

Effect of Online Social Network to Build Virtual Human Capital*

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Abstract

Impact of online social network to cyber community has increased much attention recently. The biggest challenge in fostering a social network is to the extent whether it helps to build human capital network or social community. We propose what critical factors influence the formation of online capital network. The study uses three independent factors as motivation, self disclosure, and interactivity and two dependent factors as knowledge sharing and strengthening relationships to create virtual capital connection. Data collected from 256 university students to test the proposed model. The results of the study shows that all hypothesis are supported except one with strengthening relationship. Implications and limitations of this research are discussed.

Keywords : Virtual communities, Online social network, Motivation, Self-disclosure, Interactivity

1. Introduction

Social networking in the cyber space provides an alternative way of exchanging data and sharing variable Information more freely. Contrasted to the face-to-face interaction in off-line approach, the online social networking has increased attention among the users in the cyber space and has thus started to build the human-to-human,

or social capital in the virtual space. Since these social networks provide a powerful influence on people's belief or behaviors eventually, these collective beliefs and behaviors resulted in social occasions, such as forming closely related business partners, may be treated as carrying some sort of "monetary" value or called "capital."

According to "Korea Internet & Security Agency," the number of Internet users is, at the end of 2008, about 35 millions. The number of users on the Cyworld, the most widely used social network service site in Korea, is about 24 million, meaning that about the two-third of all Internet users in Korea have actually involved in the social networking service provided by the

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Cyworld[12].

In US, advertisement spending on social network is expected to reach \$1,4 billion by 2011, and to grow to \$2.4 billion by 2013[13].

With on-line communication channel where time and spatial distance are becoming to minimum, people can easily access to the open communication market place. This phenomenon of easy exchanging information or sharing knowledge over the cyber world greatly influences the foundation of the up coming knowledge society or social capital infrastructure. Here, the meaning of social capital is not just the economic or monetary value but the influential power value on a community group, based on loosely connected wired network of people thru online social mechanism.

The major advantage of the formulation of online social network is that due to the carefully specialized division of knowledge embedded in its modern business system, people have to spend a great deal of time and money in order to acquire, access information and knowledge that they need which is often outside of one's own knowledge domain. This is the very reason why people build an organization or a social network to overcome the knowledge boundary of an individual.

Generally, social network scholars are divided into three groups based on their views of the degree of the influence of the cyber community on communication activity as capital enhance approach, capital declining approach and capital supplement approach. This study is to develop influential factors on social network, based on the social capital enhance approach, the opinion that the online social network significantly increases the interaction of cyber communication.

Based on prior research, at least three factors, motivation, self-disclosure, and interactivity, are embedded in cyber sharing

activity. Thus, we here use three independent factors as motivation, the degree of self-disclosure, and interactivity. In this paper, we try to identify to critical influential elements of using cyber space to create and build social network.

2. Prior Research

Virtual communities and social network Due to the development of information technology, people can access to the cyber space where they develop, without much of time and spatial restriction, the habit of interactive online communication activity. The internet has led to a proliferation of virtual communities over the world[2][4][5]. The virtual space or community are becoming the cyber market place of social relationships[11]. In other words, people in the cyber space aim to build relationships with other people inside the virtual community.

Virtual community users communicate one another various reasons, for examples, exchange information, sharing emotion, giving and receiving .comment, social belonging, and just grouping of social identity. Virtual communities are online social networks in which people with common interests, or g Vls, interact to share information and knowledge, and engage with some other members[1]. Here we define social networking as "a set of people (or organization or other social entities) connected by a set of social relationships, such as friendship, or information exchange"[13].

Social network can be treated as the human resources in network either online or off-line. Social network gives members various types of benefits of tangible or intangible. If social networks are formed among members, it can reduce the

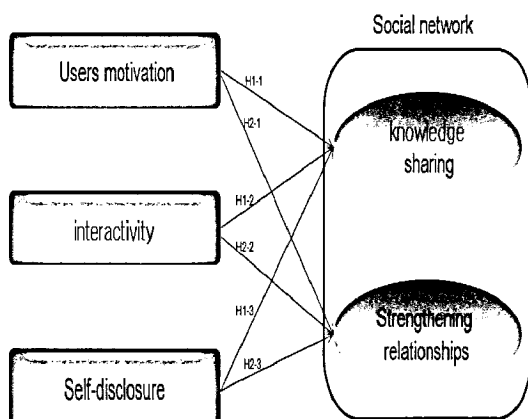
transaction cost between them eventually. A lot of people use different types of virtual communities such as Myspace, Cyworld, or twitter. This is a social network that each individual has common shared interests with other people [9].

Senk-Woo Kwon and Pia Arenius[8] find that the higher the social capital level of the community, the more useful opportunity it has. Rafael Monclar, Alessandro Tecla, Jonice Oliveira, and Jano M. de Souza[9] develop MEK(Mobile Exchange of Knowledge) model that it improves social network efficiency.

3. Methodology

3.1 Research model

Our research model is shown in Fig. 1. Each element of virtual communities was assumed to affect the formation of online social network directly and positively. This model describes the online social capital network research composed of three independent variables (motivation, interactivity, self disclosure), and two dependent variables (knowledge sharing, strengthening relationships).



[Fig. 1] Social Network model

3.2 Hypotheses

We propose the social network model, with social capital enhance approach, that three independent variables (motivation, self disclosure, interactivity) affect two dependent variables (knowledge sharing, strengthening relationships) positively. We develop all these independent and dependent variables from the previous studies and applies these variables here so that this study is some sort of confirmatory study in social networking research area.

Hypothesis 1-1:

Motivation of users in the virtual communities have positive impact on the online knowledge sharing in communities.

Hypothesis 1-2

Interaction among users has positive impact on the knowledge sharing in communities.

Hypothesis 1-3

Self disclosure has positive impact on the knowledge sharing in communities.

Hypothesis 2-1

Motivation of users in the virtual communities will strongly impact on offline relationships.

Hypothesis 2-2

Interaction of among users will strongly impact on offline relationships.

Hypothesis 2-3

Self disclosure of virtual communities will strongly impact on offline relationships.

3.3 Measuring set

- Usage motivation

Motivation is defined as people use the Internet

often. This Internet usage motivation is separated from perceived usefulness and perceived enjoyment[10]. Perceived usefulness is rather focused on information acquisition while perceived enjoyment is about emotional stability. We measure motivation factor as three sub elements as leisure relationship, formation & knowledge, and information acquisition.

• Self disclosure

Self disclosure shows what kind of man is in the cyber world. In Facebook, for example, users can also upload photos, describe interests, work, education history, relationships, personal stories, schedules and more as part of showing my character to the cyber member[6]. According to Behavior Zaineb De Souza, and Geoffrey N. Dick,[7] young people were more highly disclose themselves. We measure self disclosure using the following sub elements as uploading photo & article, and visiting someone else’s website, creating and visiting blogs, cutting and pasting someone else’s article and picture to my page.

• Interactivity

Interactivity occur frequently in the virtual communities. The wide diffusion of Internet with its vast networking possibilities has been a powerful means of expanding social relations and interacting.[14]. In Facebook, users can interact with one another very often. They often communicate with each other using text message so that online and instant communication occurs. In addition, these kinds of interactions include recent profiles, and an activity called “Wall” where other users can post messages and attach links for other sites, videos, or photos. Overall, the system provides many means for communicating with others[6]. According to J. Nahapiet, S. Ghoshal,[3]

social interaction positive effect on knowledge sharing. We measure interactivity as question, upload the information, and to exchange opinions.

• Knowledge sharing

Knowledge sharing is very useful and often becomes the purpose of social networking activity. The Social Capital Theory suggests that social capital, the network of relationships possessed by an individual or a social network and the set of resources embedded within it, strongly influence the extent to which interpersonal knowledge sharing occurs[3]. We measure knowledge sharing as time spent in sharing information and exchanging knowledge and receiving help from other members.

<Table 1> Operational definitions of factors

Factors	Items
usage motivation	Leisure
	Relationship Formation
	Knowledge and information acquisition
Self disclosure	photo and article Upload
	Someone else’s website, blog, moved to article and picture in my page
	question
Interactivity	Upload the information
	To exchange opinions with other Users
Knowledge Sharing	time spent of Sharing knowledge
	Exchange knowledge and receive help
Strengthening relationships	Offline Contact increase
	Offline Rules increase

• Strengthening relationships

Network gives community members to have a chance to strengthening the social relationship. Strengthening relationships probably have positive effect on motivation, self disclosure, and interaction. We measure

strengthening relationships as the number of offline contacts among the user.

4. Analysis and Results

Multiple regression was used to test our research model and hypotheses. SPSS 12.0 was used to test the fit of the research model, and the hypotheses.

4.1 Data collection

We used structured questionnaires for data collection. The format and contents of these data collection were developed from our literature review. The survey questionnaire was initially sent to 350 individuals. After two weeks, we received 267 return mails. Among them, 11 respondents discarded due to incomplete data. A final, 256 questionnaires were used for the analysis. Looking at the sample configuration, on 155 (60.5%) of the respondents were male and 101 (39.5%) female. Sample consists of freshman 82(32%), sophomore 87(34%), junior 50(19.5%), and senior 37(14.5%).

4.2 Reliability and factor analysis

The proposed social network model is analyzed using multiple regression. Each of the three independent variables (usage motivation, self-disclosure, interactivity) and their related measures were loaded into the model against the dependent variable (knowledge sharing, strengthening relationships).

First, the item of each independent variable was analyzed through factor analysis and reliability analysis. Reliability of all the variables was tested to ensure their stability using Cronbach's alpha. As can be seen in <Table 2>, three

components of independent variables, usage motivation, interactivity, and self-disclosure displayed satisfactory levels of Cronbach's alpha (0.671, 0.731, and 0.742, respectively).

In addition, dependent variables as social network knowledge sharing and strengthening relationships were 0.659 and 0.631 respectively.

Content and construct validity were then tested. In factor analysis, varimax rotation was used to all the loading values of items for the relevant latent.

<Table 2> F.A & Cronbach alpha scores
(For formed social capital research model)

variable	Item	FA	Cronbach's alpha	
Independent variable	moti1	0.765	0.671	
	usage motivation	moti2		0.802
	moti3	0.766		
	Self disclosure	disclisure1	0.792	0.731
		disclisure2	0.803	
		inter1	0.846	
	interactivity	inter2	0.887	0.742
		inter3	0.760	
		knowledge Sharing	know1	
know2	0.855			
strengthening relationships	relat1	0.844	0.631	
	relat2	0.855		

4.3 Testing the hypotheses

In <table 3>, the result multiple regression for knowledge sharing showed that the path between independent variables and dependent variable was significant and positive ($p < 0.05$).

That meant that usage motivation in the

<Table 3> Multiple regression analysis for knowledge Sharing

<i>R</i>	R-square		Std. error of the estimate	R-square change		F-change	
0.412(a)	0.170		0.92384530	0.170		16.024	
model	Unstandardised coefficients		Standardised coefficients	t	P	Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-0.019	0.060		-0.321	0.749		
moti	0.184	0.062	0.185	2.989	0.003	0.925	1.081
inter	0.310	0.062	0.304	4.991	0.000	0.953	1.049
Self	0.122	0.060	0.122	2.011	0.045	0.965	1.036

virtual communities positively influenced knowledge sharing(H 1-1), knowledge sharing is done the higher than more of between users and other-users in communities(H 1-2). And users self disclosure higher in the virtual communities is done knowledge sharing(H 1-3).

Therefore, scores for hypothesis 1-1, hypothesis 1-2, and hypothesis 1-3 were 0.003, 0.000 and 0.045 respectively. Interaction is the best factor that explains knowledge sharing activity in communities (beta 0.304).

<Table 4>, the result multiple regression for strengthening relationship showed that the path between independent factors and dependent factors was not significant and positive ($p < 0.05$).

This is mean that independent factors not influence of the positive to strengthening relationships. Result of testing the hypotheses for strengthening relationships hypothesis 2-1, hypothesis 2-2, and hypothesis 2-3, were 0.554, 0.963, and 0.905 dismissed.

<Table 4> Multiple regression analysis for Strengthening relationships

<i>R</i>	R-square		Std. error of the estimate	R-square change		F-change	
0.043(a)	0.002		1.00162896	0.002		0.144	
model	Unstandardised coefficients		Standardised coefficients	t	P	Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.002	0.065		0.024	0.981		
moti	0.040	0.067	0.040	0.592	0.554	0.925	1.081
inter	0.003	0.067	0.003	0.046	0.963	0.953	1.049
Self	0.008	0.066	0.008	0.119	0.905	0.965	1.036

5. Conclusion

Main purpose of this article has been to explore use of virtual communities effect to the formation of online Social Network. Data

were collected through surveys for analysis. Factor analysis, validity test, and multiple regression analysis were conducted.

This article has three findings. First, what stands out most from this study is the use of virtual community's positive effect on the online knowledge sharing. Hypothesis (H1-1~H1-3) for knowledge sharing has been adopted. Knowledge sharing is an important factor. Because that social capital is non-monetary assets and give people the benefit of tangible or intangible. These tangible or intangible benefits that knowledge sharing is made up. Our society is a highly specialized society. Therefore, people in other areas to access knowledge or approach a lot of time, effort, and cost. If the formation of social capital networks through knowledge sharing easier to obtain information from other areas can be accessed.

Second, interactivity factor is the most affecting on social capital network. Online social networks are part of human relationships. Therefore, people communicate to other users in social networks. If between users is no interactivity that communication does not occur. And Social networks do not form because that relationship does not form. Interactivity is an important factor to explain information sharing.

Finally, we expected to each of the independent variables have a positive impact strengthening relationships. But hypothesis (H2-1~H2-3) for strengthening relationship dismissed. In this study did not identified use of virtual community's effect to strengthen the relationship. We measured the strengthening relationship in offline. This point is a cause of failure.

Limitations, data collection is composed of only university students. Therefore diversification of age is required in the next study.

And in the next study is needed in the comparison group the social capital network. For example, between manager and employee groups how to use, how it is used social networks of research. And a study should

also be conducted use of virtual communities effect to offline strengthen relationship.

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온라인 모임이 사회적 자원 형성에 미치는 영향

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요 약

최근 사이버 커뮤니티의 온라인 사회네트워크 관한 관심이 증대되고 있다. 사회네트워크의 최대의 과제는 인간 자본이 형성으로 이어질 수 있는가 이다. 사람들은 다른 사람들과 가상 커뮤니티 안에서 지속적인 접촉을 바탕으로 서로 관계를 형성하고 이것이 다시 사회네트워크로 이어져 인적네트워크를 형성한다. 사회 네트워크는 자신이 동원 할 수 있는 인적 네트워크의 총합이라 말할 수 있다. 본 연구의 목적은 사이버 커뮤니티 안에서의 사회 네트워크의 형성에 영향을 주는 변수를 찾기 위함이다. 우리는 연구를 위해 이용동기, 자기개방성, 상호작용성을 독립변수로 선정하고 종속변수로 지식공유, 관계강화 선정하여 다중회귀 분석을 실시하였다. 데이터는 대학생들을 대상으로 설문지를 이용하여 수집하였고, 표본으로 256명을 사용하였다. 그 결과 독립변수들이 지식공유에 정의 영향을 미치는 것을 확인 하였다. 하지만 관계 강화에는 정의 영향을 미치지 못하는 것으로 분석 되었다. 지식공유가 가지는 시사점으로는 현대의 전문화된 사회에서 자신의 분야가 아닌 타 영역에 관한 보다 쉽고 안정적으로 지식획득을 할 수 있고 타 영역에 접근할 수 있는 점이라 하겠다.

주제어: 온라인 모임, 사회 네트워크, 사이버 커뮤니티