

Resourceful Virtual Communities And Revisit Intention

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Abstract: Based on expectation confirmation theory (ECT) and resource-based theory, we propose a conceptual model to explore the influence of expectation on revisit intention. A ‘call for participate’ was posted in JavaWorld@TW, one of the representative professional communities in Taiwan, 211 usable responses were collected from members in three months. Partial Least Square(PLS) regression were used to test the model, the findings show that human, complementary, and technical assets positively affects satisfaction and perception of usefulness(PU) toward using a virtual community; PU affects satisfaction; satisfaction and PU have positive impact on members’ revisit intention. Satisfaction is the strongest predictor in revisiting intention, following perceived usefulness. Implications are proposed in the final section.

Keywords: Resource-Based Theory, Expectation Confirmation Theory, Revisit, Virtual Communities

1. Introduction

Virtual communities (VCs) are online social networks in which people with common interests, goals, or practices interact to share information and knowledge, and engage in social interactions (Chiu, Hsu, and Wang 2006). Accompanying with the growth of information and communication technologies, increasing knowledge workers choose to join VCs for seeking knowledge to resolve problems at work (Chiu et al. 2006).

Many leading companies have also recognized VCs as valuable systems for in-house knowledge management and have begun to support the development and growth of VCs to meet their business needs (Gongla and Rizzuto 2001; Chen 2007). The representative VCs, such as Microsoft consulting services community, IBM knowledge network, HP learning communities, Xerox family group, and IEE community, provide various levels of interactive activities. Also, several high-tech VCs with over 50,000 members are rapidly grown up in Taiwan, such as *Delphi K.Top community*, *Javaworld@TW community*, *Blue Shop community*,

Flash2u community.

VCs are increasing in population, category, and size in the past decades. The biggest challenge to foster VCs is the number of active members. The top three frustrating issues of participants are inadequate inventory of knowledge, inappropriate content, and timelessly responses.

According to the longitudinal researches have been done in the past years, we recognized that individuals choose to join VCs with different purposes, motivation, and stay with different tenure. Therefore, it is necessary to integrate different disciplines from well-understood theories, expectation confirmation theory (ECT) and resource-based theory (RBT), to identify underlying individual mindset toward retain in a virtual community.

2. Theoretical background

2.1 Resources in VCs

Resource based theory (RBT) was proposed by Barney(1991), has received attention from many

researchers, it originated in the management and industrial organization literatures and it states the firms deploy their resources in an effort to gain a sustainable competitive advantage over their competitors (Barney 1991; Wernerfelt 1984).

This model begins with the assumption that firm resources are heterogeneous and immobile. To have this potential, a firm resource must have four attributes: First, the resource must be valuable in the situation it is to be used. Firm resources can only be a source of competitive advantage or sustained competitive advantage when they are valuable (Barney 1991; Bloodgood and Salisbury 2001). Valuable resources can take a variety of forms, including some overlooked by the narrower conceptions of core competence and capabilities. They can be physical like factories facilities or the valuable resource may be intangible, such as brand names or technological know-how; or the valuable resource may be an organizational capability embedded in a company's routines, processes, and culture (Collis and Montgomery 1995). Second, the resource must be rare. Resources that are held by one or only a few firms enable those firms to do things their competitors cannot. This enables the firm or firms to gain an advantage over their competitors at least temporarily (Bloodgood and Salisbury 2001). Third, the resource must be inimitable. Inimitability is the extent to which a given competence cannot be copied and is analogous to the concept of structural differences, at least to the extent to which it may enhance competitive advantage (Bloodgood and Salisbury 2001). The resource is difficult to acquire due to the ambiguous link between the capability and the achieved sustained competitive advantage, or because it is socially complex (Caldeira and Ward 2003). Fourth, the resource must be non-substitutable. Resources that are non-substitutable enable a firm to sustain an advantage by preventing competitors from accomplishing the same thing using a different set of resources (Bloodgood and Salisbury 2001).

Recently, many IS researches treat IT capability as a strategic asset and examine its effect on organizational performance (Bharadwaj 2000; Melville et al. 2004; Mata et al. 1995; Ross et al. 1996; Powell and Dent Micallef 1997; Armstrong and Sambamurthy 1999; Ravichandran and Lertwongsatien 2002; Dehning and Stratopoulos 2003). Therefore, RBT is adequate to explain the IT-related issues.

In this study, we treat VCs as one type of non-profitable organization and further explore its assets which attract participants and retain them to

generating more knowledge assets in compare with other homogeneous VCs did. We assume that VCs possess strategic assets which will gain participants' preference. While the operational implications of strategic assets have not yet been fully developed and utilized in virtual communities empirical research, human asset (Amit and Schoemaker 1993; Winter 1987), technical asset (Lin and Lee, 2006; Gefen et al, 2003; Kulkarni et al, 2007), and complementary asset (Quinn, et al, 1996; Ulrich, 1988; Bock et al, 2005; Alavi et al, 2006; Lee and Cole, 2003) are the three components that are predominantly found in the literature.

2.2 Post- Use Expectation of VCs

Some well-known technology acceptance theories, such as technology acceptance model (TAM), the theory of planned behavior (TPB), the reasoned action (TRA), diffusion of organizational innovation (DOI) have been used to examine variables that motivate users to accept and revisit the web.

A revisit decision is accompanied with preferences which are based on prior experience with different degree of perception of satisfaction and usefulness. Therefore, the proposition is that by combining the attitude-based and expectation approaches, the strong theory linking attitudes to behaviors can be exploited in TAM, with the expectation literature being used to help identify the antecedents that affect satisfaction.

Per Bhattacharjee's IS Continuance Model, members' revisit intention of VCs is determined primarily by their post-use expectation. If VCs providers target individuals and entice their loyalty to using VCs, it is necessary to understand the effects of post-use expectation on VCs and confirm how the accumulated expectations affect the decision to revisit a VC.

2.3 The research model and hypotheses

This study extends expectation confirmation theory (ECT) with asset constructs derived from RBT to explain members' revisit intention in VCs. Figure 1 depicts the research model. Note that the model deviated in two major ways from standard ECT formulation in recognizing that knowledge sharing continuance: satisfaction and perceived usefulness are posited to directly influence revisit.

Prior continuance studies indicate that satisfaction is an ex post evaluation of consumers'

initial experience with the web service, trigger B2C continuance (Bhattacharjee, 2001; Coughlan et al, 2001; Hsu, et al, 2004; Wu and Wang, 2006). Therefore, intention to revisit a VC is posited directly influence by satisfaction and perceived usefulness. This leads the following hypotheses.

- H₁: Satisfaction positively affects revisit intention.
- H₂: Perceived usefulness positively affect revisit intention.
- H₃: Perceived usefulness of a VC's assets positively affect satisfaction.

The conceptual model includes specific asset which is posited directly influencing satisfaction and perceived usefulness. VCs' strategic asset is a critical driver of satisfaction is generally understood.

Based on previous studies, we have identified three aspects of strategic asset as being particularly conducive to satisfaction and perception usefulness toward VCs: human asset,

technical asset, and complementary asset. Per Bhattacharjee (2001) assumption of the theoretical model, confirmation of post-purchase expectation should be affect individual's satisfaction and perceived usefulness. This leads the following hypotheses.

- H_{4a}: The confirmation of *human assets* positively affects satisfaction.
- H_{4b}: The confirmation of *human assets* positively affects perception of usefulness.
- H_{5a}: The confirmation of *technical assets* positively affects satisfaction toward.
- H_{5b}: The confirmation of *technical assets* positively affects perception of usefulness.
- H_{6a}: The confirmation of *complementary assets* positively affects satisfaction.
- H_{6b}: The confirmation of *complementary assets* positively affects perception of usefulness.

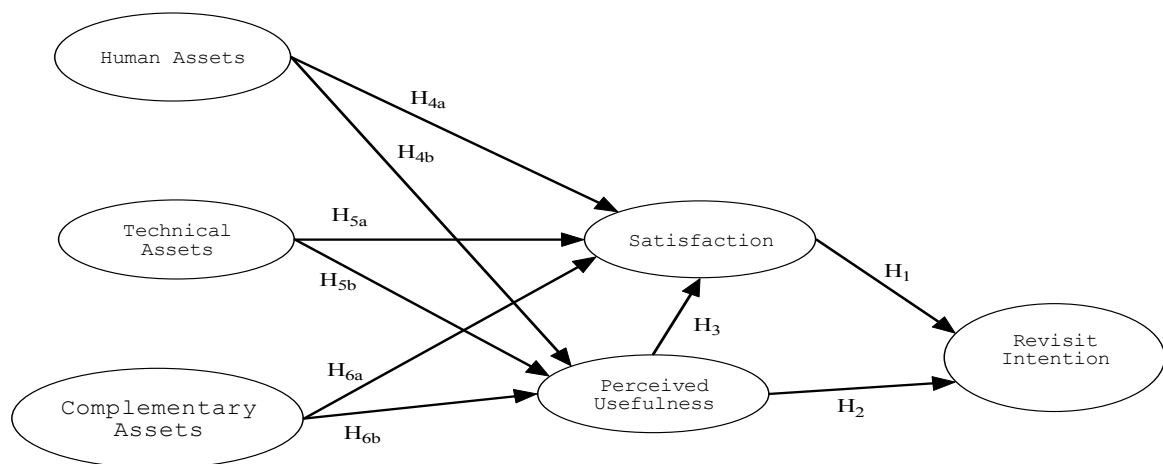


Figure 1 The research model

3. Research methodology

3.1 Subjects and data collection

The research model was done with empirical data collected from members of JavaWorld@TW. This community was founded in May 2001, now it has over 85,000 registered members by the end of May, 2007.

All members allow to access resources including discussion room, newsletters, and recommended articles. The activities of JavaWorld@TW are supported by web-based systems where member interactions were listed for

public and their written messages were classified into discussion threads.

The questionnaire was posted on JavaWorld@TW from April to June 2007. Of the 240 surveys received back, 211 were fully completed and usable for the purpose of this study. The respondents were a diverse sample: 9% of the respondents were female; 91% were male. Their age ranged from 18 to over 40 years old, with 59% twenty three to twenty nine years old, 26% between 30 and 39, and 13% between 19 and 22.

Their JavaWorld@TW history ranged from three months to over 3 years, with 47% between 1

to 3 years, and with 19.8% less than six months. Weekly usage is reported from 20 minutes to over 1 hour, 40% over 1 hour, and with 29% between 20-40 minutes. More than 60% had a college degree, 40% of the respondents reported they work in IT-related companies.

3.2 Construct measurement

We developed the items in the questionnaire either by adapting measures that had been validated by other researchers or by converting the definitions

of constructs into a questionnaire format. The attributes were then summarized to create a survey instrument, which asks respondents to identify the extent to which they agree/disagree with respect to their experience in JavaWorld@TW. Each item was rated on a scale of 1 to 7, where 1 equals "strongly disagree" and 7 "strongly agree". Table 1 shows the definition of constructs, questionnaire items, and corresponding loading and CR.

Table 1 Summary of measurement scales

Construct	Definition	Item	Loading	CR
Human asset	The sources about participants' knowledge, professional skills and experiences are assets created by members who attract new comers and retainers.	I confirm that members of JavaWorld@TW are Java experts.	0.8641	0.903
		I confirm that members of JavaWorld@TW have high level of Java skills.	0.8799	
		I confirm that members of JavaWorld@TW have innovative capabilities.	0.8640	
Technical asset	The capability of a virtual community's platform to provide interactive activities, message management, and search for participants to use.	I confirm the content of JavaWorld@TW is reliable.	0.8455	0.888
		I confirm the web pages management and subject classification of JavaWorld@TW is easy to use and understandable.	0.8546	
		I confirm the service of JavaWorld@TW is reliable.	0.8568	
Complementary asset	Refer to the reputation, management style, climate, and sharing of a virtual community.	I confirm JavaWorld@TW is a famous virtual community.	0.8163	0.836
		I confirm JavaWorld@TW's functions of 'private talk' which make me easily discussing with other people.	0.7369	
		I confirm JavaWorld@TW's search tool which help me to find what I need.	0.8248	
Satisfaction	Refer to the positive feeling after joining a virtual community.	I satisfied the knowledge and resources of JavaWorld@TW.	0.9169	0.934
		I satisfied the response effectiveness of JavaWorld@TW.	0.9062	
		I satisfied the response efficiency of JavaWorld@TW.	0.9035	
Perceived usefulness	Refer to the performance of effectiveness after using the resources of a virtual community.	After using JavaWorld@TW I gain new Java knowledge and new ideas.	0.8689	0.774
		Using JavaWorld@TW make me more efficient.	0.8948	
		Using JavaWorld@TW enhance my performance.	0.8747	
Continuance Revisit intention	Willing to revisit a virtual community.	I plan to reuse JavaWorld@TW to gain new Java knowledge and skills.	0.8806	0.928
		After my trial, I plan to reuse JavaWorld@TW.	0.9178	
		I'll reuse JavaWorld@TW even new Java communities emerge.	0.9028	
Relation assets	Refer the social relationships with other numbers in the community that can enhance the likelihood of members' sense of community.	When I contribute knowledge to members of JavaWorld@TW, I expect to get back knowledge when I need it.	0.7991	0.896
		The members of JavaWorld@TW are truthful in dealing with one another.	0.8089	
		The members of JavaWorld@TW use understandable narrative forms to post messages or articles.	0.9060	
		The members of JavaWorld@TW share the vision of helping others solve their professional problems.	0.7856	

Legend □ CR=Composite reliability

4. Data analysis and results

4.1 Measurement model

The measurement model was evaluated in terms of convergent validity and discriminant validity

(Anderson and Gerbing, 1998). Convergent validity is the degree to which an operation is similar to (converges on) other operations that it theoretically should also be similar to. It refers to the degree to which scores on a test correlate with (or are related to) scores on other tests that are designed to assess the same construct.

Convergent validity was evaluated for the measurement scales using criteria suggested by Fornell and Larcker (1981) that average variance extracted (AVE) for each construct should exceed the variance due to measurement error for that construct (i.e., should exceed 0.50). Factor loadings λ in the study exceeded 0.7, which represents the measure model is significant due to high convergent validity. AVE ranged from 0.63 to 0.82, greater than variance due to measurement error. Hence, all two conditions for convergent validity were met.

4.2 Structural model and hypotheses testing

The theoretical model is multistage, suggesting the need for a structural equation modeling technique that simultaneously tests multiple relationships. To assess validation and test linkages in the theoretical model, partial least squares (PLS) was widely accepted as a method for testing theory in early stages, especially in IS research. Within the IS discipline, a large percentage of research had been devoted to examining the conditions and contexts under which relationships may vary, often under the general umbrella of contingency theory (McKeen, Guimaraes, and Wetherbe 1994; Weill and Olson 1989).

All the hypotheses were supported in the PLS regression test. Members' satisfaction had positive effect on revisit intention (*path coefficient* = 0.531; $t=5.6$, $p<0.001$). Members' perception of usefulness also had positive effect on revisit intention (*path coefficient* = 0.212; $t=1.99$, $p<0.05$). The perception of usefulness had positive effect on satisfaction (*path coefficient* = 0.451; $t=6.45$, $p<0.001$). Results reassured ECT's assumption that satisfaction with VC use is the strongest predictor of members' revisit intention, followed by perceived usefulness as a significant but weaker predictor. The variance in intention explained (R^2) in this study was 50%. For the antecedents variables of satisfaction and perceived usefulness, human assets, technical assets, and complementary assets all had positive effect on members' satisfaction ($R^2=0.697$) and perceived usefulness ($R^2=0.539$), respectively.

5. Discussion and conclusion

This study integrated resourced-based theory into expectation confirmation theory by decomposing confirmation variable into three asset factors which help to better understand participants' revisit intention of a VC. Our findings show that higher confirmation of human assets, technical assets, and complementary assets accompanying with more positive satisfaction and perceived usefulness. Again, higher level of satisfaction and perceived usefulness increase the level of revisit intention.

Our results also reveal that the assets of a professional virtual community with the characteristics of rare, inimitable, non-substitutable and valuable are important. Participants expect a VC's human assets are experts with high skills and innovative capabilities, which increase their level of satisfaction and perceived usefulness. They also expect contents, services, and message management are reliable which help them to access. Reputation, considerate privacy, and useful tool make them happy. These findings are consistent with previous knowledge search studies (Hsu et al., 2004; Wu and Wang, 2006; Hsu et al., 2006).

Reference

1. Ahn, T., Ryu, S. & Han, I., (2004). The impact of the online and offline features on the user acceptance of Internet shopping malls. *Electronic Commerce Research and Applications*, 3, 405 – 420.
2. Barney, J.(1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120.
3. Bhattacharjee, A.(2001a). Understanding information systems continuance□An expectation-confirmation model. *MIS Quarterly*, 25(3), 351-370.
4. Bhattacharjee, A. (2001b). An empirical analysis of the antecedents of electronic commerce service continuance. *Decision Support Systems*, 32, 201-214.
5. Bloodgood, J.M, and Salisbury, W.D. (2001) Understanding the influence of organizational change strategies on information technology and knowledge management strategies. *Decision Support Systems*, 31, 55-65.
6. Bock, G.W., Zmud, R.W., and Kim, Y.G. (2005) Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of

Extrinsic Motivators, Social-Psychological Factors, and Organizational Climate, *MIS Quarterly*, 29(1), pp.87-111

7. Chiu, C.M., Hsu, M.H., Wang, Eric T.G. 2006. Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*, 42, 1872-1888.
8. Chiu, C-M., Hsu, M-H., Sun, S-Y., Lin, T-C., & Sun, P-C. (2005). Usability, quality, value and e-learning continuance decisions. *Computers & Education*, 45, 399-416.
9. DeLone, W.H., & McLean, E.R. (2003). The DeLone and McLean model of information systems success—a ten-year update. *Journal of Management Information Systems*, 19(4), 9-30.
10. Irene Y.L. Chen, (2007). The factors influencing members' continuance intentions in professional virtual communities—a longitudinal study. *Journal of Information Science*. 33(4), 451-467.
11. Youndt, M. A., Subramaniam, A.M., & Snell, S.A. (2004). Intellectual capital profiles—An examination of investments and returns. *Journal of Management Studies*, 41(2), 335-361.