Empirical Study on Continued Participation Intention of Virtual Community Users Based on Social Cognitive Theory

Zhuolin Cao
Xi'an Medical University
Xi'an, China

Abstract—**Purpose/significance: From the psychological view, this paper analyzes the factors that affect the continued participation of virtual community combined with social cognition theory. Method/process: this study builds a conceptual model and Design a questionnaire about the virtual community users' continued participation intention, and used SPSS 17.0 and Amos 18.0 to analyze the collected data. Result/conclusion: results show that self-efficacy, community climate and outcome expectation have significant positive effects on continued consume; community climate and outcome expectation have significant positive effects on continued contribution; self-efficacy has no significant positive influence on continued contribution. The results can provide theoretical guidance for designing virtual community platform, and improve members' continued participation.**

Keywords—self-efficacy; community climate; outcome expectation; continued consume; continued contribution

I. INTRODUCTION

According to the 42th China Internet network development state statistical report issued by the China Internet network information center (CNNIC) in July 2018, up to June 2018, the scale of Internet users in China is expending, the number of Internet users has reached 802 million. With the development of Internet technology and Internet users' continues growing, all kinds of Internet applications showed a trend of sustained growth such as mobile payment, online entertainment, and life services. However, in the context of the continuous growth of such applications, the utilization rate of Weibo and Qzone, which were development faster in early days, showed a downward trend, among which the user utilization rate of Qzone decreased from 67.8% in 2016 to 64.4% in 2017 [1]. The development of the Internet cannot do without users. The higher the stickiness of users, the wider and deeper the application of Internet products will be. The sustainable development of a well-run online virtual community not only depends on the deep user base, but also on the continuous participation of community users. In the mature development process of social media, social media operators also pay more and more attention to the active use of existing users [2]. Only when users have been active in the platform and continue to participate and share, can the platform bring

vitality and prosperity. The virtual community under the development of the Internet has penetrated into all aspects of China's politics, economy, and society and so on. How to improve the willingness of virtual community members to continue to participate is particularly important.

At present, relevant scholars have studied members' willingness to continue using at home and abroad. Chen found that technical factors (knowledge quality, system quality) and situational factors (social interaction connection) can affect community members' willingness to exchange knowledge in professional virtual communities[3].Wang pointed out that the computer self-efficacy of Facebook users positively influences users' willingness to continue using it through cognitive and emotional processes in his research [4]. Xiao Xuan and some scholars studied the continuous use of social media from the perspective of social impact theory [5]. From the perspective of perceived value (social value and information value and emotional value),scholar Zhao Wenjun conduct a study on the willingness of social Q&A users' continuous participation [6], there are also some scholars to explore the study of consumer who do not continue to use social media, such as scholar Lu Jingjia studied the information quality of four dimensions (inherent information quality, situational information quality, information quality and availability of information quality) the influencing factors of social media is not sustainable[7]. From the perspective of overload theory, fatigue theory, stress-tension-outcome framework and social comparison theory, Dai Bao analyzed the current behaviors of social media users that are not continuously used [8]. However, from the perspective of psychology, there is little research on the continuous use intention of virtual community members in social cognition theory. In view of this, this paper studies the continuous using intention of virtual community members from the perspective of social cognition (self-efficacy, Internet atmosphere, result expectation). On the one hand, it provides theoretical guidance for social media operators to increase the stickiness of members; on the other hand, it fills the gap for domestic research on the continuous use of virtual community members.

II. THEORETICAL BASIS AND RESEARCH HYPOTHESIS

A. Willingness to Continue Using

Continuous using intention of users refers to the subjective intention of users to continue to participate in the interaction of a virtual brand community for a period of time in the future due to their personal habits or preferences in virtual community [9]. There are two main behaviors of virtual community members to participate in community activities. One is information acquisition. The other is information contribution; because of the preference and trust in the community, the members of the community are willing to continuously provide their own knowledge to the community to support the development of the community. Combined with the research of Zhao Wenjun and other scholars, the continuous participation behavior is divided into two aspects: the continuous consumption behavior and the continuous contribution behavior.

B. Social Cognitive Theory

Social cognition theory was proposed by Bandura, a. in 1988. He believed that individual behavior, subject cognition and environment are dynamic interactive processes, in which personal cognition includes self-efficacy and outcome expectation [10]. Self-efficacy is an individual's judgment of his own ability to achieve a certain behavior; Outcome anticipation is an individual's judgment of the possible consequences of such behavior. Based on the social cognitive theory and research needs, combined with the research, we decided to set the research variables of this paper as self-efficacy, Internet atmosphere (fairness, reciprocity, innovation) and result expectation.

Bandura believed that self-efficacy is an individual's belief in his own ability to complete a certain task or work, which does not involve skills themselves, but his confidence in using the skills he has mastered to complete the work [11]. Self-efficacy is the basis for an individual to communicate and share with other members in a virtual community. People with high self-efficacy believe that they can provide more contributions and help to the community, are confident in providing and obtaining information, and are willing to continue to consume and contribute information. On the contrary, when individuals think they have no ability to provide more information, members' self-efficacy will be hindered in the process of obtaining and contributing information in the community. Therefore, the following hypothesis is proposed in this paper:

H1a: there is a significant positive correlation between self-efficacy of virtual community members and information continuous consumption behavior;

H1b: self-efficacy of virtual community members is significantly positively correlated with continuous information contribution behavior.

Social cognition theory considered that individual behavior, individual cognition and environment are closely related, and the environment has an important impact on individual behavior. Internet atmosphere refers to the atmosphere in the Internet environment that can give individual members some strong spiritual feelings, and it is the individual members' perception of the Internet environment. Internet atmosphere is mainly manifested as an atmosphere perceived by individual members, which includes many elements, such as fairness, trust, innovation and reciprocity. In this study, the author selected trust, innovation, mutual benefit as the research variables, the virtual community members who trust the information of the community area, will continue to obtain information for their own consumption, when they feel trusted in community t, it will be willing to know itself and contribute to other members of the community, and, in turn, continuous use will produce to the community, on the contrary, they will not to rely on the community participation and continuous. Therefore, the following hypothesis is proposed in this paper:

H2a: Internet atmosphere is significantly positively correlated with continuous consumption behavior of virtual community members.

H2b: Internet atmosphere is significantly positively correlated with the continuous contribution behavior of virtual community members.

According to social cognitive theory, outcome anticipation refers to the expected outcome of an individual's behavior. Bandura believed that the incentive effect of outcome expectation on individuals would help individuals to achieve a certain behavior. If an individual member thinks that his or her own behavior can bring him or her some benefit, the behavior will continue to increase and he or she will take a positive attitude towards the behavior. When virtual community members carry out online activities, when individuals think that their continuous participation and sharing in the community can benefit individuals, they will have the intention and motivation to continue using the community. When people participate in community activities online, they must be able to obtain the information they want, whether it bring them sensory entertainment or sense of achievement. Therefore, the following hypothesis is proposed in this paper:

H3a: the result expectation is significantly positively correlated with the sustained consumption behavior of virtual community members;

When virtual community members contribute more information to the community in the process of network activities, they can improve their status or rank in the community activities, and thus improve their sense of superiority, and will continue to participate in the community behavior. Therefore, the following hypothesis is proposed in this paper:

H3b: result expectation is significantly positively correlated with the continuous contribution behavior of virtual community members.

C. Research Model Construction

Based on the above theories and assumptions, the paper constructs the following theoretical model, as shown in "Fig. 1".
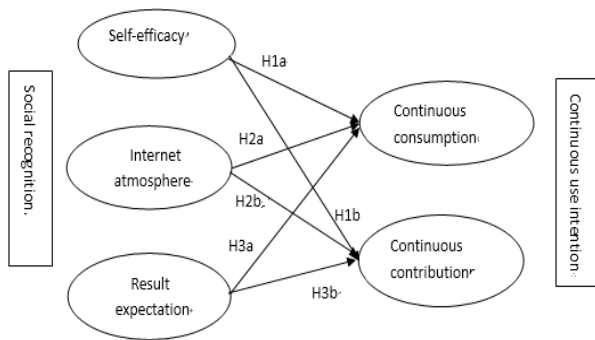
Fig. 1. Continued Participation Intention of virtual community users based on social cognitive theory.

The model studies the influencing factors of virtual community members' continuous use intention from the perspective of social cognition. Among them, self-efficacy, Internet atmosphere and result expectation in social cognitive theory are independent variables, and continuous consumption and contribution in intention of continuous use are dependent variables.

III. QUESTIONNAIRE DESIGN AND DATA ANALYSIS

A. Questionnaire Design

According to the questionnaires on the willingness of members of Virtual Community to use continuously from the Perspective of Social Cognition designed by the theoretical model of the article, the data of the initial measurement scale covering self-efficacy, outcome expectations, internet atmosphere and sustainable using intention is derived from the related literature at home and abroad. Combined with the background of virtual community, the expression statements have been partly adjusted. Social cognition theory is mainly measured by the scales used by scholars such as Constant [11] and Compeau [12], with a total of 17 items. Continuous contribution and continuous consumption of virtual communities were measured using the scale adopted by Zheng[13] and Chin[14], with a total of 8 items. Before the formal questionnaire is issued, a small range of prediction is made, and some measurement items with high similarity are excluded to form the formal questionnaire of this study. Likert scale form was used to express the respondents' degree of agreement to the questionnaire.

B. Data Collection

In this paper, questionnaires are mainly distributed through paper questionnaires and electronic questionnaires. Paper questionnaires are mainly distributed to college students, while electronic questionnaires are mainly distributed through E-mail, Internet connection and other means. From June to October 2018, a total of 400 questionnaires were issued and 382 were collected, among which 360 were valid.

C. Reliability and Validity of the Questionnaire

The purpose of reliability analysis is to understand the validity and reliability of the questionnaire. As an indicator of the authenticity reflected by the sample, the higher the reliability value is, the smaller the influence of errors on the values obtained from the measurement of different items in the scale, which can better reflect the accuracy of the questionnaire measurement [15]. The reliability test method commonly used in Likert scale is to evaluate the reliability of the scale based on Cronbach's a Cronbach alpha coefficient. When the Kronbach coefficient is above 0.6, it means that the reliability of the scale is acceptable, and above 0.7, it means that the scale has a high credibility and the data is suitable for analysis. Validity analysis can be divided into construction validity analysis, content validity analysis and criterion validity analysis. Among them, construction efficiency referring to the degree to which theoretical concepts or traits can be measured, so as to explain whether the concepts measured by questionnaire can show scientific significance and conform to theoretical assumptions [16]. The normal validity detection method of Likert measure is to measure the validity of the questionnaire according to the measured value of KMO sample adequacy. Generally speaking, when the KMO value is greater than 0.6, it indicates that the data are suitable for analysis, and when the KMO value is greater than 0.7, it indicates that there is a good relationship between the collected data variables. The reliability and validity analysis of this study is shown in "Table I":

TABLE I. RELIABILITY AND VALIDITY OF EACH VARIABLE

Item	Item number	Cronbach'sα	KMO
Self-efficacy	3	0.812	0.720
Internet atmosphere	10	0.805	0.775
Result expection	4	0.827	0.753
Continuous consumption	3	0.833	0.736
Continuous contribution	5	0.855	0.713

After analysis, the KMO coefficients of all variables in this study are greater than 0.8, indicating that the data have a high reliability and a basis for further analysis. KMO values are all greater than 0.7, indicating that the data are not only reliable, but also effective and suitable for further research and analysis.

D. Hypothesis Test

The structural equation model is used to test the hypothesis of the proposed model. The independent variables in the model include self-efficacy of social cognitive theory, Internet atmosphere and outcome expectation, and the dependent variables include continuous consumption and continuous contribution. AMOS 18.0 was used for the analysis. The fixed coincidence method and maximum likelihood estimation were adopted. The analysis results are shown in "Table II":

TABLE II. SEM OVERALL FITNESS ANALYSIS RESULTS AND
MEASUREMENT INDEXES

Fit index	Measured value	Recommended value
RMSEA	0.043	<0.1
GFI	0.912	>0.9
AGFI	0.899	>0.8
NFI	0.915	>0.9
GFI	0.931	>0.9

Combined with the research theory and statistical analysis, the path analysis of the model shows that all path relations pass the significance test ("Fig. 2").
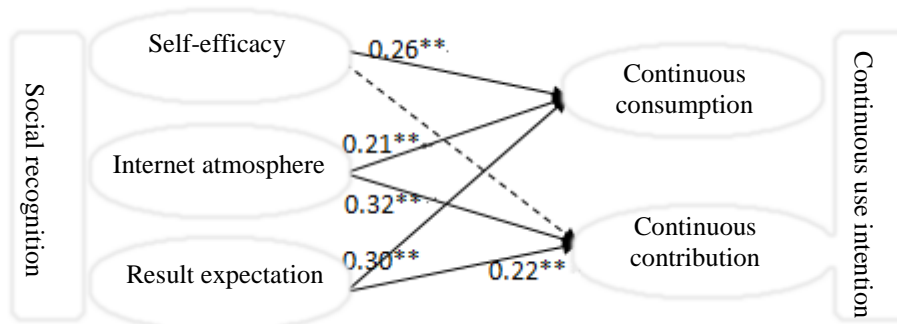

Fig. 2. Structural model path (standardized).

Through path analysis, it was found that self-efficacy, Internet atmosphere and result expectation were significantly positively correlated with continuous consumption. H1a, H2a and H3a were all verified, indicating that the higher the self-efficacy, the stronger the Internet atmosphere, the stronger the result expectation, the more significant the continuous consumption behavior of virtual community members. There was a significant positive correlation between Internet atmosphere, result expectation and continuous contribution. Both H2b and H3b were verified, indicating that the stronger the Internet atmosphere, the stronger the result expectation, and the more significant the continuous contribution behavior of virtual community members. There was no significant positive correlation between self-efficacy and continuous contribution, and H1b was denied.

IV. RESEARCH RESULTS

All hypotheses proposed in this study have been confirmed by empirical results except H1b, which has not been verified. From the perspective of social cognition, the self-efficacy, Internet atmosphere and result expectation of the virtual community members have significant positive correlation with the continuous consumption. As for the continuous consumption behavior, virtual members are not required to build the community. Therefore, no matter they have a high sense of self-efficacy or a low one, they can get the information they want from the community anytime and anywhere, and then produce the continuous consumption behavior in the community. The atmosphere of mutual trust, reciprocity and innovation among members in a virtual community can promote the sense of interdependence and satisfaction among members, and they will have higher interests and ideas to participate in more sections of community activities, thus promoting the willingness and behavior of continuous use. The result is expected that the

a. Note: the * p < 0.05, p < 0.01, * * said * * * p < 0.001, there is no * said statistics was not significant.

members of the virtual community believe that their consumption and contribution in the community can bring some benefits to themselves. For example, in the early stage of the virtual community Tencent QQ, users will give certain rewards such as yellow diamond to members for continuous use, which will encourage more and deeper community participation.

Internet atmosphere, result expectation and continuous contribution have significant positive correlation, while self-efficacy and continuous contribution have no significant positive correlation. The fair, reciprocal and innovative Internet atmosphere will promote members to maintain a positive state in the process of participating in activities, which will form a better community atmosphere and promote other members to contribute to the community; Continuous contribution will bring some honor or status to community members, and the sense of belonging will promote more construction and continuous use of the community. Self-efficacy and continuous contribution have no significant influence, indicating that self-efficacy from the perspective of social cognition does not affect the continuous contribution behavior of virtual community members. This paper argues that lasting contribution behavior not only needs the high self-efficacy members to participate in, more needed is who have a certain technical talent. The members with higher self-efficacy has a certain confidence continual contributions to the community, but the level of the technology itself cannot reach the standard of the construction of the community, therefore self-efficacy has no significant correlation with continuous contribution behavior.

V. CONCLUSION

Meeting the demand of different users of different levels to increase community members' willingness to continue to use is the basis of the Internet community development. In

order to increase the virtual community members' willingness to continue to use, we need to develop members changing needs, increase the members of the community's identity and dependence, to improve the continuous consumption behavior of the members of the community; when community members recognize and obtain certain status or honor in the community through their own behavior, they will participate in the deeper level of community life and further improve their visibility in the community. Internet environment has positive correlation to the continuous participation, in addition to the need of network builder meeting the needs of different members of the community, establishing a good Internet environment, strengthening the construction of virtual community function, improving virtual community members satisfaction and happiness, and deepening community members continue to use by increasing the transfer barriers are also important.

REFERENCES

[1] http://www.cnnic.net.cn/hlwfzyj/

[2] Xiao X. Wang t. The implications of social influence theory on continuance intention for social networking among Chinese university students [J]. Journal of Organizational and End User Computing, 2016, 28 (4): 55-72.

[3] Y.L. Chen, The factors influencing members' continuance intention in professional virtual communities: a longitudinal study [J]. Journal of Information Science, 2007, (33): 451-467.

[4] d. Wang, l. Xu, H.C. Chan, Understanding users'continuance of Facebook: The role of general and specific computer self-efficacy [C]. Proceedings of Twenty Ninth International Conference on Information Systems, Paris France, 2008.

[5] Xiao Xuan, Wang Tienan, Hao Fanhao. Research on the continuous use of social media from the perspective of social impact theory [J]. Journal of management science, 2017, 20(11):49-60.

[6] Zhao Wenjun, Yi Ming, Wang Xuedong. Empirical research on the continuous participation intention of users of social q&a platform — the perspective of perceived value [J]. Intelligence science, 2017,35(02):69-74+91.

[7] Lu Jia-jing, Tang Ke-yue, Min Qing-fei. An empirical study on the factors influencing the non-continuous use intention of social media [J]. Intelligence science, 2008,36(08):94-100.

[8] Dai Bao, Deng Aiwen. Analysis of influencing factors of social media users' non-continuous use and transfer behavior [J]. Intelligence science, 2008,36(05):64-70+89.

[9] Liang Wenling, Yang Wenju. Research on the influence of virtual brand community information quality on community users' continuous participation intention [J]. Journal of intelligence, 2016, 35(11): 195-201.

[10] Bandura a. Social Learning theory. Englewood Cliffs, NJ: PrenticHall.1977.

[11] Bandura a. Social foundations of thought and action [M]. Englewood Cliffs, NJ Prentice Hall.

[12] Constant D, Sproull, L KIESLER S the kindness of strangers: the usefulness of electronic weak ties for technical advice [J]. Organization Science, 1996, 7 (2) : 119-135.

[13] Compeau D R, Higgins C a. Social cognitive and found the and individual reactions to computing technology: A longitudinal study [J]. Journal of MIS Quartterly, 1999, 23 (2) : 145-158.

[14] Zheng Y M, Zhao K, Stylianou a. The effects of information quality and system quality on users' continuance intention in information-exchange virtual communities: Empirical investigation [J]. Decision Support Systems, 2013, (56): 513-524.

[15] Chiu C M, Hsu M H, Sun S Y. Usability, Quality, Value and eLearning Continuance Decisions [J]. Computers & Education, 2005,45 (4): 399-416.

[16] Wu Minglong. SPSS statistical application practice (questionnaire analysis and applied statistics) [M]. Beijing: China railway publishing house. 2009.