Research on the Relationship between User-to-User Interaction and User Co-created Value
—— Non-Trading Virtual Community as An Example

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Abstract. Effect relationship model between user-to-user interaction, co-creation user experience and user co-created value were established in the setting of non-trading virtual community. Empirical study of structural equation model was applied to verify the effect relationship between user-to-user interaction, co-creation user experience and user co-created value. The results show that user-to-user interaction has significantly impact on emotional experience and relationship experience; emotional experience and relationship experience all have significantly effect on user co-created value.

Introduction

Using micorblog and social networking sites can not only help user to get more useful information, but give them more chance to gain leisure and entertainment. In microblog and social networking, direct economic transactions can not carried out by users and there are no servicer to provide transaction service. So these platforms are belong to non-trading virtual community. Non-trading virtual community is defined as the platform which makes the users together who have common interest or similar life experience[1]. In non-trading virtual community, platform provides only the function and environment of communication and experience to the websites users.Users need is satisfied by themselves when they use the section service and make automatic communication. And user websites experience is co-created by platform and users. Co-creation user experience is emerging automaticly and it may be useful for users to achieve the benefit they need.

In the meantime, Vargo and Lusch(2004) made the study of service-dominant-logic, and believed that value creating model was changed recently, value was co-created by customer and enterprise[2]. They also proposed that enterprises provided only the condition of value creating, value was emerged in the process of service using[3]. In non-trading virtual community, the process of service using concludes not only interacion between user and user, but also users' experience of websites platform. So we believe that interaction and user experience may be very important to users value. Prahalad and Ramaswamy(2004) proposed that experience was co-created by enterprise and customer, enterprise provided the condition of experience, and customers created actively the experience by the individual need of themselves[4]. But how can users achieve their value in the platform? Now only Tu Jianbo et al.(2013) analyzed the effect relationship between involvement and user co-created value[5], the effect of user-to-user interaction on user co-created value is not studied.

 To solve these research problems above, the study construct the effect relationship model between user-to-user interaction, co-creation user experience and user co-created value. And empirical research of structural equation model is applied to analyze the effect relationship model.

Literature Review and Research hypothesis

 Vargo, Maglio and Akaka(2008) proposed co-created value as it was co-created by mutual cooperation ,interaction and service delivery between enterprises and customers[6]. According to the research of Vargo, Maglio and Akaka(2008), this paper define user co-created value in non-trading virtual community as the value which is co-created by interaction and emotion delivery of community members. And we believe that user co-created value in non-trading virtual community has two

dimensions of pragmatic value and hedonic value by literature research[7,8]and15persons qualitative research of focus group interview.

Babin et al.(1994) believed that pragmatic value was intentional result which was needed by persons, and it can fulfilled customers' functional need[7]. Chandan, Wansink and Laurent (2000) divided customer value into pragmatic value and hedonic value[8]. In the focus group interview, interviewee talked about this value, " From the interaction and conversation in microblog , I achieved more information which I needed", " The quality of information gained from interaction was very high". So the paper believe pragmatic value is one dimension of user co-created value.

Babin et al.(1994) also believed hedonic value was the value which was about fun and spiritual enjoyment gained in the service process. It has relationship with people's subjective psychologic factors. In the focus group interview, interviewee talked about this value, "I had sense of achievement and gained happiness", "I experienced spiritual enjoyment". So this paper believe hedonic value is also one dimension of user co-created value.

Interaction was defined as interactive behaviour of two or more contact party[9].Servicers in non-trading virtual community are not participate into the interaction with users, So the interaction way of the platform is only user-to-user interaction. Nicholls(2005) studied user-to-user interaction in the online platform and believed that users interacted in the online platform were desperate for information and emotion need[10]. But these study above all have not research the source and influencing factors of user co-created value. Vargo and Lusch (2006) proposed experience was very important to decide value[11]. This study believe co-creation user experience may be very important to user co-created value. Concerning the dimensions of customer experience, Gentile et al. (2007) believed customer experience had three dimensions of social experience, functional experience, emotional experience[12]. Yang Xiao Dong (2007) divided customer experience into transmission experience, service experience and relationship experience[13]. Because in the service using of non-trading virtual community, emotion sharing and relationship establishing were very important for users. So this paper believe that the dimensions of co-creation user experience are emotional experience and relationship experience.

Considering the relationship between user-to-user interaction and co-creation user experience, Klaus et al.(2011) also proposed that co-creation experience may has relationship with interaction between customer and enterprises, different interaction may has effect on experience evaluation of customers[14]. So this paper believes that user-to-user interaction may has effect on co-creation user experience.

Hypothesis 1a: user-to-user interaction has significantly positive effect on emotional experience;

Hypothesis 1b: user-to-user interaction has significantly positive effect on relationship experience.

Considering the relationship between experience and value, researchers initially believe that experience has relationship with perceived value. Customer experience was believed that it may improve perceived value (Wang, Baker, Wagner et al. 2007)[15]. Prahalad and Ramaswamy (2004) believed co-created value from conception may occured and evolved by personalized experience. So this paper believes that co-creation users experience may has effect on users co-created value.

Hypothesis 2a: emotional experience has significantly positive effect on pragmatic value;

Hypothesis 2b: emotional experience has significantly positive effect on hedonic value;

Hypothesis 2c: relationship experience has significantly positive t effect on pragmatic value;

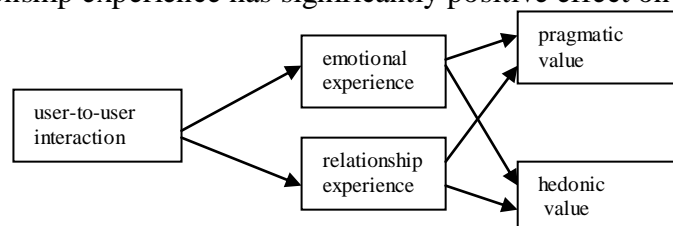Hypothesis 2d: relationship experience has significantly positive effect on hedonic value.

Fig.1 Research Model

Empirical Study

This research measured user-to-user interaction refered to the scale of Yoo et al.[16].This research measured emotional experience refered to the scale of Brengman and Geuens[17]; relationship experience refered to the scale of Yang Xiao Dong(2007).The measurement of pragmatic value and hedonic value refered to the scale of Chiu H., Hsieh Y. and Li Y[18].

Formal survey used the network platform and face-to-face interview to get the samples. At last we had gotten 900 copies of questionnaires, the effective questionnaires were 485 copies. The rate of effective was 53.9%. In the effective questionnaires , male was 49.1% and female was 50.9%；age below 25 was 74.6%, age between 25 and 35 was 20.2%, age exceeded 36 was 5.1%；rate of students was 64.5%,rate of enterprises workers was 25.8%, rate of civil servants was 5.2%, rate of teachers was 4.1%, rate of others was 0.4%；rate of QQ group users was 40.0%, rate of Tencent microblog users was 9.9%, rate of Netease microblog users was 5.6%, rate of Sina microblog users was 23.3%, rate of Ren Ren website users was 16.9%, rate of Happy website users was 2.3%, others were 2.1%. The samples of the paper have certain representative of non-trading virtual community users in China.

The research used Cronbach's Alpha to test the internal consistency of questionnaire. We used SPSS17.0 to make the statistical analysis. The results showed that all items of Cronbach's Alpha were between 0.725 and 0.761, which were higher than the standard of 0.7. The overall Cronbach's Alpha of the scale was 0.954, it told that the scale had better internal consistency and reliability. The results also showed that KMO was 0.917, and the test of Barlett's sphericity was significant($p<0.001$). The total variance explanation was 61.3%. In the research, we used standard load factors and AVE to test the convergence validity of the scale. From table 1, the results showed that all the standard load factors were close to or above the standard of 0.6, and T test were significant, the statistics of AVE were higher than the standard of 0.5. These results showed the scale had better convergence validity.

Before the verification of construct model, the research made the confirmatory factor analysis to the 7 latent variables. From table 1, χ^2/df was 2.482, which was fulfilled the standard of 3；RMSEA was 0.054, which was fulfilled the standard of 0.08；CFI was 0.98, IFI was 0.96, NFI was 0.96, NNFI was 0.97, GFI was 0.85，which were were close to or above standard of 0.90.Standardized coefficients of all the latent variables were higher than the standard of 0.6; and T-value were all higher than the standard of 1.96. It showed the results of simulation of model met the standard.

Table 1 Results of Confirmatory factor analysis

latent variable	observed variable	Standardized coefficient	T-value	AVE-value
user-to-user interaction	user-to-user interaction 1	0.72	16.73	0.512
	user-to-user interaction 2	0.71	16.65	
	user-to-user interaction 3	0.68	15.36	
	user-to-user interaction 4	0.75	17.55	
emotional experience Cronbach's Alpha=0.752	emotional experience 1	0.74	18.00	0.531
	emotional experience 2	0.79	19.44	
	emotional experience 3	0.65	14.97	
relationship experience Cronbach's Alpha=0.732	relationship experience 1	0.76	17.31	0.529
	relationship experience 2	0.69	15.87	
	relationship experience 3	0.73	16.91	
pragmatic value Cronbach's Alpha=0.725	pragmatic value 1	0.74	16.82	0.527
	pragmatic value 2	0.77	17.64	
	pragmatic value 3	0.71	15.96	
	pragmatic value 4	0.68	15.39	
hedonic value Cronbach's Alpha=0.758	hedonic value 1	0.76	17.26	0.556
	hedonic value 2	0.74	16.98	
	hedonic value 3	0.71	15.94	
	hedonic value 4	0.77	17.46	

The statistics results of structural equation model showed that: χ^2/df was 2.78, which was fulfilled the standard of 3；RMSEA was 0.069, which was fulfilled the standard of 0.08；CFI was 0.96, IFI was 0.97, NFI was 0.95, NNFI was 0.96, GFI was 0.91，which were all above the standard of 0.90. It showed the results of simulation of model met the standard. In the results of verifying the hypothesis of model in table 2 showed that: user-to-user interaction had significantly positive effect on emotional experience and relationship experience, and T-value were 13.50 and 10.37, which were higher than the standard of 1.96. Emotional experience had significantly positive effect on pragmatic value and

hedonic value, T-value were 6.29 and 6.11. Relationship experience had significantly positive effect on pragmatic value and hedonic value, T-value were 6.18 and 6.43.So the hypotheses 1a,1b,2a,2b,2c,2d were verified.

Table 2 Test of Structural Model

Hypothesis	Standardized coefficient	T-value	Hypothesis Test
Hypothesis 1a	0.81	13.50	confirmed
Hypothesis 1b	0.77	10.37	confirmed
Hypothesis 2a	0.48	6.29	confirmed
Hypothesis 2b	0.45	6.11	confirmed
Hypothesis 2c	0.53	6.18	confirmed
Hypothesis 2d	0.55	6.43	confirmed

Conclusion and Limitation

The conclusion and limitation are as follows.

Firstly, in non-trading virtual community of QQ groups, microblog and social networking sites, value co-creation process including interaction and experience, is the source of user value. User co-created value can divides into two dimensions of pragmatic value and hedonic value in non-trading virtual community.

Secondly, under the background of non-trading virtual community, the study verifies that user-to-user interaction has significantly positive effect on emotional experience and hedonic experience. With the help of users interaction, users' feeling could transfer from one to another, happiness and spiritual enjoyment could get by users when have emotional identificantion. In the process of interaction between users, they may know more friends who have the same interests and life experience so as to establish better relationship. community platform should ensure the stable of websites and using effiency of platform, so that users can communicate smoothly and continuously in the platform. And platform servicers should focus on users' communication records and make effort to better the relationship between users, so that improve their interaction intention.

Thirdly, co-creation user experience has significantly positive effect on user co-created value. Users could get information and hedonic value which they need from co-creation user experience. Non-trading virtual community platform, such asQQ groups, microblog and social networking sites, should create warmful and comfortable network environment for users to make information sharing and emotional expression better. And platform should pay attention to emotional need of users. Network survey should carried out by the platform to know the emtional and relation need of users , so that platform can provide appropriate and diversification services to users and satisfy their need well.

The limitation of this paper is that the influence factor of user co-created value only refers to user-to-user interaction and co-creation user experience. Future research could consider other factors like mood and participation, and analyze the relations between these factors and user co-created value.

Acknowledgment

References

[1] Wang Fengyan, Ai Shizhong, Li Min. Empirical Study on the Factors Impacting User's Loyalty Degree in Non-trading Virtual Community[J]. Chinese Journal of Management, 2011, 8(9):1339-1344(in Chinese).

[2] Vargo S L, Lusch R F. Evolving to A New-Dominant-Logic for Marketing[J]. Journal of Marketing,2004,68(1):1-17.

[3] Vargo S L, Lusch R F.Service-Dominant-Logic: Continuing the Evolution[J]. Journal of the Academy of Marketing Science, 2008,36(1):1-10.

[4] Prahalad C K, Ramaswamy V. Co-creating Unique Value With Customers[J]. Strategy & Leadership, 2004, 32 (3):4-9.

[5] Tu Jianbo, Zhang Mingli.The Effects of Customer Involvement on Customer Co-created Value in Non-trading Virtual Community[C].Proceedings of 2013 6th international conference on Information Management, Innovation Management and Industrial Engineering, 2013, 230-233.

[6] Vargo S L, Maglio P P, Akaka M A. On Value and Value Co-creation: A Service Systems and Service Logic Perspective[J]. European Management Journal. 2008, 26(1):145-152.

[7] Babin B J, Darden W R, Griffin M. Work and/or Fun:Measuring Hedonic and Utilitarian Shopping Value[J].Journal of Consumer Research,1994,20(4):644-56.

[8] Chandon B, Wansink G, Laurent. A Benefit Congruency Framework of Sales Promotion Effectiveness[J]. Journal of Marketing.2000,64(4):65~81.

[9] Grönroos C, Helle. P. Adopting a service logic in manufacturing: Conceptual foundation and metrics for mutual value creation. Journal of Service Management.2010,21 (5): 564-590.

[10] Nicholls R.Interactions between Service Customers:Managing On-site Customer-to-Customer Interactions for Service Advantage[D]. Poznan: The Poznan University of Economics Publishing House,.2005.

[11] Vargo S L, Lusch R F. Service-Dominant Logic: What It Is, What It Is Not, What It Might Be[R]. In The Service-Dominant Logic of Marketing: Dialog, Debate and Directions. 2006.

[12] Gentile C, Spiller N, Noci G. How to Sustain The Customer Experience: An Overview of Experience Components That Co-create Value with The Customer[J]. European Management Journal, 2007, 25(5): 395-410.

[13] Yang Xiao-dong. Influence Study of Customer Experience on Customer Loyalty in Service Industry[D]. Doctoral Dissertation of Jilin University. 2007.

[14] Klaus P P, Maklan S. EXQ: A Multiple-item Scale for Assessing Service Experience[J]. Journal of Service Management, 2011, 23(1):5-33.

[15] Wang L C, Baker, Wagner J A, Wakefield K. Can A Retail Web Site Be Social?[J]. Journal of Marketing, 2007, 71(3):143-157.

[16] Yoo J J, Arnold T J, Frankwick G L. Effects of Positive Customer-to-Customer Service Interaction[J].Journal of Business Research,2012,65(9):1313-1320.

[17] Brengman M, Geuens M. The Four Dimensional Impact of Color on Shopper's Emotions [J]. Advances in Consumer Research, 2004,31(3):122-128.

[18] Chiu H,Hsieh Y,Li Y. Relationship Marketing and Consumer Switching Behavior[J]. Journal of Business Research,2005,58(12):1681-1689.