「정보시스템연구」 제25권 제3호
한국정보시스템학회
2016년 9월, pp. 91~116

http://dx.doi.org/10.5859/KAIS.2016.25.3.91

Knowledge Contributors' Intrinsic and Extrinsic Motivation on Social Connectedness and Satisfaction

Park Sora* · Kang Jaejung**

〈Content〉

Ⅰ. Introduction

According to Kozinets (1999), individual members participate in online communities to exchange information topically. As time and communication build up, community members progressively participate in their online communities, ultimately reaching a state of group cohesion. Patterns of communication also evolve from informational mode to relational mode. The state of group cohesion is defined as "an individual's sense of belonging to a particular group and his or her feelings of morale associated with membership in the group" (Bollen & Hoyle, 2000).

Granovetter (1973) also suggests changing relational dynamics between members of a network is influenced by the amount of time, emotional intensity, intimacy, and the reciprocal services defining the relationship.

* Ph.D., Instructor, Dept of Business Administration, Jeju National University, doorae0207@gmail.com
** Professor, Dept of Business Administration, Jeju National University, jaejung@jejunu.ac.kr, Corresponding Author

Knowledge contributors in online groups should also find shifting/evolving perceptions and motivation. Members in online groups ultimately learn to identify group goals as their own (Kozinets, 1999).

Knowledge contributors' motivation of their online activities and sought-after goals in contributing knowledge could be intrinsic and extrinsic in nature. However, both patterns of motivation and their values should change over time as community members' experiences are built along the way. In this research, we have two questions we are pursuing. First is whether socially satisfying outcomes, social connectedness in our research, can be a viable dependent variable for knowledge contributions in online communities. The second question is whether knowledge contributors' motivation in fact changes when their community experiences levels differ. We utilize self-determination theory to explain how the internalized process of knowledge contributors'motivation fuels continuance of knowledge contribution in online communities. Compiled knowledge in virtual communities benefits community members seeking communal knowledge. Also, industries successfully utilizes co-creating process of virtual communities (김나랑 등, 2016). Understanding social aspect of knowledge co-creation and comparing knowledge contributors' changing motivational needs over their tenure should shed lights into continuously utilizing community knowledge as social assets.

Ⅱ. Theoretical Development

2.1 Self-determination theory

Self-determination theory looks at what motivates people to be "curious", "vital", "self-motivated", "agentic", "inspired", "striving to learn", "extend themselves", "master new skills", and "apply their talents responsibly" (Ryan & Deci, 2000a). Ryan and Deci (2000a) define intrinsic motivation as "the intrinsic tendency to seek out novelty and challenges to extend and exercise one's capacities, to explore, and to learn for the activities they have intrinsic interests". When goals do not meet with intrinsic interests, they can be pursued with extrinsic motivation. Self-determination theory does not limit extrinsic motivations a single state of mind. Instead, it has four differing degrees of locus of causality and relevant regulatory processes: external regulation, introjected regulation, identified regulation, and integrated regulation (refer to Table 1).

In terms of locus of causality, externally regulated motivation is one extreme of extrinsic motivation and its process is regulated by compliance, external rewards and punishments.

<Table 1> Modified Types of Motivation with Regulatory Styles
(Source : Ryan and Deci, 2000a; Ryan and Deci, 2000b)

		Perceived Locus of Control	Relevant Regulatory Processes
Extrinsic Motivation	External Regulation	External	Compliance, external rewards and punishments
	Introjected Regulation	Somewhat external	Self-control, ego-involvement, internal rewards and punishment
	Identified Regulation	Somewhat internal	Personal importance, conscious valuing
	Integrated Regulation	Internal	Congruence, awareness, synthesis with self
Intrinsic Motivation	Intrinsic Regulation	Internal	Interest enjoyment, inherent satisfaction

When the locus of causality is more internalized (process of giving personal meanings, personal importance and self-value) with experiences and situations, extrinsic motivation becomes more in line with the contributors' internal goals. Their value can be introjected in performing respective activities. When externally regulated external motivation is further internalized, extrinsic motivation's introjected regulation occurs. The regulation process is characterized by self-control, ego-involvement (motivating self to keep up with the ego), and internal rewards and punishments. Extrinsic motivation with external regulation and introjected regulation are categorized as a controlled motivation composite since actions are influenced by external factors.

The other two extrinsic motivation types, identified regulation and integrated regulation, are categorized as the autonomous motivation composite group belonging with intrinsic motivation. They are types of motivation which can be regulated internally. Identified regulation's perceived locus of causality is somewhat internal and the personal importance and conscious valuing can be relevant regulatory processes. The most internalized regulatory style of extrinsic motivation is integrated regulation, and it is very similar to intrinsic motivation's regulatory style. The only difference is that integrated regulation has extrinsic motivators as an initiator of the activities. With integrated regulation, the actors find the given goal has congruence, awareness, and synthesis with their personal goals.

Intrinsic motivation is processed by feelings such as interest, enjoyment, and inherent satisfaction. While intrinsic motivation is autonomous and the most desired form of motivation, external locus of causality does not allow for intrinsic motivation. That is when situations do not leave participants the option to intrinsically pursue an activity. For

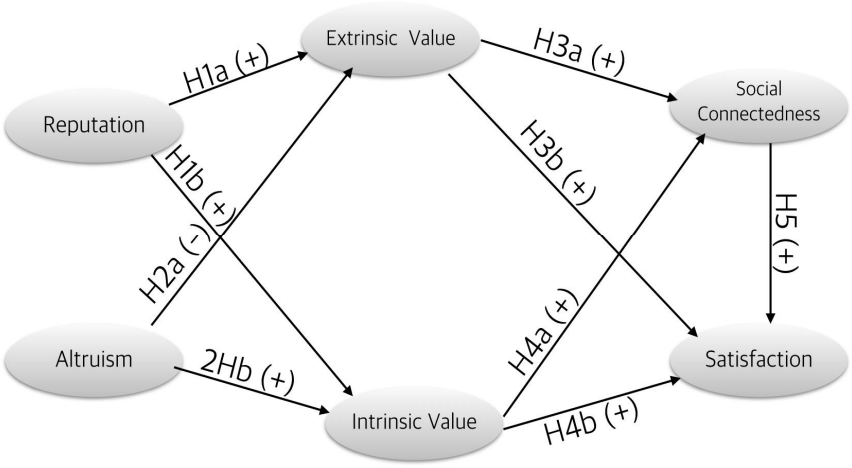
example, in education intrinsic motivation cannot be the initial motivator (Ryan & Deci, 2000b). Rather, extrinsic motivation with more internalized regulation is the next optimal way to motivate students.

Self-determination theory suggests that extrinsic motivation can be nurtured to be more internalized, becoming more like intrinsic motivation (Ryan & Deci, 2000a; Ryan & Deci, 2000b). Even when the locus of causality is external or somewhat external, actors can internalize the goals as their own given experiences and situations. Fostering good experiences and situations could help people internalize given goals as their own and Ryan and Deci (2000a; 2000b) name relatedness as a central force in bringing internalization along with perceived competence and experience of autonomy.

2.2 A Model of Knowledge Contribution Motivation

2.2.1 Proposed Research Model

Knowledge contributors in virtual communities have always possessed the autonomy to leave the communities or to continually contribute their knowledge. Based on self-determination theory their continual contribution behaviors are fueled by intrinsic value, or they started seeking extrinsic value but their motivation has been changed more intrinsic value-like.



<Figure 1> Default Research Model.

Also, their extrinsic and intrinsic values can influence satisfaction and social connectedness creating an attitude and perception to promote further knowledge contribution. Figure 1 shows our default research model to empirically test nine hypotheses using intrinsic and extrinsic values. There are two antecedents: reputation and altruism. The consequences of intrinsic and extrinsic values are social connectedness and satisfaction.

2.2.2 Reputation

According to Wasko and Faja (2005), reputation and enjoy helping are two individual motivators which can encourage knowledge contribution. Lee et al. (2011) defined reputation as "the extent to which receivers believe a communicator is honest and concerned about others and unalterable in the short-time." Reputation can be an asset in a social media setting, especially when the media signals aggregated history of user contributions over time.

Examples of reputation indicators will include number of likes in Facebook and number of followers in Twitter. The knowledge contributors' reputation increases the possibility of reciprocation (Donath, 1999) and can be a social status in an online community (Beck, 2014).

Reputation also encourages knowledge contribution (Wasko & Faja, 2005). Recognition from peers encourages contribution in YouTube and positive feedback from the community positively influences both intrinsic and extrinsic motivation (Huberman et al., 2009). Therefore, knowledge contributors' perception of reputation in contributing knowledge would positively influence their extrinsic and intrinsic values in (initially and continuously) contributing knowledge.

H1a: Knowledge contributors' perception of reputation in contributing knowledge is positively related with extrinsic value.

H1b: Knowledge contributors' perception of reputation in contributing knowledge is positively related with intrinsic value.

2.2.3 Altruism

In addition to reputation being a primary motivator of knowledge contributors, Wasko and Faja (2005) had enjoy helping as one of the motivators in knowledge contributing behavior. Kankanhalli et al. (2005) discuss the role of enjoyment in knowledge contribution, relative altruism, where the majority of motivation for an action is from intrinsic enjoyment in helping others without an expectation for any return. Enjoyment in helping others was found to influence the willingness to contribute knowledge in online communities of practice (Lakhani & von Hippel, 2003) and health answerers found altruism as the most influential motivator in sharing their experiences, knowledge, and information (Oh, 2012). The role of relative altruism in knowledge contribution is

suggested by Ba et al. (2001) and Wasko and Faraj (2000) demonstrate that knowledge contributors gain satisfaction from their altruistic behavior.

Eisenberger and Cameron (1996) suggest that a task's compatibility with personality is to increase intrinsic task interests. People who perceive knowledge contribution as an altruistic behavior should also be intrinsically motivated to contribute knowledge. Conversely, incompatibility between perception and task should negatively influence the perceived level of extrinsic value. Knowledge contribution in online communities tends to be for the public good of the communities and does not warrant any extrinsic rewards. Therefore, perception of altruism, a form of intrinsic motivation, should be positively related with intrinsic value as perceived by knowledge contributors while negatively related with extrinsic value.

H2a: Knowledge contributors' perception of altruism is negatively related with extrinsic value.

H2b: Knowledge contributors' perception of altruism is positively related with intrinsic value.

2.2.4 Social Connectedness and Satisfaction

Social connectedness implies the creation of a bonding relationship with other members within the social networks (Riedl et al., 2013). Sense of connectedness refers to a "heightened sense of belonging to a broader, larger world, with more opportunities for interaction and understanding of other realities and other practices" (Baron & Gomez, 2013). Similar constructs to social connectedness have been studied in online network settings: social integrative value (network value), perceived cohesion, strength of ties, attachment to virtual community and others.

Loane and Webster (2014) bring out the concept of social integrative value, a form of affective value (Katz et al., 1974), which is only present in a social network and name it "network value". The benefits of network values are perceived cohesion, "an individual's sense of belonging to a particular group and his or her feelings of morale associated with membership in the group" (Bollen & Hoyle, 2000); and social capital, "not a value in itself but a resource available to members of social networks that provides member benefits such as a sense of belonging, access to favors, and goodwill from other members". Structural and relational aspects of social capital influences knowledge contribution (김종기등, 2016). Attachment to virtual community and/or group members ultimately is a precursor to knowledge contribution intention (김종기 등, 2013).

This research proposes that seeking extrinsic/intrinsic values by contributing knowledge in the network should give rise to their feelings of social connectedness and

satisfaction as desired outcomes. Particularly, discussion of the social connectedness and similar constructs reveals that social connectedness concept is not something to be given or created rather it is a connection, a bond, and a sense of belonging which members may develop with their participation, social setting, and time contributed. Self-determination theory points out relatedness as one of the three needs that must be satisfied in order to continuously nurture the intrinsic motivation of pursuing a goal and to nudge extrinsically motivated individuals to actively internalize the extrinsically motivated goal. Satisfaction is found to positively influence the intention to continue sharing knowledge, community engagement, positive word of mouth, and knowledge contribution (Cheung et al., 2013; Ray et al., 2014). Therefore, social connectedness to the members of online communities and satisfaction in knowledge contribution should be positively influenced by both extrinsic and intrinsic value as perceived by knowledge contributors.

H3a: Knowledge contributors' perception of extrinsic value is positively related with social connectedness.

H3b: Knowledge contributors' perception of extrinsic value is positively related with satisfaction in their knowledge contribution.

H4a: Knowledge contributors' perception of intrinsic value is positively related with social connectedness.

H4b: Knowledge contributors' perception of intrinsic value is positively related with satisfaction in their knowledge contribution.

Social connectedness has been studied in various contexts including the role of connectedness on employment satisfaction, pay grade, knowledge contribution, and word of mouth (Franzen and Hangartner, 2006; Granovetter, 1995; Lin, 1999; Mouw, 2006; Ray et al., 2014).

Sense of connectedness online has been studied in connection with satisfaction. Granovetter (1973), in his work on tie strength relationships, says when "the potency of the bond between members of a network" is weak, customers are more likely to complain about a service failure than when it is strong. The statement suggests that members with stronger bond are more likely to exhibit satisfaction for the same level of network service. E-learning students with more sense of connectedness with the online course instructor are more likely to be satisfied with the online course (LaBarbera, 2013). Ray et al. (2014) also found how community identification in online communities strongly influences satisfaction, which in turn leads to community engagement and knowledge contribution.

Similarly, perceived sense of connectedness in the knowledge sharing network is expected to be positively related with satisfaction of knowledge contribution. Anticipation of

reciprocal relationship is a significant predictor of attitude toward knowledge sharing and perceived social connectedness should bring higher level of satisfaction due to the congruence of expectation and actual outcome. Therefore, individuals with a strong perception of social connectedness should be satisfied with their knowledge contribution.

H5: Knowledge contributors' sense of connectedness to network members is positively related with satisfaction in their knowledge contribution.

2.3 Experience Level in Knowledge Contribution

To determine the role of experiences in the relationship between perceptions (reputation and altruism) and extrinsic/intrinsic values, and between the extrinsic/intrinsic values and the dependents (social connectedness and satisfaction), we analyzed group differences by members' experience level. When knowledge contributors behave as predicted in the self-determination theory (Ryan & Deci, 2000a; 2000b), regulation patterns of their motivation could evolve due to their experiences as knowledge contributors.

Lee and Suh (2015) assumed duration of membership would influence psychological ownership, a feeing of considering virtual communities as "theirs". Their study (Lee & Suh, 2015) on psychological ownership is based on Pierce et al.'s (2001) research which names "investment in the target," such as time, to be one of the three routes in building psychological ownership. As members opt to stay in the virtual communities longer, they will gain opportunities to learn more about the communities thus developing psychological ownership.

Also, Tsai and Baggozzi (2014) saw virtual community members' experience levels to moderate near future knowledge contribution intention on the quantity and quality of contribution. Tsai and Baggozzi (2014) explains that novice members are not experienced enough to develop their own routines, to understand group norms, and to share the group values and goals. Overtime, members build experiences and develop interpersonal relationships, share common goals, build a sense of moral obligation to the community, learn to interact with other members, and understand their roles as crucial members. We believe different sets of qualities existing in novice and expert knowledge contributors will exhibit different patterns within the proposed model

Ⅲ. Research Method

We tested our hypotheses using data surveyed from knowledge contributors in multiple portal sites. Data collection procedures, development of survey measures,

and validation of the measures follow.

3.1 Measurement Development

All the survey items used in this study were adapted from existing literature. Minor modifications were made to fit into the context of research. Scales originally written in English were translated into Korean and later translated back to English to ensure the minimization of differences in meanings. All the items used five point Likert scales.

We define reputation as knowledge contributors' belief about their knowledge contribution behavior would be perceived by others as honest and concerned about others. Reputation scales were adapted from Wasko and Faja's scale (2005). We define altruism as knowledge contributors' belief about knowledge contribution behavior is motivated by enjoyment in helping others without an expectation for a return and altruism scales were modified from the measurement for enjoyment in helping by Lou et al. (2013), originally from Kankanhalli et al. (2005). Intrinsic motivation scales are from Pelletier et al.'s (1995) sport motivation scale, and extrinsic motivation scales are adapted from Bock et al.'s (2005) anticipated extrinsic rewards measurement items. For the purpose of our research we define intrinsic/extrinsic value as knowledge contributors' perception of intrinsically/extrinsically motivated value in contributing knowledge to online communities (Bock et al., 2005). We define social connectedness to be knowledge contributors' perception of bonding relationship with other members within social networks et al., (2013). Social connectedness scales are modified from Lee et al. (2001) and Bailey and Pearson's (1983) user information satisfaction scores which were adopted to measure satisfaction in knowledge contribution. We define satisfaction to be knowledge contributors' perception of satisfaction in contributing their knowledge to online communities (Bailey & Pearson, 1983).

3.2 Data Collection

Data to test the model and group difference was collected in South Korea in 2015. The survey was designed to be conducted on a web-based survey and the participants were gathered in various web communities. After dropping incomplete cases, 262 data points remained to test our hypotheses. The demographic information is summarized in Table 2. The novice group has knowledge contribution period of less than 1 year, and the expert group has been contributing knowledge 1 year and more. The novice group represents 142 data points and constitutes 54% of total number of usable data.

<Table 2> Demographic Information

Measure	Items	Freq. Less Exp.	Per. Less Exp.	Freq. More Exp.	Per. More Exp.	Total Freq.	Total Per.
Gender	Male	64	45.1	64	53.3	128	48.9
	Female	78	54.9	56	46.7	134	51.1
	Total	142	100/54	120	100/46	262	100
Age	<20	41	28.9	26	21.7	67	25.6
	21-29	36	25.3	29	24.1	65	24.8
	30- 39	33	23.3	29	24.2	62	23.6
	40-49	32	22.5	36	30	68	26
	>50	0	0	0	0	0	0
	Total	142	100	120	100	262	100
Education	High School	39	27.5	25	20.8	64	24.4
	College	101	70.1	93	77.5	194	74.1
	Graduate School	2	1.4	2	1.7	4	1.5
	Total	142	100/54	120	100/46	262	100
Occupation	Student	63	44.4	32	26.7	95	36.3
	Office Workers	41	28.9	36	30	77	29.4
	Sales	2	1.4	2	1.7	4	12.6
	Professionals	13	9.2	20	16.7	33	3.8
	Home Management	11	7.7	16	13.3	27	10.3
	Self-Employed	5	3.5	5	4.2	10	7.6
	Others	7	4.9	9	7.5	18	
	Total	142	100/54	120	100/46	262	100

(Novice =less than 1 year of knowledge contribution; Expert =equal to or more than 1 year of knowledge contribution)

Ⅳ. Analysis

4.1 Measurement Model

The collected data were analyzed using Smart PLS3 (Ringle et al., 2015). Partial Least Squares (PLS) Structural Equation Modeling (SEM) provides high levels of statistical power to small sample sizes and greater precision of PLS-SEM estimation. Also, unlike covariance based SEM, PLS-SEM does not assume normal distribution. However, PLS-SEM has no established fit indices.

All the items in the survey were adopted measures which were tested rigorously for their reliability and validity beforehand; however, we still tested for convergent validity, internal consistency reliability and discriminant validity using Smart PLS3. Table 3 shows variables and their measurement items, their loadings to appropriate variables, and values to check reliability and validity. Hair et al.'s (2017) guidelines to test the validity and reliability were accepted.

Convergent reliability was tested with item loadings onto the constructs and AVE. All the measurement items loaded onto the constructs

higher than the generally accepted threshold of 0.70 and all the constructs had AVE value over 0.50.

Internal consistency reliability was tested using composite reliability and Cronbach's Alpha values of constructs. Referring to Table 3, most composite reliability and Cronbach's Alpha scores were within the recommended range between 0.6 to 0.9. Reputation, extrinsic value and social connectedness had composite reliability values between 0.90 to 0.95 which are still within acceptable range but might contain items too similar to one another. We decided not to trim items representing constructs since they are still within the acceptable range.

Discriminant validity was tested by looking Heterotrait-Monotrait (HTMT). HTMT compares the calculated ratio of average pair-wise correlations of items measuring the same constructs (monotrait) versus items measuring other constructs (heterotrait). PLS- SEM is a non-parametric measure, HTMT is tested with bootstrap confidence intervals with 5000 subsamples. Including value of 1 within the calculated confidence intervals shows lack of discriminant validity. With our measurement model, discriminant validity is established since bootstrap confidence intervals do not include 1.

Our measurement model is adequate in terms of validity and reliability, and it is sound to move onto testing the proposed structural model.

<Table 3> Item Loadings, Reliability and Validity Test.

Factor	Indicators	Convergent Validity		Internal Consistency Reliability		Discriminant Validity
		Loadings	AVE	Composite Reliability	Cronbach's Alpha	
		>0.70	>0.50	0.60–0.90, accepted & 0.90–0.95 tolerable	0.60–0.90	HTMT confidence interval does not include 1
Reputation	Q40	.856	.764	.907	.845	Yes
	Q39	.913				
	Q38	.852				
Altruism	Q14	.850	.728	.889	.814	Yes
	Q13	.836				
	Q12	.973				
Extrinsic Value	Q31	.923	.808	.926	.882	Yes
	Q30	.931				
	Q29	.839				
Intrinsic Value	Q17	.881	.678	.862	.763	Yes
	Q16	.741				
	Q15	.841				
Social Connected-ness	Q63	.885	.770	.930	.900	Yes
	Q62	.882				
	Q61	.874				
	Q60	.868				
Satisfaction	Q66	.835	.717	.884	.802	Yes
	Q65	.884				
	Q64	.820				

4.2 Structural Model

To test the structural model, we also used SmartPLS3. Before evaluate the structural model, we tested the collinearity using VIF. All VIF values in the structural model were below 2, a recommended level by Hair et al. (2017). Goodness-of-fit measures are not fully established in PLS-SEM but predictability of a structural model is assessed in other ways.

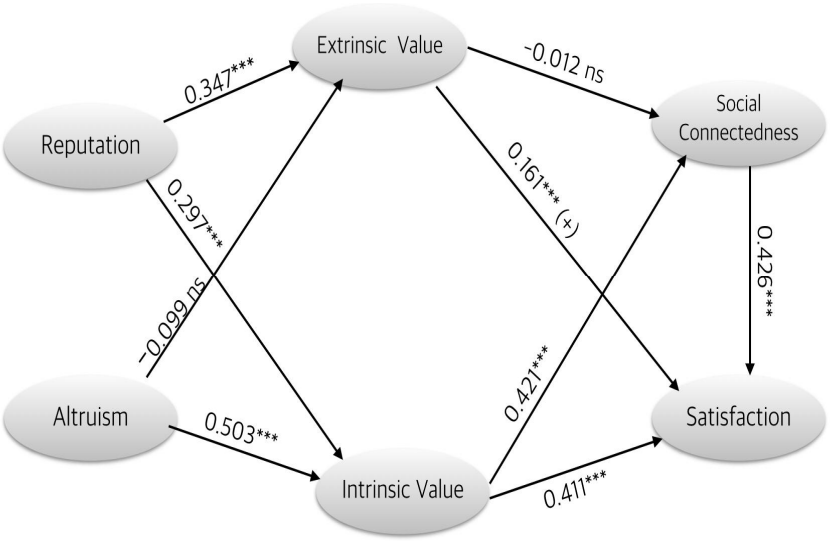
The evaluation of our research model (Figure 1) is performed by reviewing path coefficients, coefficient of determination (R2) for predictability of the proposed model, effect size f2 for R2, Q2 for predictive relevance, and finally effect size q2 for Q2.

Table 4 shows significance of the paths in the proposed structural model. The calculated path coefficient (-0.099) between altruism and extrinsic value (H2a) suggests that negative relationship between altruism and extrinsic value is not significant. Altruism is not concerned with the perception of extrinsic value. Also, there is no support that extrinsic value is a predictor of satisfaction (H3b).

All other paths have path coefficients significant above .05 level supporting H1a, H1b, H2b, H3b, H4a, H4b, and H5. Reputation

<Table 4> Significance Testing Result of the Structural Model Path Coefficients.

		Path Coefficient	t Values	p Values	95% Bootstrap Confidence Interval	Significance (p<0.05)?
H1a	Reputation => Extrinsic Value	0.347	5.671	0.000	[0.228, 0.467]	Yes
H1b	Reputation => Intrinsic Value	0.297	5.504	0.000	[0.190, 0.401]	Yes
H2a	Altruism => Extrinsic Value	-0.099	1.521	0.128	[-0.224, 0.031]	No
H2b	Altruism => Intrinsic Value	0.503	9.465	0.000	[0.395, 0.606]	Yes
H3a	Extrinsic Value => Satisfaction	-0.012	0.253	0.800	[-0.110, 0.079]	No
H3b	Extrinsic Value => Social Connectedness	0.161	2.602	0.009	[0.042, 0.285]	Yes
H4a	Intrinsic Value => Satisfaction	0.421	7.168	0.000	[0.305, 0.533]	Yes
H4b	Intrinsic Value => Social Connectedness	0.411	6.695	0.000	[0.284, 0.526]	Yes
H5	Social Connectedness => Satisfaction	0.426	7.062	0.000	[0.308, 0.542]	Yes



<Figure 2> PLS-SEM Analysis of Research Model.

is positively related with extrinsic (H1a, b=.347, p<0.05) and intrinsic values (H1b, b=0.297, p<0.05). Coefficient value is the highest in the path between altruism and intrinsic value (H2b, b=.0503, p<0.05). Extrinsic value has a significant influence on social connectedness (H3b, b=0.161, p<0.05) and intrinsic value is a good predictor of satisfaction (H4a, b=0.421, p<0.05) and social connectedness (H4b, b=0.411, p<0.05). Finally, social connectedness has a significant influence on satisfaction (H5, b=0.426, p<0.05).

Examination of total effects reveals deeper insight into individual exogenous construct's influence on endogenous constructs. Table 5 shows the result of total effects. For satisfaction, intrinsic value had the most significant effect (0.596, p<0.01), followed by social connectedness (0.426, p<0.01), altruism (0.294, p<0.01), reputation (0.197, p<0.01), and the least effect of extrinsic value (0.056, p>.10). Also, social connectedness is influenced most by intrinsic value (0.411, p<.01), followed by altruism (0.191, p<.01), reputation (0.178, p<.01), and extrinsic value (0.161, p<.01). Total effect analysis suggests that increasing intrinsic value would result in the most significant effects on satisfaction and social connectedness. While altruism has a minor role in increasing extrinsic value (-0.099, p>.10), altruism has a very strong total effect on intrinsic value (0.503, p<.01), social connectedness (0.191, p<.01) and satisfaction (0.294, p<.01).

<Table 5> Significance Testing Results of the Total Effects.

	Total Effect	t Values	p Values	95% Confidence Interval	Significance (p<0.05)?
Reputation => Extrinsic Value	0.347	5.671	0.000	[0.228, 0.467]	Yes
Reputation => Intrinsic Value	0.297	5.504	0.000	[0.190, 0.401]	Yes
Reputation => Social Connectedness	0.178	4.381	0.000	[0.108, 0.267]	Yes
Reputation => Satisfaction	0.197	5.324	0.000	[0.127, 0.273]	Yes
Altruism => Extrinsic Value	-0.099	1.521	0.128	[-0.224, 0.031]	No
Altruism => Intrinsic Value	0.503	9.465	0.000	[0.395, 0.606]	Yes
Altruism => Social Connectedness	0.191	5.074	0.000	[0.121, 0.268]	Yes
Altruism => Satisfaction	0.294	6.462	0.000	[0.209, 0.389]	Yes
Extrinsic Value => Social Connectedness	0.161	2.602	0.009	[0.042, 0.285]	Yes
Extrinsic Value => Satisfaction	0.056	1.017	0.309	[-0.052, 0.161]	No
Intrinsic Value => Social Connectedness	0.411	6.695	0.000	[0.284, 0.526]	Yes
Intrinsic Value => Satisfaction	0.596	13.277	0.000	[0.506, 0.683]	Yes
Social Connectedness => Satisfaction	0.426	7.062	0.000	[0.308, 0.542]	Yes

Combining the results of path coefficient and total effects of exogenous constructs suggests altruism as an important antecedent of intrinsic value which influences social connectedness and satisfaction significantly. Reputation is a good predictor of extrinsic and intrinsic values, social connectedness and satisfaction. Extrinsic value does contribute to social connectedness but not to satisfaction.

As the second step, coefficient of determination (R2) was used to evaluate predictability of the proposed model. R2 values greater than 0.75, 0.50, or 0.25 are commonly considered to have substantial, moderate, or weak predictability (Hair et al., 2017). In our analysis, R2 values of satisfaction (.509) and intrinsic value (.408) are moderate, and social connectedness (.208) shows weak predictability. However, extrinsic value (.115) has low R2 value. The result suggests that extrinsic value is not predicted well with reputation and altruism alone. Also, the overall model predicts social connectedness, intrinsic value, and satisfaction fairly well.

Thirdly, effect size f2 is evaluated to see if whether omitting a specified exogenous construct will boost the R2 value of endogenous constructs. Cohen (1988) provides a guideline for effect sizes and f2 values greater than 0.02, 015, or 035 shows there is small, medium, and large effect sizes. The analysis shows that altruism has no significant

effect on extrinsic value (0.011). Extrinsic value does not have significant effect on satisfaction (0.000) and social connectedness (0.032). Altruism shows the largest effect on intrinsic value (0.405), followed by intrinsic value's effect on satisfaction (0.295) and on social connectedness (0.211) respectively.

Fourthly, predictive relevance of Q2 is calculated. Having Q2 value is greater than 0 in endogenous constructs indicates predictive relevance for the constructs. Blindfolding procedure, systematically omitting some data points and coming up with the omitted data points, measures predictability of the proposed model. Satisfaction shows highest value at 0.361 followed by intrinsic value (.268), social connectedness (.155), and extrinsic value (0.085). Q2 values suggest that predictive relevance regarding all endogenous constructs within the proposed model.

Finally, effect size q2 assesses the predictability of endogenous constructs. Effect size of 0.02, 0.15, or 0.35 shows small, medium, or large predictive relevance respectively. Calculation of effect size q2 shows that altruism's influence on intrinsic value has a medium to large effect size (0.208). Intrinsic value has medium effects on social connectedness (0.15) and satisfaction (0.16). Social connectedness has medium effect size on satisfaction as well (0.156) Individuals with high level of altruism are more likely to feel intrinsic value, more socially connected feeling, and satisfaction with their knowledge contribution.

4.3 Group Difference Analysis

To test the differences of experience levels in their attitudes, perceptions, and outputs of their knowledge contribution behavior, we conducted PLS multi-group analyses (MGA) with two groups which were separated with a median split (Tsai & Bagozzi, 2014). PLS-MGA is a nonparametric analysis which is less subject to Type I errors (Hair et al., 2017). PLS-MGA performs 5000 bootstrap samples of both groups and compares each bootstrapped estimate of a parameter in one group to 5000 bootstrap estimates of the other group. The result of PLS-SEM path coefficients showing group differences is in Table 6.

Comparison of novice and expert groups in the structured model reveals that there were two hypothesized paths which showed significant group differences. While the path coefficient from altruism to extrinsic value is negative and significant for the expert group ($b=-0.234$, $p<0.01$), the novice group's coefficient is positive and not significant ($b=0.046$, $p>.05$). In the path from intrinsic value to satisfaction, both groups have positive and significant path coefficients (refer to Table 6) but the expert group exhibits significantly stronger path coefficient compared to the novice group ($p<.05$).

<Table 6> PLS-MGA Analysis Result, Path Coefficients.

	Path Coefficient		t -Values		p -Values			95% Confidence Interval		Difference in Path Coefficient (t-Value)	p-Value (expert vs novice)
	Expert	Novice	Expert	Novice	Expert	Novice		Expert	Novice	Expert vs. Novice	
Reputation -> Extrinsic Value	0.343	0.375	3.582	4.91	0	0	H1a	[0.119, 0.507]	[0.212, 0.513]	0.264	0.792
Reputation -> Intrinsic Value	0.275	0.316	3.5	4.333	0	0	H1b	[0.119 0.426]	[0.162 0.448]	0.39	0.697
Altruism -> Extrinsic Value	-0.234	0.046	2.648	0.455	0.008	0.649	H2a is supported for Expert group	[-0.397, -0042	[-0.162, 0.233]	2.061	0.04
Altruism -> Intrinsic Value	0.589	0.421	8.625	5.3	0	0	H2b	[0.438, 0.71]	[0.239, 0.553]	1.576	0.116
Extrinsic Value -> Satisfaction	-0.06	0.062	0.97	0.855	0.332	0.392	H3a	[-0.17, 0.073]	[-0.082, 0.2]	1.258	0.209
Extrinsic Value -> Social Connectedness	0.081	0.222	0.791	2.936	0.429	0.003	H3b is not supported for Expert group	[-0.131, 0.265]	[0.071, 0.37]	1.14	0.255
Intrinsic Value -> Satisfaction	0.53	0.28	6.954	3.551	0	0	H4a	[0.372, 0.666]	[0.124, 0.435]	2.269	0.024
Intrinsic Value -> Social Connectedness	0.397	0.414	3.88	5.864	0	0	H4b	[0.167, 0572]	[0.253, 0.536]	0.145	0.885
Social Connectedness -> Satisfaction	0.389	0.469	4.931	6.119	0	0	H5	[0.235, 0.536]	[0.308, 0.607]	0.722	0.471

Group difference testing results provide contradicting support for H2a and H3b depending on the knowledge contribution expertise.

H2a hypothesized a negative relationship between altruism and extrinsic value and the hypothesis was rejected when using the undivided data set. When we tested the model with two groups, H2a was supported with the expert group ($b=-0.234$, $p<0.01$), and was rejected with the novice group ($b=0.046$, $p>0.10$). Altruism does not influence extrinsic value for novices but negatively influences for experts. H3b hypothesized a positive relationship between extrinsic value and social connectedness. The undivided data supported H3b. Analysis with the novice group still supported the H3b ($b= 0.222$, $p<0.01$), but the expert group did not show a positive influence of extrinsic value on social connectedness ($b=0.081$, $p>0.10$).

<Table 7> PLS-MGA Analysis Result, Total Effect of Exogenous Constructs on Endogenous Constructs.

	Total Effects	Total Effects	t -Values	t -Values	p -Values	p -Values	95% Confidence Interval	95% Confidence Interval	Total Effects-diff (t-Value)	p -Value
	Expert	Novice	Expert	Novice	Expert	Novice	Expert	Novice	Expert vs. Novice	
Reputation -> Intrinsic Value	0.275	0.316	3.5	4.333	0	0	[0.119, 0.426]	[0.162, 0.448]	0.042	0.346
Reputation -> Satisfaction	0.178	0.212	3.036	4.761	0.002	0	[0.065, 0.293]	[0.117, 0.293]	0.034	0.322
Reputation -> Social Connectedness	0.137	0.214	2.136	4.353	0.033	0	[0.019, 0.26]	[0.116, 0.306]	0.078	0.17
Altruism -> Extrinsic Value	-0.234	0.046	2.648	0.455	0.008	0.649	[-0.397, -0.042]	[-0.162, 0.233]	0.279	0.02
Altruism -> Intrinsic Value	0.589	0.421	8.625	5.3	0	0	[0.438, 0.71]	[0.239, 0.553]	0.168	0.947
Altruism -> Satisfaction	0.41	0.207	6.794	3.989	0	0	[0.282, 0.521]	[0.108, 0.305]	0.203	0.994
Altruism -> Social Connectedness	0.215	0.185	3.278	4.174	0.001	0	[0.086, 0.343]	[0.096, 0.271]	0.03	0.652
Extrinsic Value -> Satisfaction	-0.028	0.166	0.395	2.017	0.693	0.044	[-0.167, 0.114]	[0.003, 0.326]	0.194	0.037
Extrinsic Value -> Social Connectedness	0.081	0.222	0.791	2.936	0.429	0.003	[-0.131, 0.265]	[0.071, 0.37]	0.142	0.13
Intrinsic Value -> Satisfaction	0.685	0.474	14.142	6.227	0	0	[0.573, 0.766]	[0.302, 0.607]	0.211	0.991
Intrinsic Value -> Social Connectedness	0.397	0.414	3.88	5.864	0	0	[0.167, 0.572]	[0.253, 0.536]	0.018	0.451
Social Connectedness -> Satisfaction	0.389	0.469	4.931	6.119	0	0	[0.235, 0.536]	[0.308, 0.607]	0.079	0.233
Reputation -> Extrinsic Value	0.343	0.375	3.582	4.91	0	0	[0.119, 0.507]	[0.212, 0.513]	0.032	0.402

PLS-MGA analysis of total effect on endogenous variables (Table 7) also shows altruism has differing influence on extrinsic value depending on the level of expertise on knowledge contribution ($p<0.05$). Examination of extrinsic value's total effect on social connectedness and satisfaction shows strong influence for the novice group and weak influence for the expert group. However, the difference in total effects is significant only in the path between extrinsic value and satisfaction ($p<.05$). Contributing knowledge to

online communities as an altruistic gesture can reward experienced knowledge contributors extrinsically. However, extrinsic value does not translate into socially connected feeling or satisfaction for expert knowledge contributors.

V. Results and Discussions

Our research looks at the role of reputation and altruism on intrinsic and extrinsic motivational values, and how motivational values influence socially connected feeling with their knowledge contribution and satisfaction in their knowledge contributing behavior. To summarize the result of our PLS-SEM analysis (Table 4), reputation and altruism have significant influence on intrinsic value. While reputation influences on extrinsic value, altruism does not influence extrinsic value. Intrinsic value has a strong positive relationship with social connectedness and satisfaction. Extrinsic value has a weak negative relationship with satisfaction in the proposed model but has a significant influence on social connectedness. PLS-MGA analysis (Table 7) shows novice and expert groups behave significantly differently in two paths (altruism to extrinsic value and intrinsic value to satisfaction). For experts, altruism negatively influences extrinsic value and intrinsic value has stronger influence on extrinsic value. Also, group analysis shows that extrinsic value influences social connectedness only for the expert group. Role of the extrinsic value on the feelings of achieved social relationship weakens as time passes. `

Knowledge is within individuals and it is up to them to transfer their knowledge to other individuals. Knowledge sharing “concerns the willing of individuals in an organization to share with others the knowledge they have acquired or created” (Bock et al., 2005; Gibbert & Krause, 2002). Gibbert and Krause (2002) explain the hardship of encouraging knowledge exchange. As a receiver of information, we tend to guard against knowledge from others, and as givers, we tend to hold on to our own. Knowledge contribution behavior in an internet community can be intrinsically motivated or encouraged initially with rewards and then routinized (Luthans & Kreitner, 1985; Scottand Posdakoff, 1982).

Boosting intrinsic motivation is an optimal way of continuously encouraging knowledge contribution. Altruism, a similar construct to enjoyment in helping, can be a major factor of intrinsic motivation in high quality and quantity contribution (Lou et al., 2013). Our analysis also supports the role of altruism on intrinsic value, social connectedness, and satisfaction. Also, intrinsic value’s impact on dependent values should be stronger for experienced contributors than novices. Then, how knowledge contribution can be encouraged when potential contributors are not

altruistic or intrinsically motivated.

Can extrinsic rewards and motivation alone continuously encourage knowledge contribution? Many online communities have mechanisms encouraging knowledge contribution. Visual reputation such as number of likes in Facebook, number of followers in Twitter, virtual currencies given for knowledge contribution, and other give-aways entice potential knowledge contributors. However, reinforcement of rewards on behavior enhances frequency of behavior and withdrawal of the enhancement reduces the occurrence of the behavior (Eisenberger & Cameron, 1996). While extrinsic rewards can secure temporary compliance (Kelman, 1958), extrinsic rewards should negatively influence intrinsic motivation (Eisenberger & Cameron, 1996). As members build more tenure in online communities, impact of extrinsic value on dependent variables, social connectedness, and satisfaction are lessened. Also, extrinsic value do not show long-term effect. Our analysis also shows that extrinsic value does not influence on social connectedness and satisfaction for the expert group.

Self-determination theory shows a different conclusion than the conventional way of conditioning, showing that activities whose motivation can be internalized or nurtured could be continuously performed even after external rewards are removed. Activities which started due to extrinsic rewards can be routinized to continue the behavior in organizational settings (Luthans & Kreitner, 1985; Scott & Rosdakoff, 1982).

Task performers' experiences and situations enable internalizing extrinsic goals similar to their own goals (Ryan & Deci, 2000a; Ryan & Deci, 2000b). Engaging in online communities for a prolonged time enables knowledge contributors to better learn about group goals, needs, and culture. They will also have time to internalized the group goals as their own, more specifically relating with others helps internalizing external motivation to be more intrinsic motivation-like. Novice knowledge contributors who initially start sharing knowledge seeking extrinsic value need to find ways to regulate the extrinsic motivation to persist their knowledge contribution behavior. The analysis of the proposed model with the undivided data shows extrinsic value plays an important role in boosting social connectedness. Further, PLS-MGA shows that extrinsic value is a significant predictor of social connectedness only for novice knowledge contributors. Many behaviors such as knowledge contribution in online communities can be initiated with external motivation but the behaviors will be continued only when the external motivation is internalize. Social connectedness can help novices to become continuous contributors, experts, by helping them to internalize external goals. Internalized external motivation is

virtually like intrinsic motivation. Both PLS-SEM and PLS-MGA analysis show strong influence of intrinsic motivation on social connectedness and satisfaction. Fueled by their intrinsic motivation, expert contributors will continue to offer their knowledge for their online communities.

Our research tried to explain the continuous knowledge contribution activities in online communities where intrinsic rewards are limited. Self-determination theory explains how knowledge contribution activities can be nurtured with the socially connected feelings over time. The result of the study should be valuable in understanding how the motivational changes occurs in knowledge contributors and how extrinsic motivation can encourage continuous knowledge contribution in virtual communities.

This research has several limitations. While this research tries to look at the intrinsic and extrinsic values of knowledge contribution, we only look at relationship between reputation and altruistic attitudes. Knowledge contribution intention differs depending on characteristics of knowledge, organization, and used system (김진완 등, 2016). Also, our research participants are limited to active knowledge contributors currently involved in online communities. We fail to capture how discontinuation of knowledge contribution occurs.

Future research directions include researching other factors which can encourage knowledge contributors' continuation and discontinuation of their behavior. It would also be useful to look at major affordances which can bring intrinsic and extrinsic values.

References

김나랑, 홍순구, 김종기, 박순형, "고객의 공동가치창출 행태 모형 연구," 한국산업정보학회논문지, 제21권, 제2호, 2016, pp. 59-72.

김종기, 대상, 김재현, "사회적 자본과 개인 동기기 정보공유와 커뮤니티 촉진에 미치는 영향: 중국의 가상커뮤니티를 중심으로," 정보시스템연구, 제25권, 제1호, 2016, pp.135-158.

김종기, 김진성, "SNS에서의 그룹 형성이 정보공유 활동에 미치는 영향에 관한 연구," 정보시스템연구, 제22권, 제2호, 2013, pp. 25-49.

김진환, 이경진, 김유일, "지식공유 영향요인들이 형식지와 잠재지의 공유에 미치는 영향의 차이에 관한 연구," 인터넷전자상거래연구, 제4권, 제3호, 2004, pp. 133-159.

Ba, S., Stallaert, J., and Whinston, A. B., "Research Commentary: Introducing a Third Dimension in Information Systems Design－The Case for Incentive Alignment," *Information Systems Research,* Vol. 23, No. 3, 2001, pp. 225-239.

Bailey, J. E., and Pearson, S. W., "Development

of a Tool for Measuring and Analyzing Computer User Satisfaction," *Management Science,* Vol. 29, No. 5, 1983, pp. 530-545.

Baron, L. F., and Gomez, R., "Relationships and Connectedness: Weak Ties that Help Social Inclusion through Public Access Computing," *Information Technology for Development,* Vol. 19, No. 4, 2013, pp. 271-295.

Beck, R., "Knowledge Exchange and Symbolic Action in Social Media-Enabled Electronic Network of Practice: A Multilevel Perspective on Knowledge Seekers and Contributors," *MIS Quarterly,* Vol. 38, No. 4, 2014, pp. 1245-1270.

Bock, G.-W., Kim, Y.-G., and Lee, J.-N., "Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces and Organizational Climates," *MIS Quarterly,* Vol. 29, No. 1, 2005, pp. 87-111.

Bollen, K. A., and Hoyle, R. H., "Perceived Cohesion: A Conceptual and Empirical Examination," *Social Forces,* Vol. 69, No. 2, 2000, pp. 479-504.

Cheung, C. M. K., Lee, M., and Lee, Z. W. Y., "Understanding the Continuance Intention of Knowledge Sharing in Online Communities of Practice through the Post-Knowledge-Sharing Evaluation Process," *Journal of the American Society for Information Science and Technology,* Vol. 64, No. 7, 2013, pp. 1357-1374.

Cohen, J., *"Statistical Power Analysis for the Behavioral Sciences,"* Lawrence Erlbaum, Mahwah, NJ, 1988.

Donath, J. S., *"Identification and Deception in the Virtual Community,"* in M.S. Smith and P. Kollock (eds), Communities in Cyberspace, Routledge, NY, 1999, 29-59.

Eisenberger, R., and Cameron, J., "Detrimental Effect of Rewards: Reality or Myth?," *American Psychology,* Vol. 51, No. 11, 1996, pp. 1153-1166.

Franzen, A., Hangartner, D., "Social Networks and Labour Market Outcomes: The Non-Monetary Benefits of Social Capital," *European Sociological Review,* Vol. 22, No. 4, 2006, pp. 353-368.

Gibbert, M., and Krause, H., *"Practice Exchange in a Best Practice Marketplace,"* in T. H. Davenport and G. J. B. Probst (eds), Knowledge Management Case Book: Siemens Best Practices, Publicis Corporate Publishing, Erlangen, Germany, 2002, 89-105.

Granovetter M. S., "The Strength of Weak Ties," *The American Journal of Sociology.* Vol. 78, 1973, pp. 1360-1380.

Granovetter, M. S., *"Getting a Job: A Study of Contacts and Careers,"* University of

Chicago Press, Chicago, IL, 1995.

Hair, J. Hult, G. T. M., Ringle, C. M. , and Sarsted, M., *"A Primer on Partial Least Squares Structural Modeling (PLS-SEM),"* SAGE Publications, London, United Kingdom, 2017.

Huberman, B .A., Romero, D. M. and Wu, F., "Crowdsourcing, Attention and Productivity," *Journal of Information Science,* Vol. 36, No. 6, 2009, pp. 758-765.

Kankanhalli, A., Tan, B. C. Y., and Wei, K. -K., "Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation," *MIS Quarterly,* Vol. 29, No. 1, 2005, pp. 113－143.

Katz, E., Blumler, J. G., and Gurevitch, M., *"Utilization of Mass Communication by the Individual," in J. G. Blumler (ed),* The Uses of Mass Communications: Current Perspectives on Gratifications Research. Sage, CA, 1974, 19-32.

Kelman, H. C., "Compliance, Identification, and Internalization: Three Processes of Attitude Change," *Conflict Resolution,* Vol. 2, No. 1, 1958, pp. 51-60.

Kozinets, R. V., "E-tribalized Marketing?: The Strategic Implications of Virtual Communities of Consumption," *European Management Journal,* Vol. 17, No. 3, 1999, pp. 252-264.

LaBarbera, R., "The Relationship between Students' Perceived Sense of Connectedness to the Instructor and Satisfaction in Online Courses," *The Quarterly Review of Distance Education,* Vol. 14, No. 4, 2013, pp. 209-220.

Lakhani, K., and von Hippel, E., "How Open Source Software Works: 'Free' User-to-User Assistance," *Research Policy,* Vol. 32, No. 7, 2003, pp. 923-943.

Lee, R. M., Draper, M., and Lee, S., "Social Connectedness, Dysfunctional Interpersonal Behaviors, and Psychological Distress: Testing a Mediator Model," *Journal of Counseling Psychology,* Vol. 48, 2001, pp. 310－318.

Lee, H. A., Law, R. and Murphy, J., "Helpful Reviewers in TripAdvisor, an Online Travel Community," *Journal of Travel & Tourism Marketing,* Vol. 28, No. 7, 2011, pp. 675-688.

Lee, J., and Suh, A., "How Do Virtual Members Develop Psychological Ownership and What are the Effects of Psychological Ownership in Virtual Communities?," *Computers in Human Behavior,* Vol. 45, 2015, pp. 382-391.

Lin, N., "Social Networks and Status Attainment," *Annual Review of Sociology,* Vol. 25, 1999, pp. 467-487.

Loane, S. S., and Webster, C. M., "Consumer-to-Consumer Value within Social Networks," *The Marketing Review,* Vol. 14, No. 4, 2014, pp. 447-462.

Lou, J., Fang, Y., Lim, K. H., and Peng, J. Z., "Contributing High Quantity Knowledge to Online Q&A Communities," *Journal of the American Society for Information Science & Technology,* Vol. 64, No. 2, 2013, pp. 356-371.

Luthans, F. and Kreitner, R., *"Organizational Behavior Modification and Beyond,"* Scott, Foresman & Co., Glenview, IL, 1985.

Mouw, T., "Estimating the Causal Effect of Social Capital: A Review of Recent Research," *Annual Review of Sociology,* Vol. 32, 2006, pp. 79–102.

Oh, S., "The Characteristics and Motivations of Health Answerers for Sharing Information, Knowledge, and Experiences in Online Environments," *Journal of the American Society for Information Science and Technology,* Vol. 63, No. 3, 2012, pp. 543-557.

Pelletier, L. G., Fortier, M. S., Valler, R. J., Tuson, K. M., and Blais, M. R., "Toward a New Measure of Intrinsic Motivation, Extrinsic Motivation, and A motivation in Sports: The Sport Motivation Scale (SMS), *Journal of Sport & Exercise Psychology,* Vol. 17, 1995, pp. 35-53.

Pierce, J. L., Kostova, T., and Dirks, K. T., "Toward a Theory of Psychological Ownership in Organizations," *Academy of Management Review,* Vol. 26, No. 2, 2001, pp. 298-310.

Ray S., Kim, S. S., and Morris, J. G., "The Central Role of Engagement in Online Communities," *Information Systems Research,* Vol. 25, No. 3, 2014, pp. 528-546.

Raykov, T., "Estimation of Composite Reliability for Congeneric Measures," *Applied Psychological Measurement,* Vol. 21, No. 2, 1997, pp. 173-184.

Riedl, C., F., Köbler, S., Goswami, and Krcmar, H., "Tweeting to Feel Connected: A Model for Social Connectedness in Online Social Networks," *Journal of Human–Computer Interaction,* Vol. 29, 2013, pp. 670–687.

Ringle, C. M., Wende, S., and Becker, J.-M., "SmartPLS 3", Retrived August 3, 2016, Available: http://www.smartpls.com.

Ryan, R. M., and Deci, E. L., "Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being," *American Psychologist,* Vol. 55, No. 1, 2000a, pp. 68-78.

Ryan, R. M., and Deci, E. L., "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions," *Contemporary Educational Psychology,* Vol. 25, 2000b, pp. 54-67.

Scott, W. E., and Podsakoff, P. M., *"Leadership, Supervision and Behavioral Control: Perspectives from an Experimental Analysis,"* in L. Frederickson (ed), Handbook of

Organizational Behavior Management, John Wiley & Sons, NY, 1982, 91-121.

Tsai, H.-T., and Baggozzi, R. P., "Contributing Behavior in Virtual Communities: Cognitive, Emotional and Social Influences," *MIS Quarterly,* Vol. 38, No. 1, 2014, pp. 143-163.

Wasko, M. M. and Faraj, S., "Is It What One Does?: Why People Participate and Help Others in Electronic Communities of Practice," *Journal of Strategic Information Systems,* Vol. 9, No. 2/3, 2000, pp. 155-173.

Wasko, M. M., and Faraj, S., "Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice," *MIS Quarterly,* Vol. 29, No. 1, 2005, pp. 35-57.

박 소 라 (Sora Park)

Sora Park received her Ph.D degree from University of Nebraska－Lincoln and is an instructor at the Department of Business Administration, JEJU National University. Her research centers around strategic business use of Internet, Internet purchasing behavior, web experiences, online communities and health care management.

강 재 정 (JaeJung Kang)

JaeJung Kang is a full professor of Business Administration at JEJU National University. He received his Ph.D in MS/IS from Korea University. His Research focuses on Internet Business Model, Electronic Commerce, Strategic Innovation Management and the Impacts of information technology on organization and Individuals.

<Abstract>

Knowledge Contributors' Intrinsic and Extrinsic Motivation on Social Connectedness and Satisfaction

Park, Sora · Kang, Jaejung

Purpose

Quality and quantity of knowledge in virtual communities is at the discretion of knowledge contributors, and understanding what motivates knowledge contributors' behavior can be invaluable. The purpose of this paper is to find the social aspect of knowledge contribution in virtual communities within the frame of self-determination theory. Also, we seek differential effects of motivation value for novice vs. expert knowledge contributors.

Design/methodology/approach

Reputation and altruistic motives are studied as antecedents of intrinsic and extrinsic values in contributing knowledge in virtual communities. Gained social connectedness and satisfaction in their knowledge were behaviors studied as dependents of the motivational value. Also, the proposed model was tested for group differences between expert and novice knowledge contributors seeking motivational changes. Self-determination theory is the base theory which explains how externally motivated behaviors can evolve from extrinsically motivated to intrinsic-like behavior with social experiences as knowledge contributors.

Findings

Analysis of 262 data points gathered from knowledge contributors in Korean virtual communities in 2005 reveals social connectedness as an important dependent variable both for novice and expert knowledge contributors. Group difference analysis shows altruism has negative influence on extrinsic value only for experts. Intrinsic value has a positive influence on satisfaction for both groups alike but the expert group shows a statistically stronger influence than the other.

Keywords: Knowledge Contribution, Virtual Communities, Self-Determination Theory, Social Connectedness, Motivation.

<국문초록>

지식공유의 내재적 외재적 동기가 사회적 유대감과 만족감에 미치는 영향

박 소 라 · 강 재 정

목적

온라인 커뮤니티에서 지식교류의 질과 양은 지식공유자의 재량에 달려있다. 지식공유자의 공유 동기에 대한 이해는 지식교류의 질과 양을 향상시키는데 중요한 첫걸음이 될 수 있다. 이 논문은 온라인 커뮤니티 상에서 지식공유 시에 느낄 수 있는 사회적인 효과에 대한 이해를 돕고자한다.

설계/방법론/접근

지식공유 모델에서, 숙련레벨에 따른 내재적 외재적 동기가치와 변수의 변화를 연구하여 그룹 간 비교한다. 연구모델에서는 명성과 이타주이가 내재적 외재적 동기가치의 선행변수로, 사회적 유대감과 만족이 종속변수로 쓰였다. 자기 결정 이론을 바탕으로 숙련레벨이 선행변수와 종속변수에 다르게 미치는 영향을 연구하고 설명한다.

시사점

2005년 한국 인터넷 커뮤니티에서 정보공유 경험이 있는 사람들을 대상으로 한 설문 중 262개의 샘플을 분석한 결과 사회적 유대감이 중요한 종속변수로 밝혀졌고, 숙련레벨에 따른 그룹 비교 분석은 이타주의가 숙련레벨이 높은 정보 공유자에게만 외재적 동기가치에 반 (-)의 영향을 끼치는 것으로 나타났다. 또한 내재적 동기가치는 숙련레벨이 낮은 그룹과 높은 그룹에서 만족에 정(+)의 영향을 끼치나 두 그룹은 통계적으로 유의한 차이를 가지면서 숙련레벨이 높은 그룹이 더 강한 영향을 미친다는 결과를 나타냈다.

키워드: 지식공헌, 가상커뮤니티, 자기결정이론, 사회적유대감, 동기

* 이 논문은 2016년 5월 21일 접수, 2016년 6월 7일 1차 심사, 2016년 9월 20일 게재 확정되었습니다.