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ABSTRACT

With the rapid development of the mobile Internet, the knowledge payment market has developed rapidly. Due to the short development time, community operators lack an in-depth understanding of user behavior. There are still many problems to solve, like knowledge convergence and poor service. Based on this background, this research combines the Technology Acceptance Model with the D&M information systems success model and incorporates the perceived value theory, Community identity theory, and so on, to construct a research model of user's intention to participate in knowledge payment in the context of virtual brand community. The study found that user community experience factors can significantly affect personal perception, while users' personal perception, such as perceived usefulness and perceived playfulness, can affect users' recognition of the community and thus affect their willingness to pay. Finally, this study puts forward suggestions for the operation managers of the knowledge-paid community.

Keywords: Virtual brand community, knowledge payment, willingness to pay, community identity theory.

INTRODUCTION

The rapid development of mobile Internet technology not only brings us great convenience but also intensifies the degree of information explosion. The cost of obtaining high-quality information is gradually increasing, so people have an increasingly strong demand for high-quality information resources. The rapid development of mobile payment has made the development of online and offline payment systems more complete. Knowledge sharers who are willing to contribute to the knowledge payment community to obtain realization needs have gained more convenience, and people are willing to pay for knowledge in order to obtain the information. In this context, the number of users participating in payment for knowledge in China continues to increase, and it is still in a stage of rapid and stable development. The outbreak of COVID-19 promoted the further development of the pan-knowledge payment industry. According to existing surveys, nearly 90% of users purchased knowledge payment products in 2020, and 63.1% of users purchased knowledge payment products during the epidemic period, which are mainly related to workplace skills, personal growth, and K12 (Ardito *et al.,* 2020).

The rapid development of the knowledge payment industry attracts online communities, so they also joined Inspur to start a community payment model. The virtual brand community can break the constraints of time and space, and provide community members with relevant information more efficiently and conveniently, which is to a large extent convenient for Participation in activities of community members. However, due to the immature operating model of the virtual community development and the lack of relevant information screening and evaluation mechanisms, the development of the knowledge payment model is also affected by it. Most knowledge payment communities have begun to report that the loss of members is serious, and the participation rate has decreased. In addition, community knowledge payment pricing is uneven, knowledge generalization is also serious, coupled with the lack of after-sales service, the loyalty of many users is declining, and the enthusiasm for learning is gradually reduced, and the willingness to pay decreases and gradually disappears.

The existing research on knowledge payment is relatively single (Ajzen, 1991). When studying user payment behavior, scholars mostly use the same theoretical model, and the research is based on the theory of planned behavior to explore and supplement, and there are few discussions from the dimension of the virtual brand community (Muniz & O'Guinn, 2001). The virtual brand community has become the main gathering place for user participation and communication. At present, the knowledge payment community lacks an in-depth understanding of user psychology and behavior. The insight into the user knowledge payment behavior and its influencing factors is helpful to improve the quality of knowledge service and build the core competitiveness of the online payment question answering community. The willingness and behavior of users to pay is the key to the success of the knowledge payment model, so it is necessary to study the user behavior of the knowledge payment community to improve the willingness of users to pay. This study provides a new perspective for the study of knowledge payment from this field.

LITERATURE REVIEWS AND RESEARCH HYPOTHESIS

Virtual Brand Community

Muniz and O 'guinn (2001) first proposed the brand community. Due to the immature development, there is no unified view in the existing research and industry. Rheingold (1993) first named it as Virtual Community. In his opinion, a virtual community is a gathering of people to communicate and discuss. With the development of technology, brand communication began to have revolutionary changes, and major brands have established their own online network communication communities. Brands and communities have gradually been linked for research. Virtual brand communities have also gradually developed at this time. Community members can carry out information exchange and emotional connection for brand products in the virtual brand community so as to enhance the loyalty of the platform. At the same time, the brand is well-publicized in an invisible way, and the platform gives full play to the role of jointly creating value. In his research, Kozinets (2001) believed that community members mainly used the convenience of the Internet to communicate information in the community so as to form their own cognition of the community's emotional attitude. Amine and Sitz (2004) believe that virtual brand communities serve for members from different regions to gather together and share the same feelings through the same brand preferences. It is precisely because the content services provided in the community satisfy the personalized needs of consumers, and the community information knowledge is too extensive to focus on the needs of individual brand preferences. Therefore, groups interested in specific brands have formed such a place for communication through online media.

Study on Knowledge Payment

Paying for knowledge simply means paying for the information you need. It is a mode of paying and knowledge spreading that relies on online communities to serve the public. People can freely share knowledge, consult and exchange courses in the community. Knowledge service is different from other paid goods, and its seriousness and originality put forward strict requirements on knowledge sharers. The knowledge shared should be not only professional and rigorous, scientific and can withstand scrutiny, but also be original and valuable to share. Existing research on knowledge payment mainly focuses on user participation behavior, Q&A community content quality, user satisfaction, and so on.

Based on user participation behavior, Kuo and Feng (2013) found from the perspective of social interaction that the interaction between users based on a brand community can increase their perceived benefits, thus further influencing consumer behavior. Ilfeld and Winer (2002) believe that consumers will increase their browsing and purchasing behavior when they feel that the web page design is user-friendly. Based on Q&A community content quality, Dou (2004) constructed a theoretical model based on perceived risk for research, and the research showed that the value of knowledge use within the community has a significant impact on users' knowledge payment behavior. Hsiao (2011) used the perceived value theory to analyze the specific value meaning perceived by users in the community and within the community and concluded that the greater the perceived value of users, the higher the dependence on the platform and the higher the cost of leaving. Based on user satisfaction, Chang *et al.*(2014) investigated the antecedents and results of perceived value, found that perceived value positively influenced user satisfaction and directly influenced the willingness of community members to continue using. Hong *et al.* (2017) revealed that practical value and hedonic value are the key factors for consumers to choose to use smartwatches continuously.

Through the collation and analysis of relevant literature, it can be seen that the rapid development of knowledge payment in recent years has also encountered development bottlenecks. The quality of related community platforms needs to be improved. The lack of a full understanding of user psychological behavior has led to a decline in user participation, and the knowledge structure and influence of community providers are lacking. The quality of related community platforms needs to be improved. The lack of a full understanding of user psychological behavior has led to a decline in user participation, and the knowledge structure and influence of community providers are lacking. It is difficult to meet the expectation of users to confirm and identify trust. At present, the existing researches mostly focus on the willingness to pay from the perspective of user behavior or satisfaction, while there is few research on the user experience of the virtual brand community, and no consistent conclusions have been drawn.

Quality of the Community

D&M Information system success model was proposed by Delone & Mclean (1992). This model mainly explains the relationship among the basic elements of an information system, including information quality, system quality, system use, user satisfaction, personal influence, and organizational influence, and how to affect the success of an information system. However, it was questioned by some scholars in the later practice and application. Seddon (1997) believed that willingness to use should be replaced by effectiveness and introduced systematic importance. Meanwhile, the two-way influence between willingness to use and satisfaction was replaced by a one-way influence of effectiveness on satisfaction. Pitt *et al.* (1995) believed that the information system success model did not consider the quality of service of the information system enough, and service quality should be summarized as one of the evaluation criteria for the success of the information system. With the deepening of research in the field of information systems, DeLone and McLean (2003) modified and improved the original model, put forward the improved DM model, adding service quality to the evaluation index of the information system, giving full consideration to users' recognition and feelings of service, making the success model of information system more comprehensive. Based on the DM model, system quality, information quality, and service quality are regarded as second-order variables of community quality to evaluate the quality of the virtual brand community.

Existing studies have confirmed that the quality of the information system will directly affect users' perceived usefulness, expected confirmation, and willingness to continue using. Wangpipatwong *et al.* (2005) believe that users' adoption of government portal websites is mainly influenced by the quality of website information and system. Therefore, this study believes

that whether the operation of the internal system in the community is stable, the cost and quality of information acquisition, and whether the community service is convenient and efficient will also have a direct impact on users' personal perception. Therefore, the following hypotheses are proposed:

H1: The quality of virtual brand knowledge paid community has a positive impact on perceived usefulness.
H2: The quality of virtual brand knowledge paid community has a positive impact on perceived ease of use.
H3: The quality of virtual brand knowledge paid community has a positive impact on perceived playfulness.

Perceived Value

Zeithaml (1988) believes that customer perceived value refers to the difference comparison between the efforts made by the customer and the gain when using the product and thinks that the gain is more than the cost paid is valuable. This theory is the difference between the perceived value and cost of community members after purchasing the knowledge payment service, and this feeling indirectly affects the overall evaluation and willingness of the knowledge payment service. Hsiao (2011) explored users' willingness to pay by using the perceived value theory and found that users' perceived value significantly affected users' willingness to pay. Therefore, the hypothesis is proposed:

H4: Perceived value has a positive impact on perceived usefulness.
H5: Perceived value has a positive impact on perceived ease of use.

Expectation Confirmation and Personal Perception

Expectation confirmation theory is developed on the basis of expectation unconfirmation theory. Oliver (1980) believes that the difference between consumers' expected expectation before product purchase and actual performance after product purchase is expectation unconfirmation, and satisfaction will also be generated in this process, which will further influence consumers' purchase intention and behavior. The theory of expectation uncertainty gradually developed and matured. Churchill and Surprenant (1982) added perceptual performance into the theory of expectation uncertainty, enriching and improving the theory. In this study, expectation confirmation variables were used to measure the pre and post prediction and actual matching degree of perceived effects of consumers using paid services, and the following hypotheses were proposed:

H6: Expectation confirmation has a positive impact on perceived ease of use.
H7: Expectation confirmation has a positive impact on perceived playfulness.

Personal Perception and Social Identity

According to the TAM model, consumers' perceptions of usefulness in the process of using information systems, which will continue to use the system was influenced by the attitudes. If consumers believe that the virtual brand community can make people physically and mentally happy, increase their knowledge, and improve efficiency, they believe that If the platform is useful, then it is likely to have a positive attitude and willingness to use the virtual brand community, thereby increasing the sense of identity with the community. Similarly, when consumers feel that the operating system is easy to use, they will usually think that the system is useful and have a positive attitude towards the system. When consumers perceive the virtual brand community as easy to use and feel that the system is stable and convenient to operate, they may have more positive attitudes and recognition towards the community.

Webster and Martoccio (1992) believe that entertainment can also represent a person's personal characteristics to some extent, and people with entertainment tend to show higher enthusiasm and participation in work and life. Davis (1989) introduced the Perceived usefulness as the internal psychological motivation of users into the TAM model to study the excitement of users in the process of experience. In this study, perceived playfulness refers to the subjective happiness that consumers feel in the process of knowledge payment in the virtual brand community. Perceived playfulness pays more attention to the internal psychological state of users, which is an internal manifestation. When users feel that the experience of a certain technology is interesting when they operate it, their inner satisfaction with the technology will be improved, and their subsequent use of the technology will also have a positive impact (Nysveen *et al.*, 2005).

Based on this, the following hypotheses are proposed:

H8: Perceived usefulness has a positive impact on community identity.
H9: Perceived ease of use has a positive impact on community identity.
H10: Perceived playfulness has a positive impact on community identity.

Community Identity and Willingness to Pay

This theory is developed from social identity theory. When users participate in virtual brand community activities, they regard themselves as a member of the community, and the familiarity and trust continuously developed in the process are the development process of community identity. At the same time, the key link between the members of the brand community is the support and love for the brand in the community, and the relationship between everyone in the community develops continuously due to the same cognition. Community identity is mainly developed from three dimensions: cognition, evaluation, and emotion. Community members will actively participate in community publicity and promotion activities when their recognition of the

community reaches a certain degree. Cognitive identification refers to the confirmation of one's membership in the community, evaluation identification refers to the positive and negative evaluation value of members in the community, and emotional identification refers to one's feelings invested in the community. Social identity in the virtual brand community mainly refers to consumers' trust and agreement on the operation norms, atmosphere, and goals of the community. Teng (2017) study shows that identity significantly influences online game users' community participation behaviors. Shapiro *et al.* (2019) explored the factors influencing users' willingness to pay for watching competitive sports and found that the higher the level of approval, the higher the willingness to pay. In the virtual brand community, the user of the cognition of themselves and their communities agreed to produce the corresponding identity, which is to think their own preferences and demand match the community to provide payment information, and community sense of belonging and identity, under its push to produce active pay intention and behavior. Based on this, the following hypotheses are proposed:

H11: Community identity has a positive impact on willingness to pay.

Therefore, the theoretical model of this research is shown in Figure 1.

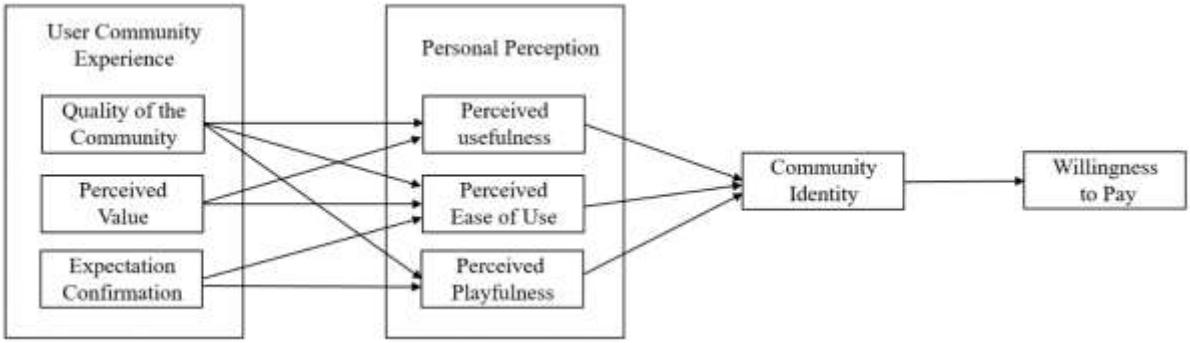

Figure 1: Research model

RESEARCH DESIGN AND EMPIRICAL ANALYSIS

Scale Design

This paper adopts the questionnaire survey method. In order to ensure the authority of each variable definition, through the previous literature review and the specific actual situation of paying for virtual brand community knowledge, this research has made a corresponding variable definition for each variable. In this study, classical scales were referred to, and a predictive test was conducted. According to the feedback of the predictive test, the questionnaire was modified to form the final questionnaire. The research model in this paper has a total of 8 variables, and a total of 37 items are set in the questionnaire and measured in the form of a Likert 7-level scale.

Data Collection

The questionnaire object of this study is divided into two categories: one is the consumers who have paid for the knowledge of virtual brand community but have not participated in the purchase behavior, and the other is the consumers who are using the paid service of virtual brand community knowledge. The questionnaire is divided into two parts. The first part is the filling in of basic personal information, and the second part is the influencing factors of consumers' knowledge payment in the context of virtual brand community. To ensure the rationality and validity of the questionnaire, the questionnaire is distributed in two periods: (1) Pre-survey stage. A total of 103 questionnaires were distributed, and the data were used to modify the questionnaire. The collected data are analyzed by SPSS24.0 for the reliability and validity of the questionnaire. Finally, according to the corresponding feedback, the content and structure of the questionnaire are enriched and improved to ensure the scientificity and validity of the final questionnaire. (2) Formal investigation. During the formal survey period, 406 questionnaires were distributed for a total of two months. A total of 392 valid questionnaires were obtained after eliminating the questionnaires with inconsistent answers and less than one minute of answer time.

SPSS24.0 was used for descriptive analysis, and the results are shown in Table 1：

Table 1: Descriptive Statistical Analysis

Basic Features	Classification	Number of Samples	Proportion(%)
Gender	male	189	48.21%
	female	203	51.79%
Age	Under the age of 18	24	6.12%
	18-25 years old	256	65.31%
	26-30 years old	52	13.27%
	31-35 years old	18	4.6%
	36-40 years old	32	8.16%
	41-50 years old	8	2.04%

	50 years of age and above	2	0.51%
Education	High school and below	32	8.16%
	Specialized subject	67	17.1%
	Undergraduate course	246	62.76%
	Master degree or above	47	11.99%
Monthly income	Below 1000 yuan	23	5.87%
	1000-1500 yuan	178	45.41%
	1500-2000 yuan	67	17.1%
	2000-5000 yuan	85	21.68%
	5000-8000 yuan	32	8.16%
	8000-10000 yuan	5	1.28%
	More than 10000 yuan	2	0.51%
The monthly payment for knowledge	0 yuan	243	61.99%
	Within 50 yuan	100	25.51%
	50-100 yuan	36	9.18%
	100-500 yuan	12	3.06%
	More than 500 yuan	1	0.26%
Knowledge of paid platform usage	get	145	36.99%
	Wu Xiaobo channel	24	6.12%
	Himalayan FM	56	14.29%
	Climb to read	78	19.9%
	University of Zhihu	168	42.86%
	Litchi micro class	38	9.7%
	Open the krypton	13	3.32%
	Little red circle RedRing	26	6.63%
	Netease Cloud Classroom	89	22.7%
	Weibo q&a	65	16.58%
	Other platforms	28	7.14%
	Never used it	45	11.48%
Knowledge payment behavior	Yes	247	63.01%
	No	145	36.99%

Reliability and Validity Test

This article uses Cronbach's α coefficient to evaluate the reliability of the collected samples. The results of the reliability analysis of data by SPSS24.0 are shown in Table 2.

Table 2: Reliability Test

Variable	Correlation coefficient between sub-term and total term	The α coefficient after deleting the item	Cronbach's α
System quality			0.869
SQ1	0.737	0.832	
SQ2	0.797	0.784	
SQ3	0.73	0.834	
Information quality			0.786
IQ1	0.747	0.577	
IQ2	0.503	0.831	
IQ3	0.649	0.69	
Quality of service			0.832
SEQ1	0.691	0.779	
SEQ2	0.699	0.765	
SEQ3	0.7	0.761	
Perceived value			0.951
VAL1	0.827	0.954	
VAL2	0.896	0.932	
VAL3	0.911	0.929	
VAL4	0.913	0.926	
Expectation confirmation			0.938
C1	0.886	0.901	

C2	0.844	0.934	
C3	0.894	0.892	
Perceived usefulness			0.888
PU1	0.568	0.925	
PU2	0.786	0.845	
PU3	0.867	0.81	
PU4	0.819	0.832	
Perceived ease of use			0.895
EA1	0.75	0.89	
EA2	0.827	0.825	
EA3	0.808	0.838	
Perceived playfulness			0.921
ENJ1	0.86	0.869	
ENJ2	0.779	0.941	
ENJ3	0.888	0.849	
Community identity			0.941
CSI1	0.825	0.93	
CSI2	0.849	0.929	
CSI3	0.846	0.929	
ESI1	0.778	0.934	
ESI2	0.707	0.939	
ASI1	0.85	0.929	
ASI2	0.653	0.942	

As can be seen from the above table, Cronbach's α coefficient values of most variables are greater than 0.8, indicating that the reliability of this questionnaire basically meets the requirements.

The validity is measured by comparing the running-in degree between the measured data results and the actual things. The closer the measured results are to the actual results, the higher the reliability is. In this study, the principal component analysis method in confirmatory factor analysis was used to extract factors. In the Kaiser-Meyer-Olkin test and Bartlett sphericity test, the KMO value should be greater than 0.6. The results are shown in Table 3.

Table 3: Validity Test

		Bartlett's test		
Variable	Kaiser - Meyer - Olkin inspection	Approximate chi-square	Degree of freedom	Significant
System quality	0.741	150.822	3	0.000
Information quality	0.713	145.914	3	0.000
Quality of service	0.705	120.467	3	0.000
Perceived value	0.826	374.292	6	0.000
Expectation confirmation	0.763	241.733	3	0.000
Perceived usefulness	0.843	310.077	6	0.000
Perceived ease of use	0.709	127.111	3	0.000
Perceived playfulness	0.745	251.503	3	0.000
Community identity	0.925	798.989	28	0.000
Payment will	0.757	201.084	3	0.000

As can be seen from the table, the KMO values of this study are all greater than 0.6, and most of them are between 0.7-0.9. Bartlett's sphericity test is significant, so factor analysis will be continued.

Table 4: Total Variance Interpretation

Composition	Initial eigenvalue			Extract the sum of squares and load			Rotate squares and load		
	Total	variance %	Accumulation %	Total	variance %	Accumulation %	Total	variance %	Accumulati-on %
1	21.415	57.878	57.878	21.415	57.878	57.878	9.128	24.669	24.669
2	3.099	8.376	66.255	3.099	8.376	66.255	7.503	20.279	44.948
3	1.721	4.651	70.905	1.721	4.651	70.905	5.917	15.993	60.941
4	1.231	3.328	74.233	1.231	3.328	74.233	4.070	11.001	71.942
5	1.006	2.718	76.951	1.006	2.718	76.951	1.853	5.009	76.951
6	.937	2.533	79.484						

7	.713	1.926	81.410
8	.702	1.896	83.306
9	.571	1.544	84.850
10	.492	1.330	86.181
11	.475	1.284	87.464
12	.403	1.090	88.554
13	.385	1.042	89.596
14	.341	.921	90.517
15	.315	.850	91.367
16	.289	.781	92.148
17	.286	.772	92.920
18	.278	.751	93.671
19	.240	.648	94.319
20	.209	.565	94.884
21	.193	.521	95.405
22	.184	.497	95.903
23	.173	.467	96.370
24	.163	.439	96.809
25	.142	.384	97.193
26	.136	.369	97.562
27	.130	.351	97.912
28	.118	.318	98.231
29	.104	.282	98.513
30	.097	.263	98.776
31	.088	.238	99.014
32	.083	.224	99.238
33	.074	.201	99.439
34	.061	.164	99.603
35	.054	.146	99.749
36	.050	.135	99.884
37	.043	.116	100.000

Five factors were extracted from total variance interpretation, and the factor interpretation level was good, with the cumulative variance contribution rate reaching 76.951%.

Model Fit Test

In this study, AMOS20.0 was used to calculate the fit index of the structural model. Table 5 shows that the fit indexes of the structural model all meet the requirements of the recommended values, which indicates that the overall fit of the structural model is good and can be used to verify the research hypothesis.

Table 5: Model Fit Index

Indicators		Evaluation standard		Model values
		Acceptable	Good	
	(Chi-Square/d.f)	1-3 Perfect 3-5 Good 5-8 Acceptable		2.215
Absolute fit index	GFI	[0/7,0.9)	>0.9	0.728
	AGFI	[0/7,0.9)	>0.9	0.690
	RMSEA	<0.08	<0.05	0.077
Relative fit index	NFI	[0/7,0.9)	>0.9	0.836
	TLI	[0/7,0.9)	>0.9	0.894
	CFI	[0/7,0.9)	>0.9	0.902
Information index	AIC	the smaller, the better		1538.439
	CAIC	the smaller, the better		1913.687

Hypothesis Testing

AMOS 20.0 was used in this study to conduct path analysis on the structural model by maximum likelihood estimation. $P < 0.05$ is taken as the standard for hypothesis testing. The final verification results of the judgment on the hypothesis based on the model fitting results are shown in Table 6.

Table 6: Model Test Results

hypothesis	relationship	Estimate	S.E.	C.R.	P-value	Standardized	Test result

						Path coefficient	
H1	Perceived usefulness <--- Quality of the community	.3215	.0749	4.2896	***	.3809	Support
H2	Perceived ease of use <--- Quality of the community	.2848	.1060	2.6881	.0072	.2599	Support
H3	Perceived playfulness <--- Quality of the community	.0701	.1324	.5290	.5968	.0568	Not Support
H4	Perceived usefulness <--- Perceived value	.4750	.0759	6.2616	***	.5628	Support
H5	Perceived ease of use <--- Perceived value	.5434	.1264	4.3001	***	.4958	Support
H6	Perceived ease of use <--- Expectation confirmation	.1501	.1058	1.4196	.1557	.1370	Not Support
H7	Perceived playfulness <--- Expectation confirmation	.7384	.1299	5.6859	***	.5988	Support
H8	Community identity <--- Perceived usefulness	.3853	.1011	3.8132	***	.2978	Support
H9	Community identity <--- Perceived ease of use	.2388	.0805	2.9654	.0030	.2397	Support
H10	Community identity <--- Perceived playfulness	.4404	.0517	8.5236	***	.4972	Support
H11	Payment will <--- Community identity	.7977	.0639	12.4792	***	.8077	Support

Note: ** means significant at 0.001 level

According to the hypothesis test results in Table 6, it can be seen that the P values of H3 and H6 are greater than 0.5, and the hypothesis is not valid. The P values of other hypotheses are all less than 0.05, indicating that the remaining nine hypotheses are valid.

CONCLUSION AND FUTURE WORK

Results and Discussion

In view of the phenomenon that users' willingness to pay in virtual brand communities is declining, this study draws corresponding conclusions by issuing questionnaires and analyzing data.

The relationship between user community experience and personal perception

In this study, community quality, expectation confirmation, and perceived value were taken as community experience factors, while perceived usefulness, perceived ease of use, and perceived playfulness were taken as personal perception factors. According to the research conclusions, community quality significantly affects perceived usefulness and perceived ease of use but has no significant impact on perceived playfulness. Considering the actual situation, when users pay for knowledge, the page design, information update, and efficient service of the community will affect users' experience. Good community quality will make users feel that their payment behavior is useful, easy to operate, and valuable. However, when users pay for knowledge, they will feel fun and happy depending on the content paid for knowledge and community communication. Perceived value has a significant impact on perceived usefulness and perceived ease of use. For users, they have spent time, money, and energy in paying for knowledge in the community. As long as these efforts are valuable and meaningful, they will feel that the paid-for knowledge service provided by the community is useful and convenient. Expectation confirmation has no significant effect on perceived ease of use but has a significant effect on perceived playfulness. Users will have certain expectations about the services provided by the knowledge payment community before they pay for knowledge. In the actual process, once their expectations are satisfied, users' feelings of pleasure and satisfaction will be greatly improved, while the operation experience in the purchase process will not change much.

The relationship between personal perception and community identity

According to the research conclusions, perceived usefulness, perceived ease of use, and perceived playfulness all have a significant impact on community identity. In this study, community identity is divided into three dimensions, namely cognitive identity, evaluative identity, and emotional identity. Combining with the reality of life, it can be found that when users pay for knowledge, their personal feelings will affect the impression and evaluation of the community to a large extent, as long as users feel that their knowledge payment experience is useful, convenient, smooth, and happy. A certain identification with the community will increase the user's overall cognition and emotional attitude evaluation of the community and enhance their loyalty to the community.

The relationship between community identity and willingness to pay

This study believes that community recognition will have a significant impact on willingness to pay. If a user recognizes the community in the process of paying for knowledge, then he will feel that he belongs to the community, and his communication in the community is happy and can effectively solve their own problems. More importantly, they are important and valuable to the community in their heart. This cognitive and evaluative recognition will promote emotional recognition among users, who feel that they are doing a good thing by paying for knowledge in a community and are more than happy to recommend it to others. This recognition of the community will constantly strengthen users' willingness to pay for knowledge, thus promoting users' next payment behavior.

Management Implications

Based on the above conclusions, this study puts forward the following suggestions for relevant operation managers of the knowledge payment community.

Pay attention to the quality of knowledge paid community and user-perceived usefulness. Users want to obtain the knowledge payment service they want in a convenient and effective way, so the knowledge payment community should pay attention to the improvement of community quality. The community quality of knowledge payment can be divided into system quality, information quality, and service quality, among which information quality and service quality have more influence on community quality, indicating that users are eager to find useful information and knowledge in the knowledge payment community and enjoy convenient and comfortable service. In terms of system quality, the premium knowledge payment community should be able to run stably, the page browsing is normal, and it can respond to users' operations and demands in time so that users can quickly obtain the required information. In terms of information quality, the community should provide users with comprehensive and complete information, ensure the real-time and accuracy of the information, and update the community information knowledge base in time. In terms of service quality, the knowledge payment community should timely optimize the relevant functions of the community, provide professional services for users, smoothly meet the knowledge needs of users, and constantly improve the ability to solve problems.

Enhance the output capacity of high-quality content in the community, and improve users' perceived value and community experience. Focusing on user community experience and perceived value can effectively improve users' willingness to pay for knowledge, and enhance the community's output capacity of high-quality content can be improved from two aspects of content selection and content management. Content selection, the community should pay attention to the source of output content, strictly screen the knowledge contributions of the community's knowledge producers, and improve the content review qualifications for fixed-column content providers in the community, establish reasonable and scientific content evaluation system. Community collaborators should also raise the barriers to entry for cooperation, strictly control the output content of the community, and improve the professionalism and accuracy of community knowledge. The content management, the community, should conduct high-quality and refined management of content, establish and classify related content, set up a reasonable column and scientifically optimize the column structure, continue to meet users' personalized knowledge needs and perceived value, and enhance the user community Experience and loyalty, thereby enhancing the value of community content and competitive advantage.

Improve public praise and create a good community image. Relevant empirical research proves that word-of-mouth communication of knowledge payment also has an impact on users' willingness to participate. Most of the users who participate in knowledge payment are young, pay attention to the acquisition of information, and are easily influenced by people around them. The opinions and word-of-mouth spread of people around can affect their perception of usefulness to a certain extent, thus affecting their willingness to pay. Therefore, the knowledge paying community should pay attention to the social dissemination of word of mouth through various information publicity channels, actively spread the good atmosphere of the community, use opinion leaders to carry out publicity cooperation, establish the effective word of mouth dissemination incentive mechanism, create a good social image of the community.

Research Limitations and Future Prospects

This paper mainly studies the influencing factors of users' willingness to pay for knowledge in the context of the virtual brand community. Although some conclusions have been drawn, there are still deficiencies in many aspects of research. The following summaries are made, and prospects are made for subsequent studies.

In this study, due to the many limitations of sample collection, most of the survey subjects involved are college students, and there is a certain proportion of imbalance. In real life, the college student group is only a small part of the representatives of the participants who pay for knowledge. It will affect the research conclusions to a certain extent, and the sample interpretation ability needs to be improved. In future studies, the range of samples can be expanded to make research results more representative and accurate, and big data can also be used to obtain more data support to enhance the scientific nature of the research.

This study selected limited variables when constructing a model of the factors affecting users' willingness to pay for knowledge in the context of virtual brand communities. There are many different influencing factors of users' behavior and willingness to participate in different contexts. This study only considers some variables in the context of community and individual, and the selection of model variables is insufficient. In addition, the actual factors such as the personal characteristics, educational background, and income of the participating users will also affect the willingness to participate to a certain extent. This is not

considered in this study, and the population is not distinguished. In future research, more relevant factors will be introduced in the research content, and the research model will be continuously improved, with a view to drawing more representative research conclusions and more comprehensively exploring the factors affecting users' willingness to pay for knowledge in the context of virtual brand communities.

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