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The Impact of Customer Participation on Customer Loyalty in the Context of the Internet

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Abstract: The rapid development of online consumption mode has driven many industries, in the economic structure of our country, online consumption driven industry is playing a larger and larger role. With the basic and comprehensive popularization of mobile intelligent devices, the strong emergence of social expression media has promoted the arrival of the era of participatory marketing. In the era of participatory marketing, people more and more deeply and actively participate in the production of products and the delivery of services. In addition, in order to meet the spiritual needs, modern consumers have new requirements, and have higher requirements for the attitude of enterprises in providing products or services in the process of consumption and the experience of customers in the process of accepting products. On the basis of previous studies, combined with the characteristics of the current online consumer market, this research selects customer participation as the independent variable to explore the relationship between it and the dependent variable customer loyalty., and introduced perceived preference matching as an intermediary variable to build a mechanism model of customer participation, perceived preference matching and customer loyalty in online consumption. The final research results show that customer engagement has a significant positive impact on customer loyalty under the Internet background, and perceived preference matching plays a partial mediating role between the independent variable and the dependent variable. After analyzing the empirical findings of the study, this paper provides recommendations for enterprises' marketing ideas under the background of Internet.

Keywords: Customer participation, Perceived preference matching, Customer loyalty.

1. Introduction

With the continuous advancement of mobile internet technology and the increasingly powerful logistics delivery services, people have become inseparable from this lifestyle of online consumption. During the consumption process, consumers can achieve varying degrees of customer participation through the internet: Consumers can complete the selection and consumption process online, and at the same time, they can use the platform to express opinions and provide suggestions; for various application software and games, customer participation can also be carried out through various virtual communities and online survey questionnaires released by the official; With the powerful functions of the internet, consumers can also engage in deeper customer participation activities, for example, enterprises can develop programs to enable consumers to participate in personalized customization or new product production processes simply and intuitively...

In the past, enterprises could use various means such as advertising and public relations to convey their products and services to target customers. However, today, with the development of media technology, consumers are increasingly actively involved in the production of products and the dissemination of services on the Internet. Even each consumer can become an opinion leader influencing other customers' purchasing decisions. A single sentence randomly typed and posted by a consumer on the Internet can constitute a customer participation activity. The Internet environment provides great convenience and more diverse ways for customer participation, and also offers a path for enterprises to obtain customers' private preference information.

In traditional sales relationships, it is difficult for enterprises to obtain customers' personal preferences, which leads to a mismatch between the products and the customers' preferences, and makes it hard to build customer loyalty. However, in the online environment, enterprises can enable consumers to actively and happily participate in customer engagement, interact with consumers, and obtain personalized preference information from consumers, thereby being able to solve problems from the consumers' perspective.

Therefore, for enterprises, establishing a solid customer loyalty through matching customer participation activities with their perceived preferences has become the key to their success. As consumers' consumption habits and psychological tendencies change, their position in the production process is becoming increasingly important. As consumers are regarded as co-producers, they are required to undertake and play more and more functions and roles throughout the entire process of enterprise product production and management. In the current era of participatory marketing, how enterprises should encourage consumers to participate in enterprise activities, enhance the degree of matching of their perceived preferences, and thereby form customer loyalty has become a major issue for enterprises. In the context of the Internet era, the ways and methods of customer participation have become increasingly diverse, bringing certain changes to consumption behaviors and outcomes.

The current research results on the relationship between customer participation and customer loyalty are quite abundant. However, most of them explore the impact of customer participation on consumption outcomes from the perspective of consumer psychological effects, such as customer self-efficacy and perceived quality. There are few studies that investigate the role of consumers' own perception preference matching in this relationship. This study examines the mediating role of customer perception preference matching between customer participation and customer

loyalty, thereby improving the relevant theories of customer participation and customer loyalty to a certain extent.

2. Theoretical Analysis and Research hypotheses

In market research, the social exchange theory is often employed to explain the behaviors of both buyers and sellers. In social exchange, when people receive positive treatment, they will also respond positively to others and provide implicit or explicit rewards to them [3].

In online consumption, the transmission process of customer participation - perceived preference matching - customer loyalty can be explained from the perspectives of both enterprises and consumers using the social exchange theory: For enterprises, setting customer participation activities is to better match consumers' preferences, thereby bringing subsequent benefits to themselves, that is, customer loyalty [4]. During this process, enterprises invest their own resources while receiving returns; for consumers, the participation activities of the enterprise reflect the enterprise's emphasis on itself, which will benefit the consumers and enable them to obtain products or services that are more in line with their own needs. Therefore, considering reciprocity, consumers will actively generate loyalty towards the enterprise [5].

(1) Customer Participation and Customer Loyalty

Through interaction with enterprises, consumers will experience various positive psychological reactions. For instance, when consumers engage in customer participation, they have extensive communication with the enterprises regarding various issues and expectations, which deepens their understanding of the enterprises and leads to satisfaction [9]; Customers express their opinions or suggestions about the enterprise's products or services by expending energy and mental effort, directly or indirectly promoting the improvement and development of the enterprise's products, thus generating a strong sense of achievement [7]; Consumers exchange their thoughts with each other through internet platforms or virtual communities, or help others solve problems encountered in consumption, thereby generating a sense of belonging, etc. [10].

According to the social exchange theory, the above-mentioned positive psychological factors are the intrinsic rewards that consumers obtain, and thus will drive consumers to repay the enterprises through means such as repurchasing [11]. A large number of research results show that positive customer participation can promote and enhance customer loyalty. During the participation process, consumers will propose products or services that meet their individualized needs to the company, and the efforts made by the enterprises to meet the customers' needs will gain the customers' loyalty. In online consumption, consumers can actively participate in the process during consumption, and the development of technology can help companies improve the design and production capacity of products and services, thereby better meeting the customers' needs.

Therefore, this paper presents the following hypotheses:

In the context of the Internet,

H1: Customer participation has a positive impact on customer loyalty.

H1a: Information sharing has a positive impact on customer loyalty.

H1b: Cooperative behavior has a positive impact on customer loyalty.

H1c: Interpersonal interaction has a positive impact on customer loyalty.

(2) Customer participation and perception preference matching

Consumers have individualized demand preferences, and enterprises have the ability to meet these consumer preferences. However, if there are information communication barriers between the two, then the enterprise's products and consumers' preferences will be inconsistent, and it will be difficult for the enterprise to succeed in the end. Therefore, enterprises can obtain private preference information from customers through collaboration, interpersonal interaction, information sharing, etc. In the customer participation process, let consumers "solve" their own demand preferences by themselves, so that customers can achieve a higher level of perception preference matching [2].

According to the social exchange theory, when enterprises set up customer participation sections, they send out a reciprocal signal to consumers, and the initiative of whether to engage in reciprocal exchange lies with the consumers. If consumers are willing to share their private preference information with the enterprises, they can easily participate in the customer participation activities anytime and anywhere through internet technology, sharing the consumers' perspectives with the enterprises, enabling the enterprises to improve production and services and better match customer preferences.

Therefore, this paper makes the following hypotheses:

In the context of the Internet,

H2: Customer participation has a positive impact on perceived preference matching.

H1a: Information sharing has a positive impact on perceived preference matching.

H1b: Cooperative behavior has a positive impact on perceived preference matching.

H1c: Interpersonal interaction has a positive impact on perceived preference matching.

(3) Perceived Preference Matching and Customer Loyalty

Consumers generally evaluate a company's products based on their own preferences. If consumers find that a new product matches their preferences, they will perceive that the product meets their expectations. The shared information during the event has sufficient value, their communication and feedback are noticed by the company, the efforts and sacrifices made are meaningful, and the company's actions make their emotions more positive [8]. The social exchange theory is based on fairness and mutual benefit, so this positive emotion will prompt customers to increase their loyalty to the company, consumers' expectations of the company will be higher, thereby enhancing the willingness to repurchase, recommend, etc., and increasing customer loyalty [1].

Therefore, this paper proposes the following hypothesis:

H3: In the Internet environment, perceived preference matching has a positive impact on customer loyalty.

(4) The mediating role of perception preference matching

When consumers engage in customer participation activities, they will provide opinions for the enterprise according to their preferences, or participate in the production and provide new products and services. Therefore, after customers join, the degree of matching of consumers' preferences for the results will change. That is to say, customers believe that the results of participation are in line

with their preferences, believing that this is the recognition of their personal creativity and the recognition of their efforts, thus generating a strong sense of achievement [10], and thus are likely to develop customer loyalty.

Therefore, this paper proposes the following hypotheses:

In the context of the Internet,

H4: Perceived preference match plays a mediating role between customer participation and customer loyalty.

H4a: Perceived preference match plays a mediating role between information sharing and customer loyalty.

H4b: Perceived preference match plays a mediating role between cooperative behavior and customer loyalty.

H4c: Perceived preference match plays a mediating role between interpersonal interaction and customer loyalty.

3. Research Design

(1) Customer Participation (CP) Measurement Scale

Ennew et al. (1999) classified customer participation into three dimensions: responsibility behavior, information sharing, and interpersonal communication [6]. Responsibility behavior involves the behavioral norms and responsibilities that customers must follow when enjoying a certain service. This responsibility stems from their identity as direct participants in the product - they are not only consumers but also part of the producers. For example, in online consumption, consumers must complete activities such as paying attention to logistics delivery and picking up items by themselves; Information sharing is that customers need to convey information to the enterprise in order to ensure that their own needs are met. The more highly involved the enterprise is, the stronger the dependence on customers' information and resources; Interpersonal interaction refers to the communication and interaction between consumers and enterprise employees.

Based on the classification of customer participation behavior by Ennew et al. (1999), and in combination with the ways and contents of customer participation in the Internet context, this study has developed a questionnaire to measure the independent variables. There are a total of 11 items, including 4 items on information sharing, 3 items on cooperative behavior, and 4 items on interpersonal interaction, which are measured using the Likert five-point scale.

(2) Customer Loyalty (CL) Measurement Scale

This study mainly drew on the scale developed by Luo Haicheng (2006), and made corresponding modifications based on the ways and contents of customer participation in the context of the Internet. Specifically, the measurement indicators mainly include factors such as willingness to recommend, cross-purchase willingness, repeat purchase behavior, optimal choice, resistance to change, and price tolerance, totaling 7 items.

(3) Perceptual Preference Matching (PPM) Measurement Scale

This study employed the scale developed by Franke et al. (2010). It consisted of 3 items and was measured using the Likert five-point scale [7].

4. Empirical Analysis and Hypothesis Testing

This questionnaire survey was mainly conducted online, and a total of 292 valid questionnaires were obtained.

(1) Descriptive Statistical Analysis

Descriptive Statistics of Individual Information: Among the respondents, 80.8% were female and 19.2% were male. Consumers aged 18-30 accounted for the highest proportion, reaching 52.7%. This indicates that young people in this age group have a higher proportion of online shopping. In terms of industry distribution, students accounted for 50.7%, and enterprise employees accounted for 15.1%. In terms of cultural level, those with a high school education or below accounted for 17.8%, those with a college degree accounted for 15.8%, those with a bachelor's degree accounted for 61.6%, and those with a master's degree or above accounted for 4.8%. This also aligns with the distribution of consumers shown in our survey questionnaire, which is mainly composed of young people. From the personal information of the respondents, the subjects of this survey were mainly young people. They have a high level of education, stable income, and a better ability to accept new things.

As can be seen from Table 3-1, the average scores of each item in the questionnaire are all between 3 and 4, indicating that the respondents have a high level of agreement with each item. From the size of the standard deviation, they fluctuate around 1. This suggests that there are no extreme outliers in this study, and the respondents' views on the questionnaire content are relatively consistent. Through descriptive statistical analysis of each variable, the overall validity of this questionnaire is good.

Table 3-1. Descriptive Statistics of Analytical Variables

	Max	Min	Average	SD
CP11	2	5	3.87	0.861
CP12	1	5	3.79	0.936
CP13	1	5	4.09	0.923
CP14	1	5	3.32	1.243
CP21	1	5	3.82	0.933
CP22	1	5	3.8	1.048
CP23	1	5	3.68	1.014
CP31	2	5	4.3	0.698
CP32	1	5	4.04	0.971
CP33	1	5	3.82	0.943
CP34	2	5	4.4	0.699
PPM1	1	5	3.93	0.79
PPM2	1	5	3.75	0.878
PPM3	2	5	3.86	0.851
CL1	1	5	4.08	0.776
CL2	1	5	4.04	0.83
CL3	1	5	3.93	0.855
CL4	1	5	3.84	0.858
CL5	2	5	3.96	0.726
CL6	1	5	3.57	1.018
CL7	1	5	3.59	1.046

(2) Reliability Analysis

We conducted a reliability test on the total scale and subscales, and the results are shown in Table 3-2. The Cronbach's alpha coefficient of the total scale was 0.932, and the Cronbach's alpha coefficients of the subscales and each dimension were all greater than 0.8, indicating that the reliability of the research questionnaire was high.

Table 3-2. Reliability Analysis Statistics

		number	α	α
CP	CP1	4	0.733	0.886
	CP2	3	0.844	
	CP3	4	0.787	
PPM		3	0.897	0.897
CL		7	0.898	0.898
		21		0.932

(3) Validity Analysis

Convergence Validity Analysis of the Customer Participation Scale:

Exploratory Factor Analysis of the Customer Participation Scale - The KMO value of the overall items of the independent variables was 0.863, and the Sig value was significant, indicating that the measured items could be subjected to factor analysis. On this basis, using the principal component analysis method, each factor in the original data was extracted based on the criterion that the eigenvalue was greater than 1, and then the maximum variance method was used for factor rotation. The following test results were obtained. The research results show that the division of customer participation dimensions proposed in this study is relatively reasonable.

Table 3-3. Exploratory Factor Analysis of Customer Participation

	Component		
	1	2	3
CP11		0.74	
CP12		0.661	
CP13		0.648	
CP14		0.802	
CP21			0.825
CP22			0.674
CP23			0.795
CP31	0.65		
CP32	0.729		
CP33	0.711		
CP34	0.781		

Confirmatory factor analysis of the customer participation scale - The detailed results are shown in Table 3-4. The λ values of each measured variable are all above 0.6, the AVE of each dimension is greater than 0.5, and the composite reliability is greater than 0.70. This indicates that the convergent validity of the customer participation measurement scale has been achieved.

Table 3-4. Convergence Validity Test of Customer Participation Measurement Variables

		λ	CR	AVE
CP1	CP11	0.74	0.8063	0.5119
	CP12	0.661		
	CP13	0.648		
	CP14	0.802		
CP2	CP21	0.825	0.8102	0.589
	CP22	0.674		
	CP23	0.795		
CP3	CP31	0.65	0.8102	0.5174
	CP32	0.729		
	CP33	0.611		
	CP34	0.781		

Convergence validity analysis of the perception preference matching scale:

Exploratory factor analysis of perception preference matching - An exploratory factor analysis was conducted on the 3 items of customer loyalty. The KMO value of perception preference matching was 0.743, and the Bartlett's sphericity test was significant, indicating that the measured items could be subjected to factor analysis. On this basis, using the principal component analysis method, factors were extracted from the original data based on the criterion that the eigenvalue was greater than 1, and then factor rotation was performed using the maximum variance method. The test results are shown in Table 3-5.

Table 3-5. Exploratory factor analysis of perception preference matching

	Component
	1
PPM1	0.908
PPM2	0.89
PPM3	0.896

Factor analysis for the validation of customer loyalty - A confirmatory factor analysis was conducted on the scale to test it. Table 3-6 shows that all measurement variables have $\lambda > 0.6$, and AVE and composite reliability meet the requirements, indicating that the convergent validity of the perceived preference matching scale has been achieved.

Table 3-6. Convergent validity test of measurement variables of perceived preference matching

		λ	CR	AVE
PPM	PPM1	0.908	0.9259	0.8065
	PPM2	0.89		
	PPM3	0.896		

Convergence Validity Analysis of the Customer Loyalty Scale:

Exploratory Factor Analysis of Customer Loyalty - The KMO value for the 7 items of customer loyalty was 0.888, and the Sig value was significant. Based on this, using the principal component analysis method, the factors in the original data were extracted based on the criterion that the eigenvalue was greater than 1. Then, using the maximum variance method, the factors were rotated, and the test results are shown in Table 3-7.

Table 3-7. Convergence Validity Test of Relationship Quality Measurement Variables

	Component
	1
CL11	0.781
CL12	0.752
CL13	0.837
CL14	0.845
CL21	0.81
CL22	0.782
CL23	0.755

Confirmatory Factor Analysis of Customer Loyalty - As shown in Table 3-8, the λ values of all measured variables are greater than 0.6, and the AVE and composite reliability meet the requirements, indicating that the convergent validity of

the scale has been achieved.

Table 3-8. Convergent Validity Test of Customer Loyalty Measurement Variables

		λ	CR	AVE
CL	CL11	0.843	0.9192	0.6221
	CL12	0.837		
	CL13	0.735		
	CL14	0.7		
	CL21	0.621		
	CL22	0.871		
	CL23	0.877		

(4) Correlation Analysis

The detailed results are shown in Table 3-9. There is a significant positive correlation between each variable and dimension. This provides preliminary evidence that the hypotheses of this study are valid.

Table 3-9. Correlation Analysis

	CP1	CP2	CP3	CP	PPM	CL
CP1	1					
CP2	.605**	1				
CP3	.609**	.640**	1			
CP	.851**	.887**	.849**	1		
PPM	.435**	.432**	.421**	.497**	1	
CL	.577**	.554**	.459**	.618**	.728**	1

***p<0.01, **p<0.05, *p<0.10

(5) Regression analysis and hypothesis testing

Customer Engagement and Customer Loyalty:

Taking the three dimensions of customer engagement as independent variables and customer loyalty as the dependent variable, a regression model was established between customer fit and customer loyalty. According to Table 5-11, the adjusted R-square value is 0.393, F = 63.934, and it is significant at the P < 0.001 level. Therefore, the three dimensions of customer engagement have a good fit with the dependent variable model, explaining 39.3% of the dependent variable.

The data shows: The VIF values of the three dimensions of customer engagement are 1.816, 1.933, and 1.95 respectively, and the tolerance values are 0.551, 0.517, and 0.513 respectively. They meet the regression requirements, indicating that the collinearity among the three variables is not obvious and there is no multicollinearity problem. Thus, it will not have a significant impact on the regression results.

In addition, at the three levels of information sharing, cooperative behavior, and interpersonal interaction, there are significant correlations with customer loyalty, with standard coefficients β values of 0.368, 0.306, and 0.1 respectively, supporting the research hypotheses H1a, H1b, and H1c.

Table 3-10. Analysis of Customer Participation and Customer Loyalty Retention

	CP1	CL C2	CP3
B	0.345	0.246	0.1
SE	0.058	0.051	0.078
β	0.368	0.306	0.1
t	5.977	4.822	1.294
Sig.	<0.001	<0.001	<0.001
Adj R2		0.393	
VIF	1.816	1.933	1.95

Customer participation has a significant impact on customer loyalty. The regression coefficient value is 0.618 (p < 0.001), and the empirical results show that the hypothesis H1 of this study is valid. Higher customer participation will significantly reduce consumers' transfer choices. It is conducive to the establishment and maintenance of the relationship bond between both parties. Even in the case where the seller makes mistakes, the relationship between customers and merchants is still good. High-quality customer participation is an effective way to increase enterprise customer loyalty.

Furthermore, by comparing the Beta values of each dimension, it was found that the regression coefficient between the information sharing dimension of customer participation and loyalty is the highest at 0.368, followed by cooperative behavior at 0.306, and finally interpersonal interaction at 0.1. This indicates that information sharing and cooperative behavior have a greater impact on customer loyalty than interpersonal interaction.

Such results may be related to the online consumption environment. Compared with traditional consumption patterns, online consumption has significant differences. It is difficult to touch and observe products or services through senses other than the eyes. One can only understand products and services by relying on the web to publish information about them and through online communication and interaction. Therefore, timely and accurate information sharing plays a positive role in building online customer loyalty. The accuracy of online information interaction will be more conducive to enhancing online customers' customer loyalty. At the same time, during the customer participation process, collaborative behavior also has a great impact on consumers' loyalty. This is because when shopping online, consumers have gained a lot of knowledge about the products and services provided by the enterprise, and have made various investments such as intelligence, physical effort and emotions. These investments have formed consumers' sunk costs, which is also the reason why consumers choose to consume from this enterprise again. Therefore, customer participation can effectively enhance customer loyalty.

Customer participation and perception preference matching:

Taking the three dimensions of customer participation as independent variables and perception preference matching as the dependent variable, a regression model about the effect of customer participation on perception preference matching was constructed. From the regression results, it can be seen that the adjusted R-square value is 0.24, F = 31.59, and it is significant at the P < 0.001 level. These three dimensions can explain 24% of the total variance.

Furthermore, at the three levels of information sharing, cooperative behavior, and interpersonal interaction, there are significant correlations with perception preference matching, with β values of 0.216, 0.196, and 0.164, supporting hypotheses H2a, H2b, and H2c.

The regression coefficient value of customer participation and perceived preference matching is 0.497 (p < 0.001). This indicates that consumer participation has a significant effect on perceived preference matching, thus hypothesis H2 is established. Positive customer participation is undoubtedly beneficial for enhancing consumer perceived preference matching.

Table 3-11. Regression Analysis of Customer Participation and Perceived Preference Matching

	CP1	CL C2	CP3
B	0.345	0.246	0.1
SE	0.058	0.051	0.078
β	0.368	0.306	0.1
t	5.977	4.822	1.294
Sig.	<0.001	<0.001	<0.001
Adj R2		0.393	
VIF	1.816	1.933	1.95

As shown in Table 3-11, in the dimension of customer participation, information sharing has the greatest impact on perceived preference matching. In online consumption, good information sharing enables customers to fully understand the entire service process and improve the control of the online consumption process, which will be beneficial for providing products that better match the customers' preference settings. In customer participation, people's interpersonal interaction mainly involves communication and interaction between merchants and consumers. Enterprises are increasingly emphasizing online interaction with consumers, which is conducive to understanding customer preferences and satisfying customers. Cooperative behavior also has a significant impact on the matching of customer perceived preferences. During online consumption, if consumers invest sunk costs in a certain enterprise, this will help consumers develop a dependence on that enterprise. Long-term trading relationships will be conducive to strengthening the compatibility between the enterprise's products and the consumers' preferences.

Perceptual Preference Matching and Customer Loyalty:

Taking perceptual preference matching as the independent variable and customer loyalty as the dependent variable, a regression model regarding the impact of perceptual preference matching on customer loyalty was constructed. From the above regression results, it can be seen that the adjusted R-square value is 0.528, F = 326.757, and it is significant at the level of P < 0.001. This indicates that the fitting degree of the perceptual preference matching and customer loyalty model is good. It explains 52.8% of the overall variation of the dependent variable.

In addition, the β value between perceptual preference matching and customer loyalty is 0.728, supporting the hypothesis of this study.

By observing and analyzing Table 3-12, it was found that there is a significant correlation between consumers' perceptual preference matching and customer loyalty. Therefore, the hypothesis H3 of this study is established.

Table 3-12. Regression Analysis Table of Perceptual Preference Matching and Customer Loyalty

	CL PPM
B	0.676
SE	0.037
β	0.037
t	0.728
Sig.	18.076
Adj R2	<0.001
VIF	0.528

The mediating role of perception preference matching:

This paper examines the mediating effect of perception preference matching. Based on the analysis and tests conducted in this chapter, it can be seen that customer participation is significantly related to perception preference matching and customer loyalty, and perception preference matching is also significantly related to customer loyalty.

Table 3-13. Regression analysis of the mediating role of relationship quality

	CL			
	Model1	Model2	Model3	Model4
CP	0.618*** 0.34***	0.577***	0.554***	0.459***
CP1		0.321***		
CP2			0.294***	
CP3				0.186***
PPM	0.559***	0.588***	0.601***	0.65***
F	232.823***	229.354***	229.354***	182.56***
***p<0.01, **p<0.05, *p<0.10				

Model 1 is a regression analysis of control variables, independent variables, mediating variables, and dependent variables. The F value of Model 1 is 84.214 (p < 0.001). After adding the mediating variable of perceived preference matching, the mediating variable has a significant positive impact on the dependent variable (β = 0.559, p < 0.001), and the influence of the independent variable on the dependent variable remains significant, but the regression coefficient has decreased from 0.618 to 0.34, indicating that perceived preference matching has a partial mediating effect between customer participation and customer loyalty, verifying Hypothesis H4a.

Model 2 is a regression analysis of control variables, independent variable of the information sharing dimension of customer participation, mediating variable, and dependent variable. The F value of Model 2 is 27.913 (p < 0.001). After adding the mediating variable, it can be seen that perceived preference matching has a significant positive impact on customer loyalty (β = 0.588, p < 0.001), and the influence of information sharing on customer loyalty is still significant, but the regression coefficient has decreased from 0.577 to 0.321, indicating that the mediating variable plays a partial mediating role between information sharing and the dependent variable, verifying Hypothesis H4b.

Model 3 is a regression analysis of control variables, independent variable - customer participation in cooperative behavior dimension, mediator variable and dependent variable. The F value of Model 3 is 72.950 (p < 0.001). After adding the mediator variable, it can be seen that perceived preference matching has a significant positive impact on customer loyalty (β = 0.601, p < 0.001), and the influence of cooperative behavior on customer loyalty remains significant, but the regression coefficient has decreased from 0.554 to 0.294, indicating that perceived preference matching plays a partial mediating role between cooperative behavior and the dependent variable, verifying Hypothesis H4c.

Model 4 is a regression analysis of control variables, independent variable - interpersonal interaction dimension, mediator variable and dependent variable. The F value of Model 4 is 72.762 (p < 0.001). After adding the mediator variable - perceived preference matching, it can be seen that

perceived preference matching has a significant positive impact on customer loyalty ($\beta = 0.65$, $p < 0.001$), and interpersonal interaction still has a significant impact on customer loyalty, but the regression coefficient has decreased from 0.459 to 0.186, indicating that perceived preference matching plays a partial mediating role between responsibility behavior and customer loyalty, verifying Hypothesis H4b.

5. Conclusion

(1) Research conclusion

Through empirical analysis, the following conclusions can be drawn:

In the Internet environment, customer participation has a significant promoting effect on customer loyalty. And all three dimensions have had a positive impact on customer loyalty. Among them, information sharing and cooperative behavior have a greater influence on customer loyalty compared to interpersonal relationships. Based on this, the online participation behavior of customers is indeed a key factor in promoting the formation and enhancement of customer loyalty. Positive customer participation behavior can effectively reduce customers' tendency to switch, thereby enhancing customer loyalty.

Customer participation is positively correlated with perceived preference matching. During the online consumption process, consumers will spend their time, energy, and various costs, which also enables enterprises to obtain consumers' preference information. Effective information sharing can help consumers establish more scientific consumption expectations, thereby reducing the value gap between consumers' expectations and reality, and helping consumers have a clearer understanding of the overall service process, improving their control over the online consumption process. All of these will be conducive to the improvement of perceived preference matching. Cooperative behavior causes consumers to incur hidden consumption costs, which is beneficial for enterprises to further understand consumers and upgrade their products and services. During the customer participation process, through interpersonal interaction, enterprises can better understand consumers' core needs and provide more personalized products and services for consumers.

Perceptual preference matching has a positive effect on customer loyalty. The more a network consumer perceives that the product and service conform to their preferences, the more likely they are to maintain contact with online sellers and be willing to recommend them to others, thus becoming loyal customers of the business. High levels of perceptual preference matching not only enhance customer loyalty but also increase customer purchases.

Perceptual preference matching plays a partial mediating role in the influence of customer participation on customer loyalty. While enterprises fully mobilize the enthusiasm of online customers for participation, they should also strive to meet the needs of customers, thereby enhancing customer loyalty.

(2) Management Suggestions

Based on the above content, this study will provide relevant operational management suggestions for online marketing managers.

Respond promptly to customer needs and enhance interpersonal interaction with online customers: Compared to traditional consumption patterns, the most significant feature of online consumption is the ability to present products and services from thousands of miles away to consumers. However, it also exposes its shortcomings: lack of humanization. Online consumption pursues speed and intuitiveness, often lacking face-to-face communication between offline merchants and consumers. This consumption mode gives people a feeling of stiffness and coldness. Moreover, online consumers find it difficult to directly touch and browse products through touch or other methods, relying only on online information. Therefore, interpersonal communication with customers becomes particularly important. By analyzing consumers' preferences, enterprises can better provide products or services suitable for them. Due to the fast and low-cost characteristics of the Internet, enterprises need to conduct efficient and interactive communication with consumers online. Enterprises can actively listen to the voices of online consumers and make corresponding adjustments to customers' needs, which can effectively enhance customer loyalty.

Improve the layout design of the page to make it easier for customers to obtain information: Enterprises should, based on the habits of users browsing web pages, strive to simplify the relevant product web pages, so that customers can more easily obtain information about related products and services. Emphasize creativity and novelty, highlight the unique features of the products or services, and prominently mark the prices and related safety information on the web pages, thereby reducing the perceived risks of online consumers and enabling them to obtain the most information in the shortest time. Increasing consumers' access to information is conducive to their rational expectations for consumption behavior, thereby narrowing the gap between their expectations and actual feelings.

Guide customers to search for the required information and increase their participation: In online consumption, the phenomenon of information asymmetry is more prominent. Consumers need to have a more genuine and comprehensive understanding of the goods and services they are concerned about. Therefore, in order to better stimulate customers' enthusiasm for participation, it is necessary to provide as detailed and objective explanations as possible for the products, along with clear pictures. Merchants should design the store's website as clearly and completely as possible to reflect the items being sold. A simple, beautiful, easily searchable, and clearly categorized web image can provide netizens with a comfortable and convenient experience, set up a mutual assistance and answer channel for online users, and also enhance the user's participation experience.

Strengthen personalized marketing and precisely improve the matching of perceived preferences: As consumers' purchasing power continues to rise, they are also increasingly emphasizing the personalized experience of online consumption. Research shows that when the quality differences of goods or services are not significant, providing personalized services and a pleasant consumption experience can effectively enhance customer loyalty. Companies should, based on the specific needs and preferences of existing customers, timely offer appropriate products and services to current customers. At the appropriate time, enterprises need to enhance customers' awareness of the current customer-perceived preference match, such as conducting satisfaction surveys regularly. This can improve consumers' understanding of their own preferences and product matching, thereby effectively updating customer loyalty.

Therefore, enterprises should fully recognize and objectively analyze consumers' consumption orientations, improve and innovate products based on consumption preferences, and pay attention to the customer experience. This will help increase customer loyalty and lay the foundation for the enterprise to build a sustainable competitive advantage. With loyal customers as support, the enterprise can avoid intense price competition and meaningless promotions, and can provide personalized products and services suitable for customers through interaction channels with customers.

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