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Integrating Technology Acceptance Model With Social Capital Theory to Promote Passive Users' Continuance Intention Toward Virtual Brand Communities

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ABSTRACT Passive users' continuance usage intention is very important to the sustainable and healthy development of virtual brand communities. Therefore, the factors influencing passive users' continuance usage intention is worth investigating more comprehensively and systematically. This study proposed a research model which integrates technology acceptance model (TAM) with social capital theory to investigate passive users' continuance intention. An online survey was conducted for data collection to test the proposed hypotheses, and structural equation modeling in AMOS was utilized for data analysis. The results suggest that trust and reciprocity have significantly positive direct effects on passive users' continuance intention. Shared vision can significantly influence passive users' continuance intention through the mediating effects of trust and reciprocity. Meanwhile, perceived usefulness and perceived ease of use indirectly affect passive users' continuance intention through the multiple mediation roles of shared vision, trust and reciprocity. Finally, specific suggestions for virtual brand community managers are also proposed.

INDEX TERMS TAM model, social capital theory, virtual brand community, passive user.

I. INTRODUCTION

A virtual brand community is typically defined as “a specialized, non-geographically bound community, based upon social relationships among admirers of a brand in cyberspace” [1]. Virtual communities are important ways to acquire information for individuals. With the rapid development of information technology, individuals are more willing to use virtual communities for communication and information acquisition. In order to solve problems or meet information needs, individuals join in a large number of virtual communities with different themes [2]. Previous research has found that virtual brand communities have important effects on individuals' perceptions and behaviors, such as knowledge sharing [3], brand engagement [4], [5], brand loyalty [6], [7], and repurchase intentions [8], [9]. With the power, virtual brand communities have become important marketing tools for companies. A large number of companies

have established virtual brand communities to strengthen the relationship between the company and customers, with the intent of increasing customers' loyalty and continuous purchase intentions [1], [7], [10].

The healthy and sustainable development of virtual brand communities is inseparable from community members' continuance participation that can facilitate the integration and cohesion of the virtual community by attracting more people with common interests, needs, or experiences [1], [2], [11]. Members' continuance participation can be divided into active participation and passive participation [1], [12]–[16]. Active participation mainly involves members' knowledge sharing, content generation, help seeking, and information interaction. Passive participation is lurking, that refers to the behavior of only viewing messages without posting a message and engaging in direct interaction with others [7], [13]. People who lurk are called lurkers that is named as passive users in this study. In order to promote members' continuance participation in virtual communities, previous research has applied multiple theories to study the active participation

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behavior [2], [17]–[20], while research on the passive participation behavior is still understudied.

Some researchers believe that the passive participation behavior of passive users will inhibit the healthy development of virtual communities. However, with the deepening of research, some other researchers found that passive participation behavior is a significant way for community members to participate [1], [7], [12], [21]–[23], which has a very important role in the healthy and sustainable operation of virtual communities. Passive participation behavior not only allows passive users to understand various information of the company's products and promote their continuous purchase behavior, but also promotes the information in the virtual community to diffuse to a wide audience [7]. For online community sponsors and operators, passive users are important because they are part of the traffic who contribute to volume on servers and respond to advertising and selling.

Information communication behavior in virtual communities is mainly maintained by a small number of core members, and most members always lurk [1], [24]. At present, lots of passive users have joined many virtual brand communities and become loyal members of those virtual brand communities. If a community ignores the passive participation behavior, passive users may no longer browse and read the information in this community, and even quit the community. At that case, companies may lose a large number of loyal customers. Therefore, in order to attract more users and sustain its competitiveness, virtual brand community managers should pay attention to the continuance intention of passive users.

Previous research has found that sociability and usability of virtual communities are crucial to users' continuance intention [21], [25]. Sociability refers to virtual community features that can facilitate members' interactions in achieving shared goals. Usability refers to the ease of use and subjective user satisfaction with a virtual community. Researchers have found social capital theory and technology acceptance model (TAM) can well measure the sociability and usability of virtual communities [21], [26], [27]. Thus, in order to motivate passive users' continuance intention toward virtual brand communities, this paper integrates TAM with social capital theory, and studies the factors influencing passive users' continuous intention from the perspectives of usability and sociability. Previous research has integrated TAM with social capital theory to promote people's continuance intention [11], [21], [27]–[30]. There are, however, two deficiencies in previous studies. First, there is no literature on the effect of passive users' collective social capital on their continuance intention in virtual brand communities. Since passive users do not interact with others frequently, they may not be able to accumulate individual social capital, but they can still accumulate collective social capital through lurking [10], [31], which may have an important effect on their continuance intention. Second, when studying the effects of perceived usefulness, perceived ease of use and social capital on continuance intention, previous literature has not studied the effect of perceived usefulness and perceived ease of use

on social capital. Given the important role of TAM and social capital theory, it is necessary to investigate their roles in passive users' continuance intention more comprehensively and systematically. Among other topics, some literature reports that perceived usefulness and perceived ease of use affect social capital [26], [32]–[34]. Due to passive users' special way of obtaining information in virtual brand communities, we propose that perceived usefulness and perceived ease of use indirectly affect passive users' continuance intention through collective social capital. Therefore, this paper will integrate TAM with social capital theory to study the structural relationship of perceived usefulness, perceived ease of use and passive users' collective social capital, to examine the inter-relationships among the different dimensions of passive users' collective social capital, and to examine their influences on passive users' continuance intention toward virtual brand communities.

II. LITERATURE REVIEW

A. SOCIAL CAPITAL THEORY

Social capital is the resource produced among people by relationships or by social networks. This kind of resource can give individuals the opportunity to pursue their interests. Social capital was defined as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit [35].” Nahapiet and Ghoshal proposed that social capital consists of three dimensions: structural capital, relational capital, and cognitive capital. Structural capital refers to the configuration and pattern of connection between network actors, that is, with whom and with what frequency they share information [36]. Relational capital refers to personal relationships that people have developed with each other through a history of interactions. Trust, reciprocity, obligations, and identification are among the key attributes of this dimension [35]–[37]. Cognitive capital refers to those resources providing shared representations, interpretations, and systems of meaning among parties. Several studies considered shared language, shared narratives, and shared vision as the major constructs of cognitive capital [35]–[37].

Social capital can be divided into individual social capital and collective social capital [6], [38]. Individual social capital is derived from the relationships between individuals and other members. This social capital is the “private goods” of individuals [39], serving the individuals, being shaped by the individuals' interaction with other members, and their position in the situated network. Collective social capital is owned by the organization formed by the individuals. This social capital is the “public goods” within the organization [39]. It serves the collective. Collective social capital is a resource that affects the capacity of community members to participate, cooperate, organize, and interact [35]. As long as individuals comply with the rules of the organization, they can own and benefit from the collective social capital of the organization. In virtual brand communities, passive users may not be able to accumulate individual social capital,

but they can still perceive collective social capital of the communities through lurking. Meek *et al.* [10] indicate that an individual's collective social capital can still be measured through factors such as trust, reciprocity, and common vision.

B. TECHNOLOGY ACCEPTANCE MODEL

Technology acceptance model (TAM), proposed by Davis [40], is widely utilized to predict and explain people's acceptance of information technology. Using TAM, previous studies recognize the importance of perceived ease of use and perceived usefulness in influencing the decision regarding user acceptance of information technology [41]–[44]. Perceived usefulness is “the degree to which a person believes that using a particular system will enhance his/her job performance”. For example, “electronic mail enables me to accomplish tasks more quickly” [45]. Perceived ease of use refers to “the degree to which a person believes that using a particular system would be free of effort”. For example, “learning to operate the electronic mail system is easy for me” [45].

C. THE ROLE OF TAM AND SOCIAL CAPITAL IN CONTINUANCE INTENTION

Research on the role of TAM and social capital in continuance intention falls into two types. First, some literature did not examine the inter-relationships among the different elements of TAM and social capital. That is, different elements of TAM and social capital are considered at the same level when studying their effects on continuance intention. Liao and Chou [21] proposed that virtual community participants' attitudes and intentions toward knowledge adoption were influenced by perceived usefulness, perceived ease of use and social capital. Chen and Qi [11] indicated that perceived usefulness, perceived ease of use and social capital positively affect members' continuance intention of knowledge sharing in academic virtual communities. Singh and Srivastava [27] asserted that social capital, perceived usefulness and perceived ease of use positively affect intention to use social media for travel purposes. Sun *et al.* [28] found that perceived usefulness and social capital positively affect Chinese users' continuance intention toward online social networks. The second type of research investigates the effect of social capital on perceived usefulness and perceived ease of use. Tsai [29] indicated that social capital significantly positively affects perceived ease of use and perceived usefulness that further influence users' usage intention of telehealth systems. Choi and Chung [30] found that social capitals are significant predictors of both perceived usefulness and perceived ease of use that affect users' intention to use SNS.

The frequency of interactions among members has a great effect on their structural capital [35]. For passive users, they always lurk and do not interact with other users in the virtual brand community, leading the frequency of interaction among members very low. Therefore, their individual structure capital and collective structure capital are both very small for passive users. Compared with collective structural capital,

collective relational capital (e.g., trust and reciprocity) and collective cognitive capital (e.g., shared vision) do not rely on the frequency of interactions among all members. Thus, these two social capitals are still key to passive users.

In this study, given the characteristics of passive users, we choose perceived ease of use and perceived usefulness to represent the elements of TAM, trust and reciprocity to represent collective relational capital, and shared vision to represent collective cognitive capital. We will first elucidate the structural relationship among perceived usefulness, perceived ease of use, shared vision, trust and reciprocity, and then explore the influence of these factors on passive users' continuance intention.

III. RESEARCH MODEL AND HYPOTHESES

A. THE INFLUENCE OF RELATIONAL CAPITAL ON CONTINUANCE INTENTION

Trust is a set of specific beliefs dealing primarily with the benevolence, integrity, and reliability of another party [35]. For example, “members in the virtual community will always keep the promises they make to one another” [46]. Trust has an important effect on information exchange, which can reduce the uncertainty of members and facilitate risk-taking behaviors [47]–[49]. When trust exists, people are willing to contribute important knowledge and to absorb each other's knowledge [36], [49], [50]. Prior studies have found that trust fosters loyalty to virtual communities [9], [17]. Consequently, it is reasonable to expect that if passive users can perceive trust in virtual brand communities through lurking, they will choose to stay in the communities and browse the content exchanged by other members. Therefore, we hypothesize:

H1. *In a virtual brand community, trust has a significantly positive influence on passive users' continuance intention.*

The reciprocity refers to a continuing relationship of exchange in which a party extending a resource to another obligates the latter to return the favor [51]. For example, “I know that other members in the virtual community will help me, so it's only fair to help other members” [46]. In virtual brand communities, reciprocity provides members with the assurance that their knowledge sharing could be rewarded from someone else in the long run [38], although such a reward may not be immediate and necessary from the beneficiary [52]. Reciprocity is a kind of conditional acquisition, implying that individuals anticipate future profit from their present activities [53]. Several studies have found that reciprocity can increase the frequency of interaction and promote information exchange among members [12], [21], [48]. When norm of reciprocity exists in virtual brand communities, passive users are more likely to trust the reliability of information in the community, and choose to stay in the communities and browse the content exchanged by other members. Therefore, we hypothesize:

H2. *In a virtual brand community, reciprocity has a significantly positive influence on passive users' continuance intention.*

B. THE INTERRELATIONSHIPS BETWEEN COGNITIVE CAPITAL AND RELATIONAL CAPITAL

Shared vision refers to shared values and mutual goals and understanding in a cooperative relationship [54]. For example, “members share the same vision for the community” [55]. A shared vision is regarded as a bonding mechanism that helps different parts of an organization to integrate and to combine resources [56]. A shared vision can increase the level of mutual understanding among organizational members. In turn, it can act as a resource influencing both the anticipation of value to be achieved through collaboration, and the motive for combining and sharing knowledge [54]. In virtual brand communities, shared vision makes it easier for members to understand each other and to tolerate each other, and it creates an environment of trust and reciprocity for information exchange. Prior studies have found that shared vision has significant positive effects on relational capital. Therefore, we hypothesize:

H3. *In a virtual brand community, shared vision has a significantly positive influence on passive users' perceived reciprocity.*

H4. *In a virtual brand community, shared vision has a significantly positive influence on passive users' perceived trust.*

C. THE INTERRELATIONSHIPS AMONG ELEMENTS OF TAM MODEL AND SOCIAL CAPITAL

At present, scholars have focused on the effect of elements of TAM on social capital. They found that the elements of TAM have a significant effect on individuals' social capital. For example, Raza *et al.* found that perceived usefulness and perceived ease of use significantly influence the building of both bridging and bonding social capital [26], [32], [34]. Jin [33] proposed that perceived usefulness and perceived ease of use play a positive and significant role in the building of social capital (including trust and reciprocity). In a virtual brand community, passive users do not have urgent information needs related to the community theme. Their information interaction in the virtual community gradually decreases, and becomes less frequently. Their individual social capital is no longer increasing. However, experiencing the usefulness and ease of use about the community, most passive users choose to stay in the community, and can perceive collective social capital such as trust, reciprocity, and shared vision when observing the interaction among other members. That is, perceived usefulness and perceived ease of use can enable passive users to accumulate different collective social capital. Therefore, we hypothesize:

H5. *Perceived usefulness of passive users has a significantly positive effect on shared vision.*

H6. *Perceived usefulness of passive users has a significantly positive effect on reciprocity.*

H7. *Perceived usefulness of passive users has a significantly positive effect on trust.*

H8. *Perceived ease of use of passive users has a significantly positive effect on shared vision.*

H9. *Perceived ease of use of passive users has a significantly positive effect on reciprocity.*

H10. *Perceived ease of use of passive users has a significantly positive effect on trust.*

As discussed above, based on TAM and social capital theory, we build a research model of factors influencing passive users' continuance intention towards virtual brand communities, as illustrated in Figure 1.

IV. RESEARCH METHOD

A. SAMPLE

In order to evaluate the proposed research model, an online survey was conducted in China during May to June in the year of 2019 in a virtual brand community that was built in 2012 and possesses more than 200,000 members with an interest in a brand of mobile phone. The members are fans of that mobile phone and most of them do not know each other before participating the virtual brand communities. Anderson and Gerbing (1984) advised that the CFA sample size should be more than 200 [57]. We recruited 700 passive users as subjects. These users did not engage in information interaction in the virtual brand community for more than 1 year, but truly received and read the propagated information in the last year. A total of 551 responses were returned, of which 504 were valid. Table 1 shows the sample demographics. About 58.73% of the respondents were male and 41.27% were female, and most (74%) were between the age of 18 and 28 years. 84.5% held a vocational degree or above. More than 87% of respondents visited the community at least once a month, and about 70% had a membership history of more than two years.

B. MEASURES

All the items were adapted from existing studies with consideration of the features of virtual brand communities, and used 7-point Likert scale. Items for perceived usefulness and perceived ease of use were adapted from Davis [40], items for reciprocity were adapted from Chiu *et al.* [46], Tang [58], *et al.* Kankanhalli *et al.* [59], items for trust were adapted from Chiu *et al.* [46], Chang, and Chuang [60], Choi [61], items for shared vision were adapted from Hsu [55], [62], and items for continuance intention were adapted from Chen and Qi [11], Wang, and Chiang [63]. All the items are shown in the Appendix.

V. DATA ANALYSIS AND RESULTS

The data analysis was carried out using SPSS24 and AMOS24. Following previous research, we analyzed the data in three stages. We firstly tested the common method biases with a factor analysis, then assessed reliability and the validity of the measurement model, and finally examined the structural model [64].

A. COMMON METHOD BIASES

According to previous research [65], common method bias exists if the first factor accounts for the majority of the

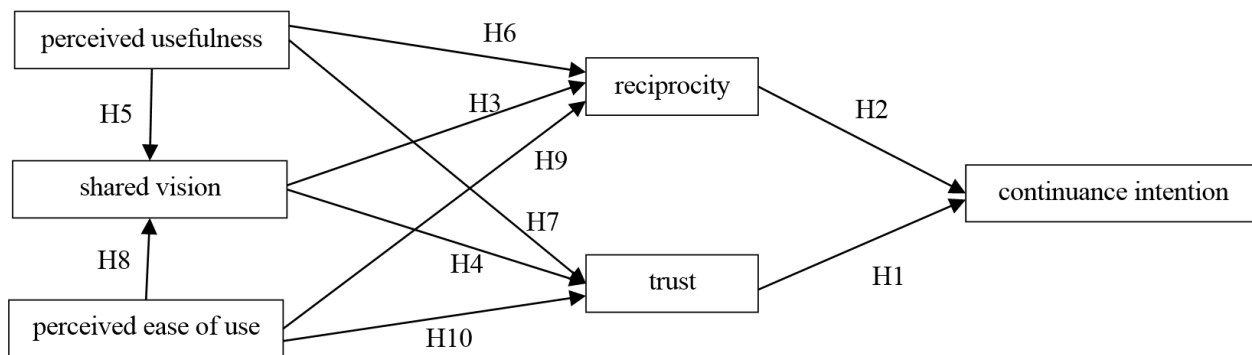


FIGURE 1. Theoretical research model.

TABLE 1. Demographic data of respondents.

Demographic variable	Categories	Frequency	Percentage
Gender	Male	296	58.73
	Female	208	41.27
Age	18 and below	36	7.14
	18-22	201	39.88
	22-28	172	34.13
	28 and above	95	18.85
Level of Education	Secondary school	78	15.48
	Vocational degree	132	26.19
	Bachelor degree	213	42.26
	Graduate degree	81	16.07
Usage Frequency	At least once a day	25	4.96
	At least once a week	98	19.44
	At least once a month	318	63.1
	At least once a half year	63	12.5
Length of the Community membership history	>1 year and ≤2 years	152	30.16
	>2 years and ≤3 years	286	56.74
	Over 3 years	66	13.1

covariance among the measures. The results show that the variance explained by the first factor was 31.062 %, which is less than 40%. Therefore, common method biases is not a big issue for the current study.

B. MEASUREMENT MODEL

Measurement model was assessed with reliability and construct validity. First, reliability was evaluated with composite reliabilities (CRs) which exceed 0.70 and the average variance extracted (AVE) of each construct which was above the threshold value of 0.50 [66] (see Table 2). Second, construct validity was assessed with convergent and discriminant validity. For convergent validity, all of the items loaded on their constructs above the cutoff value of 0.70 (see Table 2). Discriminant validity was confirmed by ensuring that the correlations between constructs were below 0.85 [67] and that all correlations between that factor and any other constructs were smaller than the square root of its AVE [68] (see Table 3). Overall, the instrument is with good psychometric properties.

C. STRUCTURAL MODEL

AMOS was used to examine the structural model. The result is displayed in Figure 2. All hypotheses were verified (see Table 4), and the fit indices of this model are shown as follows (see Table 5): Chi-square = 280.075, $\chi^2/df = 2.277$ (the recommended value is smaller than 3), GFI = 0.943 (the recommended value is bigger than 0.9), AGFI = 0.920 (the recommended value is bigger than 0.9), CFI = 0.981 (the recommended value is bigger than 0.9), NFI = 0.967 (the recommended value is bigger than 0.9), IFI = 0.982 (the recommended value is bigger than 0.9), and RMSEA = 0.05 (the recommended value is smaller than 0.08). These indices are within acceptable thresholds [68], indicating that the proposed model fits the data well.

D. MEDIATING EFFECT ANALYSIS

Based on the model in Figure 2, we find that shared vision may indirectly affect continuance intention through reciprocity and trust, and perceived usefulness and perceived ease of use may indirectly influence continuance intention through

TABLE 2. Measurement model.

Construct	Items	Mean	S.D.	Loading	AVE	CR	α
perceived usefulness	pu1	5.78	1.198	0.86	0.811	0.928	0.929
	pu2	5.87	1.117	0.94			
	pu3	5.87	1.135	0.90			
perceived ease of use	pe1	6.17	1.101	0.77	0.558	0.791	0.793
	pe2	5.61	1.394	0.73			
	pe3	5.34	1.441	0.74			
shared vision	sv1	5.86	1.176	0.83	0.746	0.898	0.898
	sv2	5.89	1.190	0.87			
	sv3	6.07	1.074	0.89			
reciprocity	r1	5.74	1.121	0.85	0.85	0.931	0.927
	r2	5.89	1.050	0.94			
	r3	5.88	1.046	0.92			
trust	t1	5.98	1.128	0.91	0.781	0.914	0.913
	t2	5.93	1.129	0.89			
	t3	6.04	1.038	0.85			
continuance intention	ci1	6.04	1.105	0.92	0.859	0.948	0.948
	ci2	6.04	1.087	0.95			
	ci3	6.13	1.026	0.91			

TABLE 3. Correlation matrix.

Variables	1	2	3	4	5	6
1. perceived usefulness	0.9					
2. perceived ease of use	0.540**	0.747				
3. shared vision	0.610**	0.454**	0.864			
4. reciprocity	0.655**	0.504**	0.676**	0.922		
5. trust	0.684**	0.531**	0.693**	0.800**	0.884	
6. continuance intention	0.604**	0.565**	0.561**	0.671**	0.724**	0.927

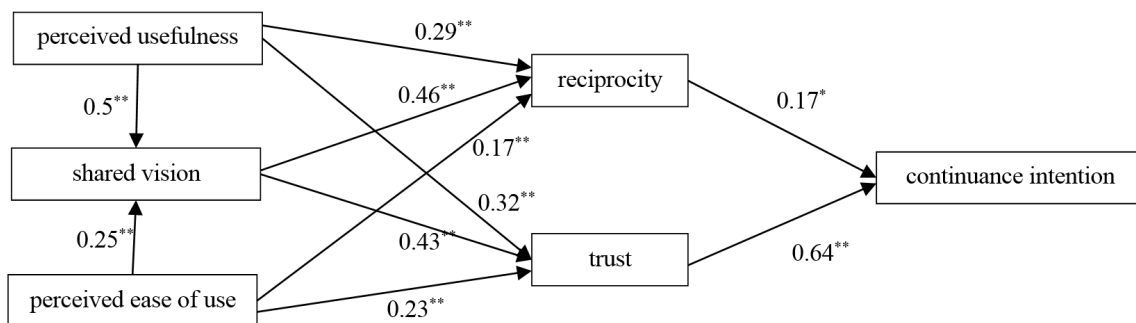


FIGURE 2. Structural equation model test results. Note: * and ** respectively stands for the significance when the significance level is 0.05 and 0.01.

the multiple mediation roles of shared vision, reciprocity and trust. Following previous literature, the hypothesized mediation model was analyzed using bootstrapping [69], [70]. In the present study, bootstrapping was performed with $k = 2000$ resamples and 95% percentile confidence intervals. For bias-corrected percentile confidence intervals, if zero is not between the lower and upper bounds, then the analyst can claim that the indirect effect exists. Otherwise, the indirect effect does not exist. We use the Bias-corrected percentile confidence interval to respectively analyze the significance of the mediating effect of reciprocity and trust on the influence of shared vision on continuance intention, and we analyze

the significance of the mediating effect of shared vision, reciprocity and trust on the influence of perceived usefulness and perceived ease of use on continuance intention. The results are shown in Table 6, and the mediating effects are all significant.

VI. DISCUSSION AND IMPLICATIONS

A. DISCUSSION

Passive users' continuance intention has great potential values for the sustainable and healthy development of virtual brand communities. Therefore, we develop a research model to investigate the factors influencing passive users'

TABLE 4. Standardized structural estimates and tests of the hypotheses.

Hypothesis	Path	Path coefficient	Estimate (t-value)	Test result
H1	trust→continuance intention	0.64	8.325	Supported
H2	reciprocity→continuance intention	0.17	2.231	Supported
H3	shared vision→reciprocity	0.46	9.087	Supported
H4	shared vision→trust	0.43	9.143	Supported
H5	Perceived usefulness→shared vision	0.5	8.991	Supported
H6	Perceived usefulness→reciprocity	0.29	5.679	Supported
H7	Perceived usefulness→trust	0.32	6.565	Supported
H8	perceived ease of use→shared vision	0.25	4.324	Supported
H9	perceived ease of use→reciprocity	0.17	3.375	Supported
H10	perceived ease of use→trust	0.23	4.758	Supported

TABLE 5. The recommended and actual values of fit indices.

Fit indices	chi2/df	GFI	AGFI	CFI	NFI	IFI	RMSEA
Recommended value	<3	>0.90	>0.80	>0.90	>0.90	>0.90	<0.08
Actual value	2.277	0.943	0.920	0.981	0.967	0.982	0.05

Note: chi2/df is the ratio between Chi-square and degrees of freedom, GFI is Goodness of Fit Index, AGFI is the Adjusted Goodness of Fit Index, CFI is the Comparative Fit Index, NFI is the Normed Fit Index, IFI is the Incremental Fit Index, and RMSEA is Root Mean Square Error of Approximation.

TABLE 6. Testing the pathways of the multiple mediation model.

Path	Standardized path coefficient	95% confidence interval	
		Lower	Upper
shared vision→reciprocity→continuance intention	0.079	0.027	0.183
shared vision→trust→continuance intention	0.284	0.189	0.439
perceived usefulness→reciprocity→continuance intention	0.047	0.008	0.119
perceived usefulness→trust→continuance intention	0.198	0.107	0.320
perceived ease of use→reciprocity→continuance intention	0.033	0.006	0.099
perceived ease of use→trust→continuance intention	0.171	0.076	0.311
perceived usefulness→shared vision→reciprocity→continuance intention	0.038	0.010	0.095
perceived usefulness→shared vision→trust→continuance intention	0.136	0.087	0.229
perceived ease of use→shared vision→reciprocity→continuance intention	0.023	0.003	0.061
perceived ease of use→shared vision→trust→continuance intention	0.081	0.038	0.150

continuance intention by integrating TAM and social capital theory. We choose perceived ease of use and perceived usefulness to represent the elements of technology acceptance model, and shared vision, trust and reciprocity to represent social capital. This work reveals three key findings as elaborated below.

First, we revealed that although passive users are less involved in information interaction in virtual brand communities, they can still accumulate collective social capital such as trust, reciprocity and shared vision through lurking. These perceived collective social capitals can influence passive users' continuance intention. This finding is similar to the findings of Tsai et al [10], [35] that virtual brand

community members can perceive collective social capital that can benefit both the organization and its members, and also foster members' positive attitudes toward communities.

Second, we found that trust and reciprocity have significantly positive and direct effects on passive users' continuance intention. Shared vision can significantly influence continuance intention through the mediating effects of trust and reciprocity (see Table 6). This shows that the collective social capital of passive users can affect their continuance intention through a certain structural relationship. Trust and reciprocity play mediating roles between shared vision and continuance intention. Shared vision can enhance passive users' perception of trust and reciprocity in a virtual brand

community, then accumulate their collective social capital such as trust and reciprocity that can reduce uncertainty and facilitate users' continuance intention. This finding is similar to previous studies that confirmed that individual cognitive capital can affect individual relational capital [71], [72].

Third, we reveal that perceived usefulness and perceived ease of use indirectly affect passive users' continuance intention through the multiple mediation roles of shared vision, trust and reciprocity (see Table 6). This indicates that perceived usefulness and perceived ease of use can not only promote the generation of social capital in different dimensions, but can also indirectly promote passive users' continuance intention through these collective social capitals. This finding is similar to previous studies that perceived usefulness and perceived ease of use are close related to individual bridging and bonding social capital [26], [33], [34].

B. THEORETICAL IMPLICATIONS

First, we revealed the relationship between collective relational capital and collective cognitive capital. Most previous studies focused on the individual social capital of active members, and have less studied the structural relationship among the different dimensions of passive users' collective social capital. Social capital is an important factor affecting individuals' information behavior. Our research findings extend the application of social capital theory to positive behavior of members in virtual brand communities.

Second, we integrate TAM and social capital theory with regard to the continuance intention of passive users in virtual brand communities. To our knowledge, this study is one of the first to demonstrate that perceived ease of use and perceived usefulness influence passive users' continuance intention through the multiple mediation roles of shared vision, trust and reciprocity. Previous studies have not examined the multiple mediating effect of different collective social capitals, and they often took collective social capital as a whole or put different dimensions of collective social capital at the same level.

C. PRACTICAL IMPLICATIONS

First, our empirical findings indicate that a good communication environment should make passive users perceive shared vision, trust and reciprocity through lurking, because collective social capital has significantly positive effects on passive users' continuance intention. This provides virtual brand community managers with suggestions that passive users' continuance intention has great potential values for the development of virtual brand communities. Therefore, virtual brand community managers should actively attract more members with common interests to join the community, promote the accumulation of shared vision within the community, and create a trusted and reciprocal environment for information exchange. In so doing, the passive users can perceive collective social capitals, and then stimulate their continuance intention.

Second, we find that perceived ease of use and perceived usefulness indirectly affects passive users' continuance intention through the mediating effect of collective social capital. This shows that perceived ease of use and perceived usefulness of virtual brand communities enable passive users to accumulate social capital at the collective level, and encourage passive users' continuance intention through their collective social capital. This finding suggests that virtual brand community managers should always investigate the information needs of passive users, tap their potential information needs, and timely release useful information to ensure the information needs of passive members can be met through lurking. At the same time, virtual brand community managers should attend to the timely adoption of new technologies that can attract more members to actively participate in contributing knowledge and exchanging brand experiences, so as to accumulate different collective social capital in the virtual brand communities.

D. LIMITATIONS AND FUTURE RESEARCH

There are two limitations to this study. First, although the three dimensions of social capital contain a variety of specific elements, we only choose three elements: shared vision, trust and reciprocity, which may not represent other social capital of the same dimension. Therefore, more social capital factors need to be studied. Second, our subjects are all from the same virtual brand community, which may limit the generalizability of our research findings. Thus, in future studies, passive users from more virtual brand communities should be recruited.

APPENDIX MEASUREMENT ITEMS

Perceived Usefulness:

PU1: Using the virtual brand community in my life can effectively meet my information needs about a product.

PU2: Using the virtual brand community in my life allows me to quickly find information about a product.

PU3: I find the virtual brand community useful in my life.

Perceived Ease of Use:

PE1: I find it easy to get the virtual brand community to do what I want it to do.

PE2: My interaction with the virtual brand community is clear and understandable.

PE3: It is easy for me to become skillful at using the virtual brand community.

Shared Vision:

SV1: Members in the virtual brand community share the same vision for the community.

SV2: There is a commonality of purpose among members in the virtual brand community.

SV3: Members in the virtual brand community share the same value that helping others is pleasant.

Reciprocity:

R1: I know that other members in the virtual brand community will help me, so it's only fair to help other members.

R2: I believe that members in the virtual brand community would help him/her if someone need it.

R3: When I share my knowledge through the virtual brand community, I believe that I will get an answer for giving an answer.

Trust:

T1: Members in the virtual brand community are truthful in dealing with one another.

T2: Members in the virtual brand community share the reliable knowledge that they have.

T3: Members in the virtual brand community show good intent to others in the forum.

Continuance Intention:

CI1: I will continue to use the virtual brand community in the future.

CI2: I will continue to increase my use of the virtual brand community.

CI3: I will continue to use the virtual brand community whenever possible.

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