

Value received from Participating in Virtual Communities and The Impact on Virtual Community Participation

¹Hanping Chou, ²Peirchy Lii

Graduate Institute of Management Science, Tamkang University, Taiwan

¹hanping@chu.edu.tw; ²100679@mail.tku.edu.tw

Abstract

Wikipedia is a collaborative web site of knowledge sharing platforms. Based on a survey of 202 Wikipedians, this study develop a theoretical framework to examine the relationship between individual value (utilitarian/hedonic) received, group cohesiveness and virtual community participation. Result from structural equation modeling (SEM) analysis reveal that individual motivation has positive effect on virtual community participation. Hence, group cohesiveness moderates participants' motivations on virtual community participation. Most of the past studies on virtual networks knowledge contribution focused only on the individual level, this study address the literature gap by exploring group level and the mutual relationships between participants in virtual communities.

Keywords: *Virtual Community Participation, Wikipedia, Collaborative Network*

1. Introduction

Recent advances in internet communication technologies have changed fundamentally the scenery of networked collaboration and mediated information provision. It is also led to the rapid growth of virtual communities on the Internet [9,26]. Collaborative Web sites such as Wikipedia have become knowledge sharing platforms that have changed our assumptions about the processes of knowledge creation [14]. The increasing prevalence of electronic networks in accomplishing collaborative work, especially within professional communities, makes the study of such practices more important than ever before [17]. Despite many researchers intended to investigate why people participate and share knowledge with others in virtual communities, these studies mainly focused on the motivations, resource, and participant diversity of individual level [7,32,17]. Little attention has been paid to the group level or the mutual relationships between participants in virtual communities. For the purpose of providing a more holistic view of virtual communities, the motives of people participating in virtual communities need further investigation.

The purpose of this paper is to develop a theoretical framework and seek to address this literature gap by exploring virtual community participation from the motives of participating in virtual communities. This paper is organized as follows. First, we introduce the concept of virtual communities and discuss the key issues for understanding motives of participating in virtual communities. Then we review the literature on individual motivations of participating in virtual communities (utilitarian value and hedonic value) and the moderating role of group cohesiveness on virtual community participation. We test the research model and related hypotheses of the study through a web-based questionnaire. Finally, we will discuss how our findings contribute to theory development and implications as well as the limitations of the study formation.

2. Conceptual model and hypotheses

2.1. Individual motivations of participating in virtual community

There were lots of studies established motivators of human behavior in several domains, such as extrinsic benefits (such as monetary incentives, promotions or public praises) and intrinsic benefits (feelings of challenging, self-actualization). Nevertheless, they were all based on organizations in the physical environment. Recent studies adopt these motivators of human behavior on virtual communities and posit a variety of drivers motivate people to participate in virtual communities.

Wasko et al. [31] proposed that the individual motivations such as organizational/community affiliation, access to a peer group and useful information, enjoyment, and learning influence participation in electronic networks [7,18]. Tayler et al. [28] explored the knowledge-sharing practices in an accounting academics in a virtual community, the result suggest that altruism is a significant predictor of posting frequency. After performing an online questionnaire survey, Yang et al.[34] indicated that internal self-concept motivation is the key motivation for knowledge sharing on Wikipedia. Lately, Utz et al. [30] explored that need for popularity was the strongest and most consistent predictor of social network sites behaviors.

2.2. Utilitarian value and hedonic value received on virtual community participation

Lin et al. indicated that shared values can promote the development of trust which was derived from a feeling of shared values between individuals [20]. Shan et al. [27] indicate that outcome expectations is one of the factors exhibit positive and significant effects on members' knowledge sharing behaviors (postings and replies) in virtual communities. Utilitarian motivation is defined as "mission critical, rational, decision effective, and goal oriented" [12,3,29]. Hedonic motivation refers to "those consumption behaviors in search for happiness, fantasy, awakening, sensuality, and enjoyment" [29]. As alternative perspective, which builds upon this view, both utilitarian and hedonic values are also important drivers of virtual community participation. It is also helpful in understanding why people might participate in virtual communities and in turn influence participation.

The perspectives of utilitarian/hedonic values may be consistent with extrinsic/intrinsic motivations. Hertel et al. [13] list one of the motivation factors is hedonistic value (such as enjoyment of programming), and suggested that a hedonistic component related to intrinsic motivation. It is likely that the motivations of participating in virtual communities can be similarly categorized as utilitarian and hedonic motivations.

Despite the increasing numbers of studies on virtual community, there remains a lack of research from the value perspective of these participants. To understand the motives of virtual community participations, our research classified the motivations of participating in virtual communities into hedonic and utilitarian motivations. An understanding of what one seeks to gain from virtual communities should be a crucial antecedent to virtual community participation. Accordingly, we hypothesized:

- H1: Members' participation toward a virtual community would be positively related to the utilitarian value received from participating in the virtual community. The more the user needs the reputation, skill and information from the virtual community, the more he or she will participate.
- H2: Members' participation toward a virtual community would be positively related to the hedonic value received from participating in the virtual community. The more the member wants to gain enjoyable, immediate pleasure, the more he or she will participate.

2.3. The moderating effect of group cohesiveness on virtual community participation

To the extent that these individual motivates can be satisfied through virtual community participation, the group-level variables might influence on its members. In addition to individual motivations, prior studies consistently find that the impact of cohesiveness on building network ties in virtual communities could be strong enough to override distance and individual characteristics [35]. There are empirical evidences support the expectation that group cohesiveness [25,23] is the predicators of organizational citizenship behavior. Group cohesiveness embodies the internalization of the value of teamwork and reflects actions that create a cooperative and trusting atmosphere [33] which are important factors of organizational citizenship behavior.

On the basis of above discussion, we expect that group-level factors moderate participants' motivations on the virtual community participation. While group cohesiveness of the virtual community is low, the utilitarian-value motivator participants will invoke more virtual community participation than hedonic motivator participants. On the contrary, the participants in virtual communities with hedonic-value motivators are in need of getting from other participants' support to fulfill their needs, such as playfulness, social interaction, self-worth, challenges and community attachment with other participants. They will be more likely to obtain satisfaction through group

cohesiveness. Therefore, hedonic-value participants will invoke more virtual community participation than utilitarian-value participants through participation under higher degree of cohesiveness. Thus:

H3: Group cohesiveness will moderate the relationship between users' motivation and virtual community participations.

3a: The relationship between utilitarian value received and virtual community participation is stronger for virtual community with low degree of group cohesiveness and weaker for virtual community with high degrees of group cohesiveness.

3b: The relationship between hedonic value received and virtual community participation is stronger for virtual community with high degree of group cohesiveness and weaker for virtual community with low degrees of group cohesiveness.

2.4. Concept Framework

Koh et al. [16] explored that posting and viewing are the two key activities in the ongoing dynamics of any virtual community. Wikipedia is one of the collaborative knowledge structures, which is a kind of group knowledge structure formed through independent work, discussions between the individuals and collaborative cognition process based on common understanding of cognitive object [27]. The social web stimulates learning through collaboration, in addition, individuals apply social selection strategies when considering information from Wikipedia [22]. After investigating the ways that participation in the Wikipedia community, Bryant et al. [4] found that as individuals' participation becomes more central and frequent, their motivation seems to transform from a local focus on individual articles to become rooted in a concern for the quality of the Wikipedia content as a whole and the health of the community. In addition, receiving recognition, either in the form of status or financial reward, also encourage participation in virtual community [1,11,5]. Thus highly participated individuals engage more virtual community participation because they believe the virtual community is more important and become concerned with improving the community, and therefore put much effort to engage virtual community to achieve this goal.

In short, this study intend to examine group cohesiveness can be moderated the effect of utilitarian/hedonic motivations on virtual community participation. We therefore used the following conceptual framework shown in Figure 1. as the basis for our investigation of the relationships in a virtual community.

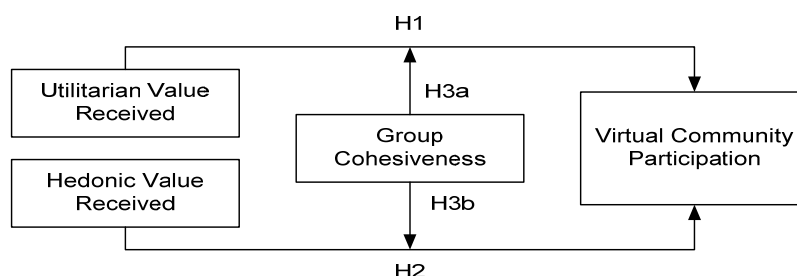


Figure 1. Conceptual Framework

3. Research Methodology

To test the research hypotheses, a web-based questionnaire was conducted to examine our framework in the context of the virtual community. We measure two independent variables, the value (hedonic/utilitarian) received to participate in virtual community. Group cohesiveness of participants was considered the variables that moderate the effects of individual value (hedonic /utilitarian) received on virtual community participation. The variable measurement in the research model is derived from previous studies [24] and is modified according to the special conditions of virtual communities to better fit the research topic. The measurement of utilitarian and hedonic value received is from the items developed by Paridon [24]. The items of group cohesiveness are derived from the questionnaire of MacKenzie et al. [21], while community participation is from Green et al. In addition,

by deriving from previous researches, part of the items which focused on physical organizations rather than virtual communities had been modified for this study.

3.1. Instrument design

The questionnaire was divided into five parts. The first part collected the demographic data of the subject and their experience in Wikipedia. The second part included eight items to measure the utilitarian and hedonic motivations of virtual community participants. The third part included three items measuring group cohesiveness. The fourth part included six items to measure community participation. A five-point Likert scale is used, where 1 represented 'totally disagree' and 5 represented 'totally agree' for each item. Our data was analyzed first by confirmatory factor analysis for assessing validity of the constructs, and path analysis was then applied to test the proposed relations in our framework.

3.2. Pretest and pilot study

Data collection consisted of two phases. In the first phase, a pretest of the questionnaire was performed by six experts who are in the information system area to identify if there are problems with the questionnaire regarding its items arrangement, logical consistencies, ease of understanding, and contextual relevance. These six subjects are all full of experiences in virtual community participating. The comments then were collected to make several minor revisions to the survey as a result of the pretest. During the process, the subjects suggested that the phrasing of certain items could be revised, which included utilitarian value received, hedonic value received, group cohesiveness and virtual community participation. The wording of the questionnaire items was also revised slightly after adopting suggestions from the pretest subjects.

3.3. Sample selection

Anyone with an Internet connection can edit the content in Wikipedia at any time without registering or otherwise applying for editorial privilege [4]. Since this study looked at those registered as Wikipedians in Taiwan, those respondents without experiencing in editing Wikipedia were excluded in the analysis. Under the category of Chinese Wikipedian member lists, one thousand Wikipedians were selected randomly and were sent an invitation e-mail with brief statement of research purpose and the hyperlink to access the on-line survey questionnaire.

Excluding 26 incomplete questionnaires, we collected 202 valid responses, yielding a response rate of 20.3%. Of the entire 202 respondents, 78% were male, 22% were female. The majority of age group was between age of 26 and 30 (62%) with at least a college degree (91%), indicating the respondents were primarily young and educated. Approximately 52% of respondents spent more than 3 hours a day editing the content of Wikipedia. Since sample size ranging more than 200 is already sufficient to generate statistically reliable estimates of the causal paths among constructs [19]. Table 1. summarizes the respondents' profile.

Table 1. Demographic Characteristics of Respondents

Measure	Items	Frequency	Percent
Gender	Male	158	78
	Female	44	22
Age	Under 25	46	23
	26-30	126	62
	Over 31	30	15
Education	Under junior high	3	1
	High school	14	7
	College	114	56
	Graduate degree	71	35
WikiExperience	Under 3 months	12	6
	3-6 months	23	11
	6 months-1 year	61	30

	1 year – 2 years	70	35
	Over 2 years	36	18
Hours spend on editing wiki a day	Under 1hr	17	8
	1-3 hrs	80	40
	Over 3 hrs	105	52

4. Result

The proposed model was evaluated using SEM, which is a powerful second-generation multivariate technique for analyzing causal models with an estimation of the two components of a causal model: measurement and structural models. Since all samples in this study were collected and used the same instrument, common method bias test was applied. The measurement model is estimated using confirmatory factor analysis (CFA) to test whether the constructs poses sufficient validation and reliability. The structural model is used to investigate the strength and direction of the relationship between the theoretical constructs. Such analyzed technique has been widely applied in recent years. In our study, LISREL 8.7 was the software used to assess the measurement and the structural models.

The reliability of the proposed model was measured by using composite reliability. The reliability ranged from 0.76 to 0.96, which exceeded the acceptable value of 0.50 recommended by Hair et al. [10]. The internal consistency of the measurements model was assessed by computing the composite reliability. Consistent with the recommendations of Bagozzi et al. [2], all composite reliabilities were above 0.60 benchmark. In addition, the discriminant and convergent validity were measured by average variance extracted. Fornell et al. [8] suggested that the average variance extracted value of each construct should exceed the squared correlation among other constructs in the proposed model to confirm discriminant validity. The average variance extracted for all constructs exceeded the threshold value of 0.5 recommended by Fornell et al. [8]. Since the values of reliability were above the recommended thresholds, the scales for evaluating the constructs were deemed to exhibit convergence reliability.

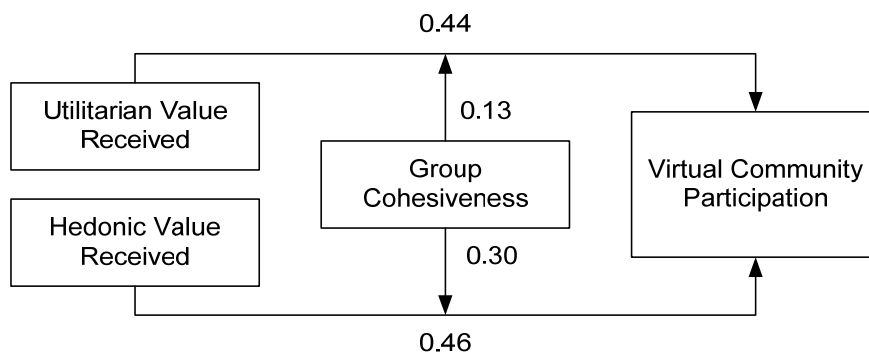


Figure 2. Tests of the Structural Model

We examined the structural equation model by testing the hypothesized relationships among the research variables: see Figure 2. They display all of the structural relationships among the studies construct from our research framework. Path coefficients and their significance for each dependent construct are also presented in the figures. Figure 2 shows that both utilitarian value received and hedonic value received had significant effects on virtual community participation, which support hypothesis 1 and hypothesis 2. In addition, Figure 2 shows the result that group cohesiveness moderated the utilitarian value received on virtual community participation which hypothesis 3a and hypothesis 3a are supporting.

5. Conclusion

Despite the increasing numbers of studies on virtual community, there remains a lack of research from the value perspective of these participants. Moreover, little attention has been paid to the group level or the mutual relationships between participants in virtual communities.

The results of this study reveal that group cohesiveness of the virtual community plays less effect on the participants with utilitarian-value motivator. In comparison with participants with hedonic-value motives participants, though less group cohesiveness still invoke virtual community participation among the utilitarian-value received participants than hedonic-value motivator participants. On the contrary, the participants in virtual communities with hedonic-value motivators are in need of getting from other participants' support to fulfill their needs, such as playfulness, social interaction, self-worth, challenges and community attachment with other participants. They will be more likely to obtain satisfaction through group cohesiveness. Therefore, hedonic-value participants will invoke more virtual community participation than utilitarian-value participants through participation under higher degree of cohesiveness.

6. Acknowledge and future framework

With the rapid advancement of computer-mediated communication, knowledge sharing has moved beyond face-to-face exchanges to virtual social contexts [7]. The participants of an online community are less likely to create effective knowledge sharing in a virtual community without shared background and social network [34]. More and more studies adopt motivators of human behavior on virtual communities and posit a variety of drivers motivate people to participate in virtual communities. While most of the past studies on virtual networks knowledge contribution focused on the motivations, resource, and participant diversity of individual level, little attention has been paid to the group level or the mutual relationships between participants in virtual communities. The development and maintenance of virtual communities depend not only on participants' voluntarily knowledge sharing, but the adherence and attraction for contributing virtual communities as well. The more factors of the mutual effect between those contributors are explored in the virtual community, the more innovation or contribution can be invoked through their participation to lead to the growth of virtual communities on the Internet. Within the context of knowledge management, knowledge can be exchanged in the virtual communities [29,26], the result of this paper providing more understanding and facilitating this knowledge exchange.

There are some limitations to the research. First, the sample selection focuses on Chinese Wikipedians while other Wikipedia languages users are excluded. Second, in addition to group cohesiveness, more factors of group level, such as affection similarity, trust can be integrated in the future study. This framework can also be extended by applying organizational citizenship behavior in the future since the knowledge exchanging online can be considered as a form of organizational citizenship behaviors.

7. References

- [1] Andrews, D. C., "Audience-Specific Online Community Design", *Communications of the ACM*, vol. 45, no. 4, pp. 64-68, 2002.
- [2] Bagozzi, R.P., Yi, Y. J., "On the Evaluation of Structural Equation Model", *Journal of Academy of Marketing Science*, 16 (Spring), pp. 74-94, 1988.
- [3] Batra, R., Ahtola, O.T., "Measuring the Hedonic and Utilitarian Sources of Customer Attitudes", *Marketing Letters*, vol. 12, no. 2, pp. 159-170, 1991.
- [4] Bryant, S.L., Forte, A., Bruckman A., "Becoming Wikipedian : Transformation of Participation in a Collaborative Online Encyclopeida", In *Proceedings of the 2005 International ACM SIGGROUP Conference on Supporting Group Work*, pp. 1-10, 2005.
- [5] Chan, C.M.L., Bhandar, M., "Recognition and Participation in a Virtual Community", In *Proceeding of the 37th Hawaii International Conference on System Sciences*, 2004.

- [6] Cho, H., Chen, M. H., Chung, S., "Testing an Integrative Theoretical Model of Knowledge-Sharing Behavior in the Context of Wikipedia", *Journal of The American Society for Information Science and Technology*, vol. 61, no. 6, pp. 1198-1212, 2010
- [7] Constant, D., Sproull, L., Kiesler, S., "The Kindness of Strangers: The Usefulness of Electronic Weak Ties for Technical Advice", *Organization Science*, vol. 7, no. 2, pp. 119-135, 1996.
- [8] Fornell, C., Larcker, D.F., "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error", *Journal of Marketing Research*, 18, pp. 39-50, 1981.
- [9] Gross, N., "Building Global Communities : How Business Is Partnering with Sites That Draw Together Like-minded Consumers", *Business Week Online*, March 22, 1999.
- [10] Hair, J.F. Jr., Anderson, R.E., Tatham, R.L., Black, W.C., "Multivariate Data Analysis with Readings", 5th ed, Prentice Hall, Englewood Cliff, NJ., 1998.
- [11] Hars, A. , Ou, S., "Working for Free? Motivations for Participating in Open-Source Projects", *International Journal of Electronic Commerce*, vol. 6, no. 3, pp. 25-39, 2002.
- [12] Hirschman, E.C., Holbrook, M.B., "Hedonic Consumption : Emerging Concept, Methods And Propositions", *Journal of Marketing*, vol. 46, no. 2, pp. 92-101, 1982.
- [13] Hertel, G., Niedner, S., Herrmann, S., "Motivation of Software Developers in Open Source Project : An Internet-based Survey of Contributors to The Linux Kernel", *Research Policy*, 32, pp. 1159-1177, 2003.
- [14] Ho, S. C., Ting, P. H., "Knowledge-Sharing Intention in a Virtual Community: A Study of Participants in the Chinese Wikipedia", *Cyberpsychology, Behavior, and Social Networking*, vol. 14, no. 9, pp. 541-545, 2011.
- [15] Jiangnan, Q., Chunling, W., "The Order Measure Model of Collaborative Knowledge Structure", *Advances in information Sciences and Service Sciences*, vol. 4, no. 12, pp. 140-151, 2012.
- [16] Koh, J., Kim, Y.G., "Encouraging Participation in Virtual Communities", *Communications of the ACM*, vol. 50, no. 2, pp. 60-73, 2007.
- [17] Kudaravalli, S., Faraj, S., "The Structure of Collaboration in Electronic Networks", *Journal of the Association for Information Systems*, vol. 9, issue 10, 11, pp. 706-726, 2008.
- [18] Lakhani, K., E. von Hippel, "How Open Source Software Woks: "Free" User-to-User Assistance", *The 3rd Intangibles Conference, Knowledge : Management, Measurement and Organization*, Stern School of Business, NYU., 2000.
- [19] Lin, H. F., "Antecedents of Virtual Community Satisfaction and Loyalty: An Empirical Test of Competing Theories", *CyberPsychology & Behavior*, vol. 11, no.2, pp. 138-144, 2008.
- [20] Lin, K. Y., Lu, H. P., "Intention to Continue Using Facebook Fan Pages from the Perspective of Social Capital Theory", *Cyberpsychology, Behavior, and Social Networking*, vol. 14, no. 10, pp. 565-570, 2011.
- [21] MacKenzie, S. B., Podsakoff, P. M., Fetter, R., "The Impact of Organizational Citizenship Behavior on Evaluations of Salesperson Performance", *Journal of Marketing*, vol. 57, no.1, pp. 70-80, 1993.
- [22] Matschke, C., Moskaluk, J., Kimmerle, J., "The Impact of Group Membership on Collaborative Learning with Wikis", *Cyberpsychology, Behavior, and Social Networking*, Ahead of Print, 2012.
- [23] Organ, D. W., Podsakoff, P. M., MacKenzie, S. B., *Organizational citizenship behavior: Its Nature, Antecedents, and Consequences*, Thousand Oaks, CA: Sage, 2006.
- [24] Paridon, T. J, "The Income Effect in Personal Shopping Value, Consumer Self-confidence, and Information Sharing (Word of Mouth Communication) Research", *Academy of Marketing Studies Journal*, vol. 10, no. 2, pp. 107-124, 2006
- [25] Podsakoff, P.M., MacKenzie, S.B., Paine, J.B., Bommer, W.H., "Transformational Leader Behaviors and Substitutes for Leadership As Determinants of Employee Satisfaction Commitment, Trust, and Organizational Citizenship Behavior", *Journal of Management*, 22, pp. 259-298, 1996.
- [26] Ridings, C., Genfen, D., Arinze, B., "Some Antecedents and Effects of Trust in Virtual Communities", *Journal of Strategic Information Systems*, vol. 11, pp. 271-295, 2002.
- [27] Shan, S., Li, Y., Liu, Lu., Mao, Z., "Empirical Study on Influential Factors of Knowledge Sharing on Emergency Events in Virtual Communities", *Advances in Information Sciences and Service Sciences*, vol. 4, no. 9, pp. 338- 347, 2012
- [28] Taylor, E. Z., Murthy U. S. Murthy, "Knowledge Sharing among Accounting Academics in an Electronic Network of Practice", *Accounting Horizons*, vol. 23, no. 2, pp. 151-179, 2009.

- [29] To, P.L., Liao, C., Lin, Tzu., "Shopping Motivation On Internet: A Study Based On Utilitarian And Hedonic Value", *Technovation*, vol. 27, Iss. 12, pp. 774-787, 2007.
- [30] Utz, S., Tanis, M., Vermeulen, I., "It Is All About Being Popular: the Effect of Need for Popularity on Social Network Site Use", *Cyberpsychology, Behavior, and Social Networking*, vol. 15, Issue 1, pp. 31-36, 2012
- [31] Wasko, M., Faraj, S., Teigland, R., "Collective Action and Knowledge Contribution in Electronic Networks of Practice", *Journal of the Association for Information System*, vol. 5, no. 11-12, pp. 493-513, 2004.
- [32] Wasko, M.M., Faraj, S., "Why Should I Share? Examing Socail Capital and Knolwedge Contribution in Electronic Netowkrs of Practice", *MIS Quarterly*, vol. 29, no. 1, pp. 35-57, 2005.
- [33] Williams, E.A., Duray, R., "Teamwork Orientation, Group Cohesiveness, and Student Learning: A Study of the Use of Teams in Online Distance Education", *Journal of Management Education*, vol. 30, no. 4, pp. 592-616, 2006.
- [34] Yang, H.L., Lai, C. Y., "Motivations of Wikipedia Content Contributors", *Computers in Human Behavior*, 26, pp. 1377-1383, 2010.
- [35] Yu, C.P., Chu, T.H., "Exploring Knowledge Contribution From an OCB Perspective", *Information and Management*, 44, pp. 321-331, 2007.