention, while less literature explored the relationship between customer psychological ownership and repeated purchase intention. Therefore, this paper focuses on exploring the direct and indirect impact of customer psychological ownership on repeated purchase intention.

In recent years, gratitude has begun to receive attention in the field of marketing, but the topic of customer gratitude in China is still in its infancy [8]. Customer gratitude represents the emotion of reciprocity and plays a key role in developing and maintaining a successful transactional relationship [8]. Previous studies have shown that good interpersonal communication, preferential treatment, etc. of service personnel in marketing situations would generate customer gratitude, and this gratitude would affect customers' loyalty [9], improve consumers' trust [10] and commitment [11] to front-line employees, and promote customers' word-of-mouth recommendation [12] and participation support [13]. However, the outcome variables of these studies on the impact of customer gratitude on customer psychological responses have mainly focused on relationship quality and relationship value perception, while the relationship between customer gratitude and customer psychological ownership has not been explored. Secondly, most of the existing empirical studies on customer gratitude follow the paradigm of relationship marketing theory, taking customer gratitude as a mediator variable [8]. Therefore, taking customer gratitude as an independent variable, this paper focuses on the impact of customer gratitude on customer psychological ownership and the indirect effects on consumers' repeated purchase intention through mediator variable such as psychological ownership, which can further expand the research on the impact of customer gratitude.

The innovation of this paper includes: first, this paper examines the impact of customer gratitude on customer psychological ownership, expands the research on the impact of customer gratitude, links the relationship between the two, supplements the existing literature, and provides a new idea for relationship marketing. Second, based on the review of relevant literature, taking customer gratitude as the independent variable, this paper studies the existing relationship marketing model of "customer gratitude→repeated purchase intention" from other perspectives, adding three psychological-level variables, i.e., customer psychological ownership, brand attachment and product attitude, to expand the research on the influencing factors and influencing paths of repeat purchase intention.

## **2. Relevant Theories and Hypothesis Formulation**

### **2.1 Customer gratitude and customer psychological ownership**

Gratitude is shown when one realizes that the behavior exhibited by others will benefit him or her [14], and is ubiquitous in social interactions. In marketing contexts, customers may be grateful after receiving a service and express gratitude to people who provide the service, because the customers directly benefit from the service provided by them. When an individual develops feelings of gratitude, he or she will manifest these feelings in subsequent behaviors. In the field of marketing, gratitude has received increasing attention, and several literatures have studied the use of gratitude, i.e., customer gratitude. Customer gratitude, as an emotion that effectively connects firms and customers [15], can stimulate emotion- and cognition-centered mechanisms, which enable customers to establish and maintain a friendly relationship with whom show the kindness [16]. And, this relationship reflects the impact of customer gratitude on customer psychology [8]. Customer psychological ownership is also a very important concept in the field of marketing. Customer psychological ownership is a state in which consumers treat the targets, such as companies, brands,

or products, etc. or part of them as “their own”, emphasizing their senses of ownership of the targets [17].

When service staff express their kindness to customers or inform them of valuable information, it promotes the formation of friendly relationships between them with customers, activates customers' emotional system, and develop gratitude of customers [18]. When customers form gratitude, they would build connections between themselves with the brands or products, and thus would know and experience more about the brands or products, so that they feel more deeply about the brands or products. When customers become associated with brands or products, it leads to psychological connections between them [19], creating intimate understanding and customer friendship. Research has shown that customer friendship can contribute to the formation of psychological ownership. The customer-firm friendship relationship promotes the establishment of psychological ownership, driven by customers' self-expanding motivation [20]. Therefore, we argue that gratitude can influence the establishment of customer psychological ownership. Accordingly, the first hypothesis (H1) is proposed.

H1: Customer gratitude significantly and positively affects customer psychological ownership.

## **2.2 Brand attachment**

Brand attachment is a construct based on relational process, which connects brands to consumer selves [21], and which reflects consumers' emotion and attachment to brands [22]. Attachment is the emotional bond between people and targets that can reflect themselves, emphasizing the extent to which targets are “I” [23]. Nevertheless, psychological ownership focuses on possessiveness and ownership [24] and emphasizes the extent to which targets is “my”. Self-concept, the cognitive and affective response to “who we are” and “what we are”, includes both the “true self” and the “ideal self” [25]. If a brand can align with consumers' true self or ideal self, it allows consumers to achieve self-conformance. Research has shown that self-conformance can increase the strength of consumers' brand attachment [26]. Subsequently, Kamleitner and Feuchtl [27] demonstrated through empirical analysis that customer psychological ownership has a positive effect on consumers' brand attachment. Accordingly, the second hypothesis (H2) is proposed.

H2: Customer psychological ownership significantly and positively affects brand attachment, and together with H1, it is further argued that it mediates the effect of customer gratitude on brand attachment.

## **2.3 Product attitude**

Product attitudes of consumers refer to the psychological tendencies that consumers develop in the process of learning about products. Individuals' attitudes and behaviors towards targets are influenced by whether targets are related to individuals' egos. And individuals tend to prefer and overvalue targets that are related to egos, because those targets enhance motivation for self-improvement. According to the mere ownership effect of the psychology of possession, it is shown that individuals develop a deep affection for something as they own it [28]. Thus, from the perspective of the psychology of possession, ownership perceptions can motivate individuals to have a positive attitude towards the targets [29]. Empirical studies have found that individuals have more positive attitudes and purchase intentions towards brands or products which they have psychological ownership [30]. Accordingly, the third hypothesis (H3) is proposed.

H3: Customer psychological ownership significantly and positively affects product attitudes, and together with H1, it is further argued that it mediates the effect of customer gratitude on product attitudes.

## **2.4 Repeated purchase intention**

Park et al. [21] argue that brand attachment can well explain relationship-centered marketing activities, accurately predict consumers' behavior intention of using resources (time, money, reputation), and predict consumers' actual behavior. According to the self-expansion theory put

forward by Aron and Aron [31], people can achieve self-expansion and enhance their sense of efficacy in accomplishing their goals by incorporating other people's resources, opinions, and identities into themselves [32]. People have the motivation of self-expansion and are eager to incorporate entities (brands) into their self-concept. The more an entity is contained, the closer the bond with the entity is. With the development of the relationship between self and entity, attachment also develops. Park et al. [33] complements the self-expansion theory, and put forward those consumers are not only recipients of brand resources, but also actively invest their resources in brands to maintain their brand relationship, which shows that consumers who are attached to brands are willing to invest their resources in brands. In addition, when brands provide consumers with the resources they need, consumers will think that brands have personalized meanings and are associated with themselves. In this way, the brand satisfies the consumer's self-awareness and turns it into purchase intention. This phenomenon can be explained by the self-congruity theory [34]. If a brand or product is consistent with a consumer's self-concept, there will be a preference for that brand or product and this preference will manifest itself in subsequent purchase choices. Chen and Hung [35] used structural equation modeling in the survey of bicycle users to empirically demonstrate that brand attachment has a positive effect on users' repeated purchase intention. Accordingly, the fourth hypothesis (H4) is proposed.

H4: Brand attachment significantly and positively affects repeated purchase intentions.

It is stated in the theory of planned behavior that attitudes, subjective norms, and perceived behavioral control can influence individuals' behavioral intention, and the more positive individuals' attitudes are, the more pronounced the individuals' behavioral intention will be [36]. Studying consumers' product attitudes can judge the likelihood of consumer purchase and make more accurate predictions about consumers' behavioral intentions. Positive consumer attitudes towards products can be a motivating factor for consumer purchases [37]. Wang and Li [38] found that product attitudes have a positive effect on consumers' willingness to make repeated purchases when they studied the effect of needs-based motivation on attitudes and repeated purchase intentions for energy-efficient products. Accordingly, the fifth hypothesis (H5) was formulated.

H5: Product attitudes significantly and positively affects repeated purchase intention.

In studying the behavioral responses triggered by customer gratitude, the main outcome variables are divided into three categories: rewarding behaviors for corporates, rewarding behaviors for employees, and pro-social behaviors. When the firm acts as the giver, one of the rewarding behaviors for corporates manifests itself in higher purchase willingness and repeated purchase intention. Social exchange theory is a social psychology theory that discusses social activities between two people or parties, and it considers that individuals seek to maximize returns at minimal costs in social interaction activities [39]. And this theory is a valuable resource exchange process [40]. According to psychological contract theory, parties to a transaction maintain the relationship by believing that their actions are interdependent and voluntary and that the benefits gained should be mutual [41]. When one party receives benefits from the other, the norm of reciprocity motivates the party to reciprocate those benefits so that the relationship can continue [42]. Consumers are willing to pay for what they receive in return when something the business or frontline service staff do makes them appreciate it. In studying e-tailer-customer relationships, it was found that customer gratitude leads to repeated purchase behaviors [43]. Accordingly, the sixth hypothesis (H6) is proposed.

H6: Customer gratitude significantly and positively affects repeated purchase intention.

Customer psychological ownership promotes consumer loyalty and loyalty behavior, which Lipstein and Benjamin viewed as repeated purchase behaviors [44]. Dick and Basu [45] defined customer loyalty as the relationship between relative attitudes and repeated purchase behaviors when they then further enriched its concept. Therefore, we hypothesized that customer psychological ownership promotes consumers' repeated purchase intention, and subsequent empirical studies support this hypothesis. The study of consumers' online repeated purchase intention, through qualitative methods of in-depth interviews and quantitative methods of

questionnaires, found that consumers' perceived benefits and psychological ownership can positively and significantly influence consumers' repeated purchase intention [46]. Accordingly, the seventh hypothesis (H7) is proposed.

H7: Customer psychological ownership significantly and positively affects repeated purchase intention, and together with H1, it is further argued that it mediates the effect of customer gratitude on repeated purchase intention.

## 2.5 Mediating role of brand attachment and product attitude

From the above arguments on the relationship between customer psychological ownership, brand attachment, product attitudes, and repeated purchase intention, customer psychological ownership can cause consumers' attachment to brands and positive attitudes towards products, while brand attachment and product attitudes further promote consumers' repeated purchase intention. There is a direct causal relationship between customer psychological ownership, brand attachment, product attitudes, and repeated purchase intention. However, the available literatures have not yet modelled the internal relationships between these four variables. Therefore, based on the role that brand attachment and product attitudes play between customer psychological ownership and repeated purchase intention, this study makes a further inference that customer psychological ownership has an indirect effect on repeated purchase intention through the mediating variables -- brand attachment and product attitudes. As a result, the following hypotheses are proposed.

H8: Brand attachment mediates the relationship between customer psychological ownership and repeated purchase intention. And it is further suggested that customer psychological ownership and brand attachment play a chain mediating role between customer gratitude and repeated purchase intention.

H9: Product attitude mediates the relationship between customer psychological ownership and repeated purchase intention. And it is further suggested that customer psychological ownership and product attitude play a chain mediating role between customer gratitude and repeated purchase intention.

The SOR theoretical framework (Stimulus-Organism-Response) adds the mediating variable organism to the traditional Stimulus-Response model to better explain people's internal activities. And it describes the process by which individuals are influenced by external stimuli to affect their internal emotions, which in turn drives their behavioral responses [47], and it is one of the key theories in environmental psychology. Stimuli act as antecedent variables that influence individuals' final behavioral responses through mediating variables [48]. In this thesis, the stimulus (S) refers to the environment that stimulates consumers, and in this case, it means the environment that consumers perceive to be appreciated, i.e., customer gratitude. The organism (O) means that the internal emotional state of individuals is influenced by external environmental stimuli. Customer psychological ownership is the psychological process by which consumers become willing to make repeated purchases, and it can be used as a mediating variable in the model. The response (R) is used in this study to indicate the repeated purchase intention and can be used as the behavioral tendency in the model. When combing through the pieces of literature on customer psychological ownership, it was found that it can influence repeated purchase intention through brand- and product-related variables. Therefore, in this thesis, two variables, brand attachment and product attitudes, are added to the model to explore the indirect influence of customer gratitude on repeated purchase intention through chain mediation.

Based on the above hypotheses and using the SOR model as a framework, this thesis constructs a structural equation model between customer gratitude, customer psychological ownership, brand attachment, product attitudes, and repeated purchase intention. And the conceptual model for this study is shown in Fig. 1.

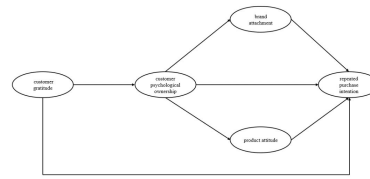


Fig. 1 The proposed model.

### 3. Questionnaire Design and Data Collection

#### 3.1 Measurement

The scales of this study are all drawn from established domestic and foreign scales. To ensure the consistency of the measurement items of foreign scales and the accuracy in the Chinese context, this study follows the principle of “translation-retranslation”, and finally forms the scale of this study after feedback and multiple adjustments from experts.

Customer gratitude adapted from the scale compiled by Emmonse and Mccullough [49]. Customer psychological ownership adapted from the scale used by Yeung [50] to measure customer psychological ownership. Brand attachment adapted from the scale developed by Park et al. [33]. Referring to Becker-Olsen et al. [51] who used the scale to measure consumers’ product attitudes for product attitude. Referring to the scale used by Chiu et al. [52]; Pavlou and Fygenon [53]; Parasuraman et al. [54] for repeated purchase intention. Demographic variables include gender, age, education level, monthly personal income (or monthly disposable income), etc.

#### 3.2 Data collection and samples

A total of 283 questionnaires were distributed in this survey, mainly online. 246 valid questionnaires were recovered, with a valid return rate of 86.93 %. Among them, 132 are males, and 114 are female; the age of the respondents is mainly 18-30 years old, accounting for 92.27 %; 7 were high school and junior middle school education, 195 are undergraduate and junior school education, and 44 are postgraduate (master or doctor) education; individual monthly income or monthly disposable income is mainly below 2,000 and 2,000-4,000 RMB, accounting for 50.41 % and 30.49 % respectively.

### 4. Empirical results and analysis

#### 4.1 Data analysis strategy

In this paper, partial least squares (PLS), which are commonly used in the marketing field, are selected for hypothesis testing. PLS-SEM model can better deal with the errors caused by variable measurement, has no requirement for the normal distribution of data [55], and can effectively overcome the problem of multiple collinearities. Using PLS nonparametric inference method, even if it deviates from the normal state, it can keep a stable result, maximize the explanatory power of endogenous latent variables, and realize the maximum prediction effectiveness, which is suitable for more complex structural equation models [56]. In theoretical development and exploratory research, the PLS-SEM model is more appropriate [57]. The software used in the study is Smart PLS 3.0.

#### 4.2 Result analysis

##### 4.2.1 Common method variance

Common method variance (CMV) refers to the false common variation between traits that may occur when using the same tool for measurement, which most often occurs in the collection of data from the measurement of self-report scales [58]. Because the questionnaire is used to collect data in this paper, it may lead to common methodological deviation, which will affect the validity and objectivity of the research conclusion. PLS was used to verify the common method deviation

according to the suggestion of Liang et al. [59]. The factor load of most methods was not significant, and the average substantive interpretation variation of each index was 0.665, while the average common method variation was 0.025. The ratio of the two reaches 26.859:1 (as shown in Table 1), indicating that the common method variance has no serious impact on the measured data in this study.

#### 4.2.2 Measurement model test

The reliability of the measurement model was evaluated by composite reliability (CR) and Cronbach's Alpha. As shown in table 2, the composite reliability of the five latent variables in this study were 0.863, 0.881, 0.888, 0.888, and 0.901, respectively, which were higher than the reference value of 0.70; the Cronbach's Alpha of the five latent variables was 0.787, 0.799, 0.843, 0.810, and 0.853, respectively, which were all above 0.70, indicating that the measurement model of this study had a high reliability level.

Table 2. Reliability result

Variable	Items	Reliability	
		Cronbach's Alpha	CR
BA	4	0.787	0.863
CG	3	0.799	0.881
CPO	5	0.843	0.888
PA	3	0.810	0.888
RPI	4	0.853	0.901

Note: BA=brand attachment, CG=customer gratitude, CPO=customer psychological ownership, PA=product attitude, RPI=repeated purchase intention. CR composite reliability.

In general, all loading factors greater than 0.70 can reasonably explain latent variables. As shown in Table 3, all loading factors are greater than 0.70, which is within the acceptable range and meets the requirements of structural validity.

Table 3. Loading factors

	O	STDEV	T ( O/STDEV )
BA1 <- BA	0.703	0.039	18.145
BA2 <- BA	0.816	0.023	36.043
BA3 <- BA	0.831	0.021	38.826
BA4 <- BA	0.773	0.037	20.860
CG1 <- CG	0.881	0.020	44.368
CG2 <- CG	0.821	0.034	23.884
CG3 <- CG	0.829	0.033	25.200
CPO1 <- CPO	0.737	0.032	23.323
CPO2 <- CPO	0.706	0.049	14.503
CPO3 <- CPO	0.856	0.018	46.515
CPO4 <- CPO	0.861	0.017	51.880
CPO5 <- CPO	0.744	0.037	20.232
PA1 <- PA	0.878	0.016	53.841
PA2 <- PA	0.814	0.028	28.780
PA3 <- PA	0.862	0.020	43.132
RPI1 <- RPI	0.807	0.027	30.278
RPI2 <- RPI	0.865	0.017	51.441
RPI3 <- RPI	0.802	0.031	25.640
RPI4 <- RPI	0.857	0.021	40.018

Average variance extraction (AVE) was used to evaluate the convergent validity and discriminant validity. AVE is required to be greater than the reference value of 0.50, and the square root of the latent variable AVE is greater than the correlation coefficient between the relevant latent variables. As shown in table 4, the AVE of the five latent variables in this study were 0.612, 0.712, 0.614, 0.725, and 0.694, respectively, which were greater than the benchmark value of 0.50; and the square root of AVE is greater than the correlation coefficient between related latent variables, so the measurement model in this study has good convergence validity and discriminant validity.

Table 4. Correlation matrix of latent variables and square root of AVE

Variable	Convergence validity	Discriminant validity				
	AVE	BA	CG	CPO	PA	RPI
BA	0.612	0.782				
CG	0.712	0.444	0.844			
CPO	0.614	0.702	0.459	0.784		
PA	0.725	0.692	0.472	0.627	0.852	
RPI	0.694	0.752	0.436	0.640	0.767	0.833

To further test the convergence validity and discriminant validity of the measurement model, according to Gefen et al.'s [60] recommendation, this study also constructed cross-loading, in which the factor loading value in the setting latent variable was significantly higher than that in other latent variables. The factor load and cross load are shown in Table 5. The model evaluation of PLS-SEM needs to measure the explanatory degree of exogenous latent variables to endogenous latent variables by endogenous structure interpretable variation ( $R^2$ ), and the prediction correlation of the model is calculated by Stone-Geisser's  $Q^2$ [61]. The  $R^2$  of customer psychological ownership, brand attachment, product attitude and repurchase intention was 0.211, 0.493, 0.393 and 0.678, respectively, which indicated that the model could explain the moderate degree of variation. Stone-Geisser's  $Q^2$  was 0.123, 0.297, 0.279 and 0.467, respectively, which indicated that the model had a good prediction correlation.

#### 4.2.3 Research hypothesis testing

Firstly, the Smart PLS 3.0 software based on partial least squares (PLS) was used to analyze the path. On this basis, the mediating effect path in the model was tested. If the T value is greater than 1.96, it is considered that the path is significant.

As shown in table 6, the path coefficient of customer gratitude on customer psychological ownership is 0.459 ( $T = 8.172 > 1.96$ ), indicating that supporting H1, indicating that customer gratitude has a significant positive impact on customer psychological ownership. The path coefficients of customer psychological ownership on brand attachment and product attitude are 0.702 ( $T = 20.154 > 1.96$ ) and 0.627 ( $T = 16.007 > 1.96$ ), respectively, indicating that H2 and H3 were supported. The path coefficients of brand attachment and product attitude to consumers' repeated purchase intention were 0.372 ( $T = 4.035 > 1.96$ ) and 0.443 ( $T = 7.199 > 1.96$ ), respectively, indicating that H4 and H5 were supported. But the effect of customer gratitude and customer psychological ownership on repeat purchase intention is not significant, T values are less than 1.96, and H6 and H7 are not supported.

To further test the mediating effect of customer psychological ownership, brand attachment, and product attitude, this study uses Bootstrapping method (1000 samples) to test the mediating path in the model. As table 7 shows, customer gratitude indirectly affects brand attachment and product attitude through customer psychological ownership. Customer psychological ownership indirectly affects consumers' repeated purchase intention through brand attachment and product attitude. Among them, customer gratitude has the greatest mediating effect on repeated purchase intention through product attitude. Although customer gratitude does not significantly affect consumers' repeated purchase intention through customer psychological ownership, under the effect of chain

intermediary, customer gratitude can affect repeated purchase intention through customer psychological ownership, brand attachment, and product attitude.

## **5. Research conclusions and management implications**

### **5.1 Conclusion**

This paper explores the influence mechanism of customer gratitude on customer psychological ownership and the influence of customer gratitude on repeated purchase intention through the chain mediation of customer psychological ownership, brand attachment and product attitude, and verifies the influence of customer gratitude and customer psychological ownership on repeated purchase intention. Three findings were obtained. Firstly, customer gratitude has a positive impact on customer psychological ownership. Companies should pay attention to the psychological changes of consumers in the process of delivering services or producing products, and enhance customer psychological ownership by strengthening customer gratitude. In addition, the positive emotional state of a brand or product can improve consumers' willingness to repeat purchases. Although the direct impact of customer psychological ownership on repeated purchase intention is not obvious, it can play a role in repeated purchase intention through brand attachment, and product attitude. Eventually, customer gratitude can also positively affect consumers' brand attachment and product attitude through customer psychological ownership. Customer psychological ownership, brand attachment and product attitude play a chain mediating role between customer gratitude and repeated intention. The above research conclusions have certain implications for relationship marketing practice.

### **5.2 Management implications**

For enterprises, it is crucial to give full play to the psychological effect of customer gratitude. Pierce et al. [62] proposed that there are three ways to generate psychological ownership: control, self-involvement, and intimate understanding. Therefore, when customers are feeling grateful, enterprises should take the initiative to let consumers know as much information about them as possible, deepen mutual communication, and establish relationships between enterprises and consumers. Moreover, enterprises are supposed to improve the service quality for consumers, optimize the service schemes, ensure the nurturing environment for customers' psychological ownership, and induce consumers' psychological ownership. Once customers have developed psychological ownership, they will be more concerned about the long-term development of the enterprises and are willing to invest more time and money. In turn, it can enhance consumers' attachment to brands, promote consumers' positive attitudes towards products, and improve consumers' willingness to repeat purchases. When consumers want to consume again, it can become their first choice and create conditions for enterprises to increase their revenue. For consumers, it is necessary to observe whether the goodwill or other ways expressed by enterprises or front-line employees are sincere, and whether they specifically inspire consumer gratitude, which can avoid excessive psychological ownership and impulsive consumption. Consumers should accumulate learning and shopping experience, have a correct perception of brands and products, enhance their persuasion knowledge, and avoid overestimation.

Future research can be further carried out from the following aspects. First, the majority of the research subjects in this paper are young, which affects the scientific nature of the research conclusion to a certain extent. Subsequent studies can cover more levels of research objects. Second, due to the difficulty in measuring repeated purchase behavior, this paper takes repeated purchase intention as the outcome variable, and does not fully consider the difference and connection between intention and repeated purchase behavior which can be conducted in depth in the future. Finally, some studies have shown that both customer gratitude and customer psychological ownership have a direct and positive impact on repeated purchase intention. However, the results of this study show that the effects of customer gratitude and customer psychological ownership on

repeated purchase intention are not significant, and the reasons for the discrepancy can be used as a direction for subsequent research.

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Table 1. Common method variance testing

Variable	Item	R1	R12	R2	R22
BA	BA1	0.707	0.500	0.398	0.158
	BA2	0.813	0.660	-0.089	0.008
	BA3	0.830	0.690	0.174	0.030
	BA4	0.773	0.597	-0.227	0.052
CG	CG1	0.866	0.749	0.115	0.013
	CG2	0.836	0.699	0.096	0.009
	CG3	0.832	0.692	-0.053	0.003
CPO	CPO1	0.704	0.496	-0.048	0.002
	CPO2	0.732	0.535	-0.137	0.019
	CPO3	0.861	0.742	0.158	0.025
	CPO4	0.853	0.728	-0.010	0.000
	CPO5	0.765	0.585	0.022	0.001
PA	PA1	0.874	0.764	-0.022	0.000
	PA2	0.815	0.663	-0.308	0.095
	PA3	0.865	0.748	-0.198	0.039
RPI	RPI1	0.815	0.665	0.033	0.001
	RPI2	0.861	0.741	0.070	0.005
	RPI3	0.799	0.638	-0.094	0.009
	RPI4	0.857	0.734	0.019	0.000
	AVG		0.665		0.025
	RATIO	26.859			

Table 5. Factor loading and cross-loading

	BA	CG	CPO	PA	RPI
BA1	0.703	0.261	0.598	0.346	0.410
BA2	0.816	0.356	0.612	0.551	0.603
BA3	0.831	0.404	0.543	0.675	0.658
BA4	0.773	0.357	0.452	0.567	0.662
CG1	0.413	0.881	0.414	0.447	0.445
CG2	0.292	0.821	0.354	0.328	0.309
CG3	0.408	0.829	0.390	0.410	0.332
CPO1	0.579	0.441	0.737	0.587	0.561
CPO2	0.394	0.329	0.706	0.323	0.359
CPO3	0.582	0.326	0.856	0.479	0.537
CPO4	0.642	0.383	0.861	0.624	0.587
CPO5	0.503	0.299	0.744	0.352	0.399
PA1	0.632	0.438	0.576	0.878	0.690
PA2	0.526	0.369	0.499	0.814	0.629
PA3	0.606	0.396	0.523	0.862	0.639
RPI1	0.602	0.317	0.516	0.536	0.807
RPI2	0.686	0.418	0.588	0.682	0.865
RPI3	0.596	0.368	0.465	0.655	0.802
RPI4	0.617	0.343	0.558	0.673	0.857

Table 6. Path coefficients and results of hypothesis testing

Hypothesis	Path	Path coefficient	T-value	Result
H1	CG→CPO	0.459	8.172	Supported
H2	CPO→BA	0.702	20.154	Supported
H3	CPO→PA	0.627	16.007	Supported
H4	BA→RPI	0.372	4.035	Supported
H5	PA→RPI	0.443	7.199	Supported
H6	CG→RPI	0.019	0.375	Unsupported
H7	CPO→RPI	0.093	1.137	Unsupported

Table 7. Mediating effect path coefficient and hypothesis testing

Mediating effect path	Mediating effect coefficient	T-value	Result
CG→CPO→BA	0.323	6.972	Supported
CG→CPO→PA	0.288	6.614	Supported
CPO→BA→RPI	0.261	3.900	Supported
CPO→PA→RPI	0.278	6.401	Supported
CG→CPO→BA→RPI	0.120	3.382	Supported
CG→CPO→PA→RPI	0.127	4.704	Supported
CG→CPO→RPI	0.043	1.106	Unsupported