

Research on the Influencing Factors of Customer's Purchasing Intention in Virtual Brand Community

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Abstract: This study builds a model based on the influence of members of the virtual brand community. The empirical results show that: interactive fairness positively affects the information quality of positive electronic word-of-mouth, brand community identity and customer purchase intention. The information quality of positive electronic word-of-mouth positively affects brand community identity and customer purchase intention. Brand community identity positively affects customer purchase intention. This study demonstrates the impact of community managers and other community members on customers' willingness to purchase, while providing advice on business operations.

1. Introduction

Virtual brand community is a virtual community and brand community formed by a brand enthusiast and made relevant behavior around the brand [1]. Customers interact with the brand through the virtual brand community. In the process of participating in the community, they will be influenced by the community, which will change their attitude and behavior. Virtual brand community carries out business activities around brand interests. Enterprises want consumer brands, which makes exploring the community factors affecting customers' purchase intention become the key. Previous studies have discussed the antecedents of customer purchase intentions from the aspects of brand influence, consumer attributes, and electronic word of mouth. However, these studies have not paid enough attention to the influence of community members. Therefore, this study is based on the influence of community members (administrators, other community members) on the promotion of customers' willingness to purchase in virtual brand communities, in order to solve the following problems:

People will conduct judicial assessments (including online environments) in any social exchange, and fairness is an important indicator of evaluation [2]. Administrators (moderators of different posting sections, etc.) are the actual performers of community management, responsible for day-to-day transaction processing and solving community member issues. Therefore, customers inevitably interact with managers to form a view of fairness, so how will customers' view of interactive fairness affect purchase intention?

E-word-of-mouth is an important factor affecting customers' attitudes and purchasing intentions. Active E-word-of-mouth plays an active role. However, the positive e-word-of-mouth created and disseminated by the means of positive feedback, posting points and so on bring customers to examine fatigue and ask them to be cautious. This makes it necessary for the customer to subjectively judge the quality of the positive electronic word-of-mouth information provided by the community members to screen the available information. Will this judgment be influenced by the administrator and how it will affect the purchase intention?

What role will brand community identity play as a customer's attitude towards the community?

2. Literature Review

2.1 Interactive Justice.

Interactive fairness is one of the three dimensions of organizational justice (distribution fairness, interactive fairness, procedural fairness). It mainly involves management's behavior towards subordinates, emphasizing the individual's perception of the supervisor rather than the organization [3]. Interactive fairness has interpersonal components, reflecting the dignity and respect of individuals in the execution of procedures or decisions, and it has an information component that emphasizes the fairness and authenticity of decision-making [4]. Research literature related to service confirms that customers will form their attitudes and behavioral intentions based on service encounters, where service encounters are customers' judgments of interaction fairness [2]. Therefore, customers perceive the fairness of interaction from their interaction with managers. They form their subjective views by judging the fairness of this interpersonal relationship. At the same time, interactive fairness affects customers' attitudes and behavior willingness, which is an important factor in customer decision-making.

2.2 Electronic Word of Mouth.

Electronic word-of-mouth in business activities such as e-commerce and social commerce is full of online communities. Previous studies have discussed the antecedents [5] and results [6] for the creation and use of electronic word-of-mouth, and more in-depth studies have divided electronic word-of-mouth into positive and negative parts for evaluation. Although their focus relates to customers, such as customer classification and the degree of matching between two electronic word-of-mouth [7]. But it ignores the customer's subjective judgment on electronic word of mouth. Customer measurement of the quality of information is a subjective view, and this perception represents a tendency to believe and agree to use electronic word of mouth. Therefore, information quality is the main part of the influence of electronic word-of-mouth on customers. Usually, positive e-word-of-mouth will bring positive customer intentions. Therefore, customers' evaluation of the information quality of positive e-word-of-mouth should be taken seriously. However, previous studies have paid less attention to the role of electronic word-of-mouth information quality, so this study will discuss it.

2.3 Brand Community Identity.

Brand community identity theory is developed from social identity theory, focusing on explaining the process of customer social identity in brand community. Brand community identity is one of the important symbols to maintain customer's emotional connection with the community. It refers to the sense of belonging of members to the community [1]. At the same time, it is also considered that customers classify themselves into a certain group of cognitive [8]. In general, brand community identity includes two dimensions of brand identity and group identity [9]. Therefore, the brand community identity reflects the customer's attitude towards the brand and the virtual community, which is a comprehensive concept.

3. Research Hypothesis

3.1 Interactive Fairness and Information Quality.

Interactive fairness is positively correlated with trust [10]. Administrators are agents of brands and communities. When customers perceive higher interactive justice from administrators, they trust communities and tend to brand emotionally. This attitude may extend to most things in the community, so they may have confidence in e-word-of-mouth in the community. At the same time, emotional tendencies make them more willing to believe that positive e-word-of-mouth has a higher quality of information. On the other hand, customer perceptions of interaction fairness in a networked environment can increase their continued and positive word-of-mouth intent [2]. Pushing people and people, they may think that the positive electronic word of mouth from other community

members is as real and reliable as the ideas they express. Based on the above discussion, hypotheses are proposed:

H1: The interaction of customers perceived by the administrator is positively affecting the quality of positive electronic word-of-mouth information.

3.2 Interactive Fairness and Brand Community Identity.

Organizational management research has found that individuals tend to be more strongly identifiable to their organization because of the high degree of fairness they receive from administrators [11]. People will have positive cognitive, emotional, and behavioral responses to the sources of perceived interaction equity [12]. Therefore, when customers perceive a higher level of interaction fairness from the administrator, they will identify with the administrator. In the virtual brand community, the administrator is the agent of the brand and the community, so the customer identity administrator expresses their recognition of the brand community, so the hypothesis is put forward:

H2: Interactive equity perceived by customers from administrators has a positive impact on brand community identity.

3.3 Interactive Fairness and Purchasing Intention.

Studies have shown that interactive fairness is a strong predictor of customers' willingness to use in the future [13]. In contextual studies of service failures and service recovery, products and service providers that deal with service failures to maintain interaction fairness actively promote customer purchase intentions [14]. It can be found that interactive fairness can affect customers' purchase intention, even in the above difficult situations, it still has influence, so the hypothesis is put forward:

H3: Interactive fairness perceived by customers from administrators positively affects purchase intention.

3.4 Information Quality and Brand Community Identity.

Information quality is one of the important factors for perceived benefits of online brand community participants [15]. When brand community customers perceive information benefits, they will encourage them to be positive towards the community [16]. Customers need to judge and screen the information they get to make decisions. The higher information quality of positive e-word-of-mouth will make them feel profitable from the information and have a positive attitude towards the information source (i.e. the virtual brand community). Therefore, the hypothesis is put forward:

H4: The information quality of positive e-word-of-mouth positively affects brand community identity.

3.5 Information Quality and Purchasing Intention.

Customers' perceived quality from products and services in retail environment can promote their willingness to buy [17]. In the virtual brand community, customers are unable to access physical products and experience all services, so their judgment of quality before purchasing depends on the experience of other community members. That is, customer perceived quality is obtained from the electronic word of mouth of others. The customer will judge the credibility of the positive electronic word-of-mouth to form a subjective judgment on whether the quality of the product and service is high. At this time, the information quality represents the perceived quality of the customer, thus affecting the customer's willingness to purchase. Therefore, the hypothesis is:

H5: The quality of information on positive electronic word-of-mouth is positively affecting purchase intention.

3.6 Brand Community Identity and Purchase Intention.

Previous studies have found two results: brand identity is positively related to customer purchase intention [9]. Group identity is positively related to customer repurchase intention [18]. Brand

community identity is composed of brand identity and group identity. The hypothesis is based on the evidence that two dimensions positively affect customers' purchase intention.

H6: Brand community identity positively affects purchase intention.

According to the research hypothesis, the research model is shown in Fig.1.

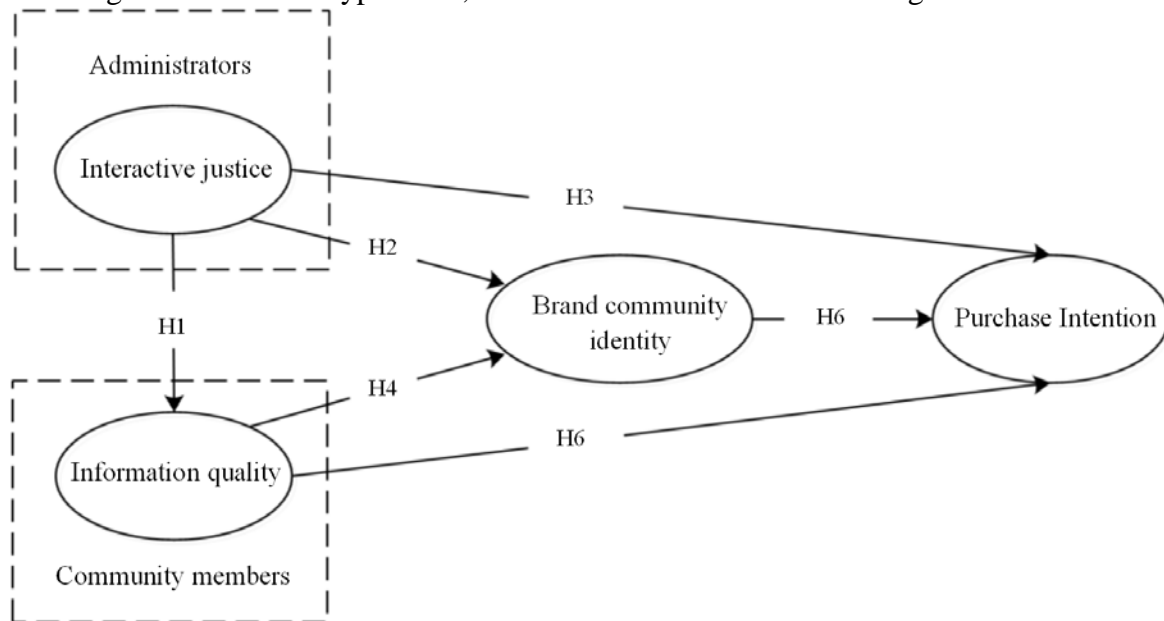


Fig.1 Research model

4. Research Design

4.1 Research Sample.

This study conducted online research in major virtual brand communities, conducted online and offline research in Chengdu, screened 324 questionnaires and 287 questionnaires were valid, with an effective rate of 88.58%. Among them, 37.28%, 21.25%, 16.38%, 13.94% and 11.15% were from millet community, pollen club, apple forum, OPPO official community and other communities respectively. Men (54.36%) were more than women (45.64%), and the age distribution was under 20 (9.76%), 20-30 (52.61%), 31-40 (32.75%), and 40 (4.88%). They are studying or have high school/secondary school and below (18.47%), undergraduate/college (66.2%), master's degree or above (15.33%), and these people join the community for 1 year (17.07%), 1-2 Year (35.54%), 2-3 years (30.66%), and 3 years or more (16.73%).

4.2 Scale and Reliability and Validity Analysis.

The scale was adapted from the more mature study, and three variables were set for each variable. The interactive fair scale was adapted from Harold et al. [19]. The scale of information quality was adapted from Erkan and Evans [20]. The scale of brand community identity and willingness to purchase was adapted from Li Xianguo et al. [9]. The three issues of brand community identity come from two dimensions of brand identity and group identity.

As shown in Table 1 and Table 2, the factor load of all items is greater than 0.6, the Cronbach's alpha of each variable and the CR coefficient of combination reliability are greater than 0.7, which indicates that the scale has high reliability. The AVE values of each variable are greater than 0.5 and greater than the square of the person correlation coefficient between the two variables, which indicates that the scale has high convergence validity and differential validity.

Table 1 Scale and reliability analysis

Variable	Item	Standardization factor load	Cronbach's α	CR
Interactive justice	The administrator seems willing to help me.	.746***	.799	.799
	Administrators communicate information in time	.783***		
	Administrators are honest in their communication with me	.736***		
Information quality	Positive information about the brand's products and services shared by community members:		.768	.770
	I think they are understandable.	.717***		
	I think they are very clear.	.782***		
	Overall, I think they are of high quality.	.677***		
Brand community identity	Community members and my friendship are very important to me.	.690***	.792	.794
	When community members plan to do collective activities and other things, I think it's "we" to do, not "they" to do.	.788***		
	Community members share common goals with me	.769***		
Purchase Intention	If the community launches new products, I'd be happy to buy them.	.683***	.759	.761
	When someone asks me for my opinion on the new product in the community, I recommend it for purchase.	.779***		
	I will continue to buy new products from the community in the future.	.687***		

Note: *** $P < 0.001$.

Table 2 Validity analysis

	Interactive justice	Information quality	Brand community identity	Purchase intention
Interactive justice	.570			
Information quality	.084(r^2)	.528		
Brand Community Identity	.219(r^2)	.120(r^2)	.563	
Purchase intention	.194(r^2)	.247(r^2)	.275(r^2)	.515

Note: The value of the diagonal is the variable mean variance extraction (AVE); the value of the lower triangle is the square of the person correlation coefficient between variables (r^2).

5. Empirical Analysis

5.1 Confirmative Factor Analysis and Common Method Deviation Test.

The confirmatory factor analysis (CFA) using Amos 22.0 shows that the model fits well: $\chi^2 = 65.173$, $df = 48$, $\chi^2/df = 1.36$ within the 1-2 standard, $RMR = 0.019$ less than 0.05, $RMSEA = 0.035$ less than 0.08, $GFI = 0.965$, $AGFI = 0.942$, Indicators such as $CFI = 0.985$ are greater than 0.9. Calculation factor CFA ($\chi^2 = 500.444$, $df = 54$) and difference between multi-factor CFA (2 = 65.173, $DF = 48$) is worth noting: $\Delta\chi^2 = 435.271$, $\Delta df = 6$, The significance of the model difference is $p < 0.001$, indicating that the model is not affected by the common method bias.

5.2 Hypothesis Test.

The data analysis results show that all hypotheses are supported, and the results are shown in Fig.2.

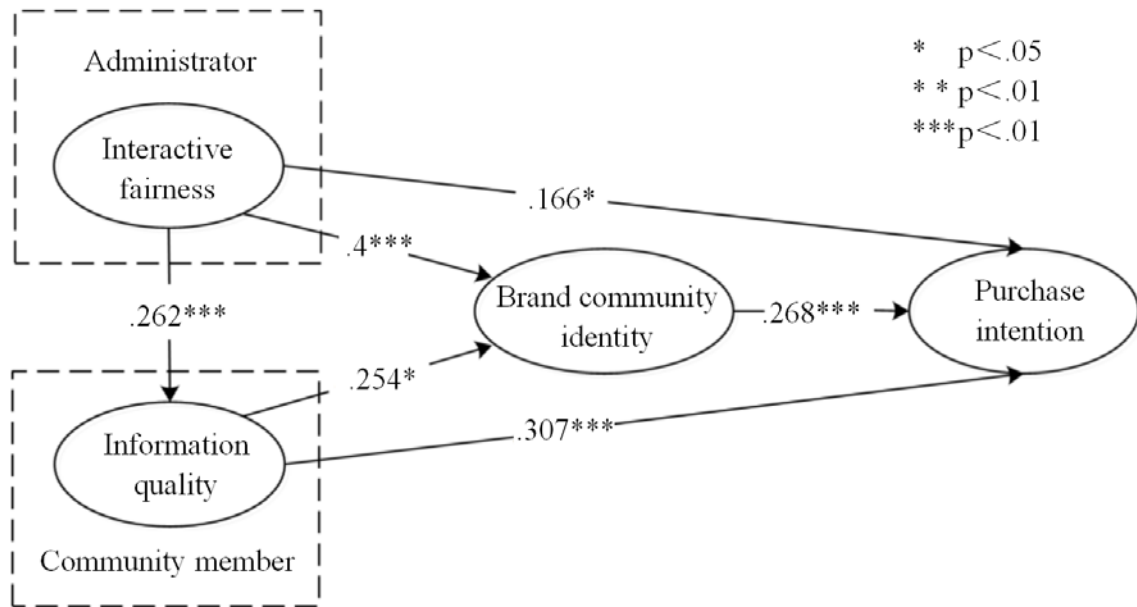


Fig.2 Analysis results

5.3 Mediation effect test.

The mediation effect was analyzed by the Bootstrap method. The results are shown in Table 3. The three values of the P value of the point estimate are significant, the Z value is >1.96 , and the 95% confidence interval is zero. The model has two intermediary paths: “interaction fairness→information quality→purchasing intention” and “interaction fairness→brand community identity→purchase willingness”. That is to say, information quality and brand community identity play a mediating role, and there is no chain mediating effect in the impact of interactive equity on purchase intention.

Table 3 Mediation effect test

Point estimate	S.E.	Z	Bias-corrected(95%CI)		Percentile(95%CI)		Mediation effect
			Lower limit	Upper limit	Lower limit	Upper limit	
Total indirect effect							
.244***	.053	4.652	.148	.356	.139	.344	
Indirect impact: interactive fairness → information quality → purchase intention							Partial intermediary
.096**	.030	3.139	.043	.165	.041	.162	
Indirect impact: interactive fairness → brand community identity → purchase intention							Partial intermediary
.128**	.045	2.821	.047	.225	.041	.218	
Indirect impact: interactive fairness → information quality → brand community identity → purchase intention							No intermediary
.021	.011	1.856	.007	.054	.004	.049	

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; bootstrap sample size = 2000.

6. Conclusion

Based on the analysis of the mechanical theory as the foundation, designed the soccer robot pick the ball institutions optimal design process, found aim function, select design variables and the corresponding optimization algorithm to optimize a complete set of institutions. At last through the test to get the final performance parameters of the institution. Experiments show that the system has higher accuracy and stability, the new optimize pick the ball have design basic requirements, and

achieved good ideal control effect.

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