

## A Study of Vlog that Analyze Variables Affecting Perceived Enjoyment : Using Social Communication as a Control Variable

Giseob Yu\* · Jeong Hun Lim\* · Namjae Cho\*\*\*

### Abstract

As the 4G and 5G Internet technologies become more common and developed, an environment for uploading and watching videos is created and spread, in addition to simply uploading posts. Watching and sharing daily life among media contents called Vlog, are very common more than ever. This means that individual users could access Vlog easily and the situation could be new trend. Additionally, academic research about Vlog is increasing. We analyzed three independent variables affecting a perceived enjoyment we set up the dependent variable. Information search, self-expression, and social need are set as independent variables and social interaction is set as the control variable. Information search and self-expression are significant effect to perceived enjoyment except social need. In particular, social interaction as a control variable has effect to all relationships.

Keywords : Vlog, Perceived Enjoyment, Social Interaction, Social Need, Information Search,  
Self-Expression

---

Received : 2020. 01. 05.      Final Acceptance : 2020. 10. 26.

\* Adjunct Professor, School of Business, Hanyang University, e-mail : yugs@hanyang.ac.kr

\*\* Ph.D Candidate, School of Business, Hanyang University, e-mail : jhun900424@hanyang.ac.kr

\*\*\* Corresponding Author, Professor, School of Business, Hanyang University 17 Haeng Dang-Dong, Seong Dong-Gu, Seoul, 04763, Korea,  
Tel : +82-2-2220-1058, e-mail : njcho@hanyang.ac.kr

## 1. Introduction

The development of the Internet has brought about changes and developments in various fields. In particular, the environment of using the Internet has changed drastically, and the change of the environment has led to the active participation of users. Among the contents of various users' participation, the UGC (User Generated Contents) environment is synonymous with the rapid development such as YouTube. The development of the UGC environment has made it possible to share and watch everyday personal time with others in real time, creating a new field called Vlog (Video and Blog).

Nowadays, consumers seek products or services just for them, and companies take this strategy to approach consumers. This trend is not too different in the content market, where customers choose content based on their preferences [Lee, 2018]. This trend accelerated the era of one-person media, and was the driving force behind the creation of large one-person media-oriented sites such as YouTube and Africa TV. In addition, unlike the past, these one-person media have been shown to generate a lot of economically as well as socio-cultural influence through one-person broadcasting [Jeong, 2020]. Despite these influences, the research on Vlog is not carried out much, and many people recognize Vlog as contents that share and make just their daily life in the form of video. However, there is a claim that research on this field should be differentiated because it is one of the ways of conveying subjective thoughts of individuals. Additionally, it is different from the private area of the individual such as diary and memo [Kong, 2019].

In this study, perceived enjoyment, which was one of the important factors of the UGC

study as a dependent variable or independent variable in various previous studies, is set as the dependent variable. Information search, self-expression, and social need are set as independent variables. In addition, for finding the moderating effects of social interaction, social interaction is set as a control variable.

The purpose of this study is as follows. First, the first purpose is to identify what variables affect perceived enjoyment when users watch and share the Vlog. The second purpose by setting the moderate variable as a social interaction is to find out how the user has a relationship with the surroundings when watching and sharing the Vlog.

## 2. Literature Review

The concept of UGC refers to content that can be produced directly by users and show the result to others through the Internet platform [Ai, 2019]. In addition, it is defined as the content such as text, image, audio-visual produced by the user directly [Korea Internet and Security Agency, 2007].

Through the generalization and development of this content-making environment, the era of one-person media has arrived, which also serves to strengthen relationships with others by informing users of their own identity on the Internet and sharing their own social and cultural knowledge and information [Yoo, 2012]. In particular, the development of new content has been accelerating recently, because of the development of high-speed wireless Internet and smart devices such as smart phones [Lee, 2015]. Especially, these developments have moved away from the form of unilateral communication in the past, enabling users and viewers to interact with each other in real time [Yoon et al., 2016].

The possibility of two-way communication enables users to communicate with viewers on a variety of topics and daily life, creating an area called Vlog that has become a big trend. Vlog is basically a composite of video and blog, which means a blog in the form of a video rather than a picture or text which has been uploaded primarily over the Internet [Kim, 2017]. In previous studies, Vlog is defined as a means of expressing itself through a tool or media for connecting with others [Christian, 2009]. On the other hand, some researcher argued that Vlog should be defined a communication with computer such as one of CMC (Computer-Mediated-Communication) [Frobenius, 2014].

The main feature of the general Vlog is not that celebrities appear and attract readers with brilliant editing and screens, but ordinary people gain empathy by showing their lives and communicating with viewers. In this process, the user and the viewer form a new relationship with viewers to develop emotional relationship [Lee, 2018]. Vlog is also characterized by the fact that they can gain comfort and dream of utopia in real life, rather than having a yearning for an indirect experience that they don't really have, such as an ideal life and wish [Gwak et al., 2017].

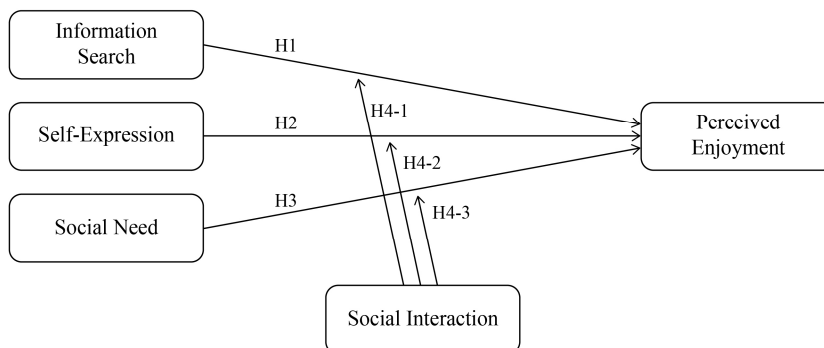
Among many previous studies, Frobenius

[2014], who has conducted various studies on Vlog, summarized five things about the interesting properties of contents of Vlog. First, 'Linguistic content' is meant that call directly through viewers' names or questions. Second, 'Conversational history' means that communication with past images or vides is effective beyond the time limit. Third, 'physical arrangement' stands for the digital space where communication happens. Forth, 'gaze and gesture' implies which is a material for the user to effectively immerse in communication. Lastly, the adjustment of voice tone of the user, and it is called as 'Manner of Speaking'.

In this study, Vlog is defined as a blog in the form of a video according to Kim's definition [2017], and representative examples of which could be YouTube and African TV.

### 3. Research Model

In this study, to investigate the influence of the independent variables on perceived enjoyment of Vlog, perceived enjoyment is set as the dependent variable, and information search, self-expression, and social need are set as independent variables. In addition, the moderating effect is confirmed by setting social interaction as a control variable. <Figure 1> shows the research model in this study.



<Figure 1> Research Model

Hypothesis of this study is as follow.

- H1: Information search is associated to perceived enjoyment.
- H2: Self-expression is associated to perceived enjoyment.
- H3: Social need is associated to perceived enjoyment.
- H4-1: Social interaction moderates between perceived enjoyment and information research.
- H4-2: Social interaction moderates between perceived enjoyment and self-expression.
- H4-3: Social interaction moderates between perceived enjoyment and social need.

### 3.1 Perceived Enjoyment

Perceived enjoyment is the fun of using the system by focusing on internal motivation and is often used as a perceptual element for users in the information system (Ha, 2008). Perceived enjoyment, which is often used with the meaning of enjoyment or fun, has been revealed through previous studies as an important factor for the use of the system (Ha, 2008). In particular, perceived enjoyment has been shown to affect user satisfaction, good mood, and immediate and subjective experience (Webster et al., 1993). Perceived enjoyment is an important determinant of the acceptance of new information technologies, and can also trigger the promotion of a product or service, which can be interpreted as an important variable for the success of users who use Vlog or the company that operates the site (Maignan et al., 1995; Al-gahtani et al., 1999).

### 3.2 Information Search

Information search is described as an important part of information seeking in consumer

behavior, which is defined as information retrieval (Novak et al., 2000). Novak et al. (2000) categorized into objective-oriented search, which seeks information for a specific purpose, and experiential search, where consumers search for information by their own interests in everyday life. In the various previous studies, when searching for information, the user searched for more than one topic, which can be explained by the existence of various demands for information in the online environment (Janiszewski, 1998). In this study, Vlog users defined information search as an action to obtain the information using Vlog sites.

### 3.3 Self-Expression

In the case of YouTube, one of the most popular sites in Vlog, it was the space for free self-expression since its inception (Jung et al., 2013). As such, self-expression became a new trend called UGC, creating explosive demand and supply, and various aspects of self-expression were actively researched. In particular, people who have the stronger self-expression, they activate the UGC participation more than others (Kim et al., 2007). In this study, self-expression, which is one of the important factors related to UGC, is set as an independent variable to find out how it affects perceived enjoyment.

### 3.4 Social Need

Social need can be explained to be the basic desires of human beings to establish and maintain relationships with others (Baumeister et al., 1995). Social need have evolved to make people feel happier as they are satisfied (Baumeister et al., 1995; Hill et al., 1989). Social need generally follow Maslow's theory of needs that human basic needs can be met after they

are satisfied [Maslow, 1943]. In this study, social need is applied to share or watch Vlog for their satisfaction.

### 3.5 Social Interaction

Many previous studies have studied online interactions. Among them, users who use online more often have less social activities and conversations, and have more loneliness [Kraut et al., 1998]. However, other studies have argued that online users are more social than those who are not [Hampton

et al., 2003]. Although there are many different views of social interaction online, a common concept is that social interaction online plays a significant role [Haythornthwaite, 2002]. Therefore, in this study, despite the conflicting previous studies, social interaction is an important factor for the user in using Vlog, and it is expected to bring about a moderating effect between independent and dependent variables.

The measurement items for the variables used in this study are summarized in (Table 1).

(Table 1) Measurement Method of Used Variables

Variables		Questions summary	Name of variable	The quarry of question
Independent variables	Information search	The reason I watch and share Vlog is because I can search for information.	IS1	Haridakis and Hanson (2009)
		The reason I watch and share Vlog is because I can get information for free.	IS2	
		The reason I watch and share Vlog is because it's easy to get information.	IS3	
		The reason I watch and share Vlog is because they provide a new and interesting way to search for information.	IS4	
	Self-expression	The reason I watch and share Vlog is because I can present my view and opinion.	SE1	Chiang and Hsiao (2015)
		The reason I watch and share Vlog is because I want to let others know that I understand their ideas.	SE2	
		The reason I watch and share Vlog is because I want to participate in the discussion.	SE3	
	Social need	The reason I watch and share Vlog is because I feel like I'm participating with others.	SN1	Haridakis and Hanson (2009)
		The reason I watch and share the Vlog is because it reduces my loneliness.	SN2	
The reason I watch and share Vlog is because it makes me feel I am not alone.		SN3		
Control variable	Social interaction	The reason I watch and share Vlog is because I can communicate with my family and friends.	SI1	Oh and Syn (2017)
		The reason I watch and share Vlog is because I want to encourage others.	SI2	
		The reason I watch and share Vlog is because I want to help others.	SI3	Haridakis and Hanson (2009)
		The reason I watch and share Vlog is because I want to help people who are hard to find the appropriate content.	SI4	
		The reason I watch and share Vlog is because I want to help people who need information similar to me.	SI5	
Dependent variable	Perceived enjoyment	The reason I watch and share Vlog is because it is fun.	PE1	Haridakis and Hanson (2009)
		The reason I watch and share Vlog is because it is pleased.	PE2	
		The reason I watch and share Vlog is because it makes me happy.	PE3	
		The reason I watch and share Vlogs is because it's fun to try new things.	PE4	
		The reason I watch and share Vlogs is because I can spend time quickly when I'm bored.	PE5	

<Table 2> Means, Standard Deviation and Coefficient of Correlations for the Variables

	Means	Standard deviation	Information search	Self-expression	Social need	Social interaction	Perceived enjoyment
Information search	3.3297	1.10923	1				
Self-expression	2.4615	0.97344	.645**	1			
Social need	2.4139	1.00298	.457**	.448**	1		
Social interaction	2.4769	0.94505	.292**	.282**	.524**	1	
Perceived enjoyment	3.1187	0.98927	.401**	.441**	.638**	.632**	1

\*\*The correlation coefficient is significant at the 0.01 level (both sides).

**3.6 Data Collection and Analyzing Data**

For this study, we distributed and retrieved the questionnaire only for users who have experienced using YouTube and Afreeca TV which are representative Vlog. Of the total 101 questionnaires retrieved, 91 data were used for the study except 10 data with insincerity and missing data. The program used in this study is SPSS 21 version.

**3.7 The Result of Correlation and Factor Analysis**

The correlation coefficient and mean standard deviation between the variables are shown in <Table 2>. As a result of correlation analysis, the relationship between each variable is all significant.

Factor analysis is conducted to get the validity and reliability of the factors. The factor analysis using the Verimax method shows that factor loadings ranged from .581 to .923. In the case of PE4, it is a little lower than .6 [Nunnally, 1978], but we did not get rid of the item because we considered the item was important for this study. Additionally, each result of Cronbach's alpha is higher than 0.7. The results of KMO and Bartlett's test also show .882 and a significant probability of .000. <Table 3> shows the result of factor analysis.

<Table 3> Validity and Reliability of Variables

Variables		Name	Factor Results	Cronbach's alpha	Total explained Variance (%)
Independent Variable	Information search	IS1	.793	.944	79.873
		IS2	.876		
		IS3	.863		
		IS4	.827		
	Self-expression	SE1	.742	.859	
		SE2	.718		
		SE3	.849		
	Social need	SN1	.613	.873	
		SN2	.923		
SN3		.829			
Moderate Variable	Social interaction	SI1	.732	.905	
		SI2	.797		
		SI3	.768		
		SI4	.748		
		SI5	.811		
Dependent variable	Perceived enjoyment	PE1	.786	.896	
		PE2	.836		
		PE3	.804		
		PE4	.581		
		PE5	.808		
Kaiser-Mayer-Olkin: .882 Bartlett's chi-squared: 1525.947, The degree of freedom: 190, Sig.: .000					

**3.8 The Result of Regression**

<Table 4> is a table showing the results of multiple regression analysis. Information search has a significant effect on perceived enjoyment at the 0.05 level. However, self-expression and social need are not significant. Therefore, hypothesis H1 is accepted.

〈Table 4〉 Result of Multiple Regression and Moderating Effects

Model		Non-Standardized Coefficient		Standard Coefficient	t value	Significance	VIF
		B	SE	B			
1	Constant value	.923	.284		3.253	.002	
	Information search	.489	.079	.549	6.167	.000***	1.256
	Self-expression	.195	.102	.192	1.917	.059	1.595
	Social need	.036	.092	.036	0.390	.697	1.384
R					.672		
R square					.452		
Adjusted R square					.433		
F					23.935		
Model		Non-Standardized Coefficient		Standard Coefficient	t value	Significance	VIF
		B	SE	B			
2	Constant value	.915	.287		3.190		
	Information search	.485	.082	.543	5.923	.000***	1.322
	Self-expression	.184	.111	.181	1.661	.100	1.872
	Social need	.024	.104	.024	0.231	.818	1.740
	Social interaction	.032	.125	.030	0.256	.799	2.234
R					.673		
R square					.453		
Adjusted R square					.427		
F					.065		
Model		Non-Standardized Coefficient		Standard Coefficient	t value	Significance	VIF
		B	SE	B			
3	Constant value	1.314	.317		4.140	.000	
	Information search	.370	.081	.415	4.552	.000***	1.630
	Self-expression	.148	.101	.145	1.467	.146	1.923
	Social need	.017	.094	.017	0.179	.858	1.775
	Social interaction	.097	.113	.093	0.864	.390	2.276
	Info X Interaction	-.304	.086	-.365	-3.517	.001***	2.112
	Self X Interaction	.405	.111	.377	3.650	.000***	2.091
	Soci X Interaction	-.287	.083	-.282	-3.434	.001***	1.321
R					.759		
R square					.576		
Adjusted R square					.541		
F					8.087		

\*\*p &lt; 0.05, \*\*\*p &lt; 0.001.

〈Table 5〉 Result of Hypothesis

Hypothesis		Result
H1	Information search is associated to perceived enjoyment.	Accepted
H2	Self-expression is associated to perceived enjoyment.	Rejected
H3	Social need is associated to perceived enjoyment.	Rejected
H4-1	Social interaction moderates between perceived enjoyment and information retrieval.	Accepted
H4-2	Social interaction moderates between perceived enjoyment and self-expression.	Accepted
H4-3	Social interaction moderates between perceived enjoyment and social need.	Accepted

but H2 and H3 are rejected. However, social interaction has significant results with all three independent variables. Especially in

the case of information search and social need, social interaction has shown a negative moderating effect (see 〈Table 5〉).

## 4. Conclusion

This study is about Vlog, which has recently become a big trend. In this study, we analyzed perceived enjoyment of users when they watch or share Vlog. The independent variables are information exploration, self-expression, and social need, and the social interaction is set as control variables. The results of this study are as follows.

First, the information search has a significant effect on the perceived enjoyment of the user. It can be interpreted that the user receives pleasure when searching for or sharing the Vlog by searching for information they want to know. Instead of the way users get information from Web sites that consist of text or images in the past, there is a possibility that they may be more interested in the information they get from sites that consist of videos.

Second, it turns out that self-expression and social need do not have a significant relationship with perceived enjoyment. When watching or sharing a Vlog, it can be said that users do not think of it as an expression of themselves and do not think it is an act to satisfy their social need. These results can be interpreted as the user watching and sharing Vlogs for a different purpose than meeting self-expression and social need.

Third, social interaction variables have been shown to have a moderating effect on all independent variables. In the case of control effects, self-expression has had a positive effect, and in the case of information search and social need, those have been shown to have a negative effect. In particular, it can be interpreted that users have little purpose for watching or sharing Vlogs for others, especially when they browse information or watch or share social need. In other words, this re-

sult could be explained that Vlog's viewing and sharing activities for personal purposes are strong.

The limitations of this study are as follows. First, due to the limitations of the sample, we could not gather opinions in various fields. In particular, Vlog is rapidly spreading to the elderly, but most of the surveys are composed of young people's opinions.

Second, there is a limit to the study of various variables that affect perceived enjoyment. In the previous study, many variables influenced perceived enjoyment. However, in this study, only three independent variables were selected. Therefore, there is a limit to the reflection of the influence of various variables.

The following studies are deemed necessary. First, it is necessary to study the difference between the search of text or image and the search through video, which is the first result of this study. In particular, further research on the reason and reliability level of search through each method is needed.

Second, there seems to be a need to collect and compare data through various classifications such as generation, region, and gender. Through this, it is necessary to understand what characteristics each group has and to have a detailed study on the purpose of each group's viewing and sharing of Vlog.

Third, studies on social interaction variables, which have shown conflicting results from previous studies, are likely to be needed. The more detailed research about the social interaction is likely to be needed on the fundamental causes of information search or social need having a negative effect on perceived enjoyment. The results of these studies would be expected to be helpful in further research on Vlog.



## References

- [1] Ai Danni, "An Analysis of UGC Video Contents based on Uses and Gratification : Focused on the Development of Tik Tok App and China's Vlog", Department of Media and Communication, Sungkyunkwan University, 2019.
- [2] Al-Gahtani, S. S. and King, M., "Attitudes, satisfaction and usage: Factors contributing to each in the acceptance of information technology", *Behaviour and Information Technology*, Vol. 18, No. 4, 1999, pp. 277-297.
- [3] Baumeister, R. F. and Leary, M. R., "The need to belong: Desire for interpersonal attachments as a fundamental human motivation", *Psychological Bulletin*, Vol. 117, No. 3, 1995, pp. 497-529.
- [4] Chiang, H.-S. and Hsiao, K.-L., "YouTube stickiness: the needs, personal, and environmental perspective", *Internet Research*, Vol. 25, No. 1, 2015, pp. 85-106.
- [5] Christian, A. J., "Real vlogs: The rules and meanings of online personal videos", *First Monday*, Vol. 14, No. 11, 2009.
- [6] Frobenius, M., "Audience design in monologues: How vloggers involve their viewers", *Journal of Pragmatics*, Vol. 72, 2014, pp. 59-72.
- [7] Gwak, G.-T. and Kim, E.-K., "Daily Life in Observation Entertainment Program, Form a Place for Collective Communication", *Asia-pacific Journal of Multimedia Services Convergent with Art, Humanities, and Sociology*, Vol. 7, No. 7, 2017, pp. 813-820.
- [8] Ha, Y.-H., "The effects of Perceived-enjoyment on Brand Attitude by using experiences of Brand's UCC", The Graduated School of Chung-Ang University, 2008.
- [9] Hampton, K. and Wellman, B., "Neighboring in netville: How the Internet supports community and social capital in a wired suburb", *City & Community*, Vol. 2, No. 4, 2003, pp. 277-311.
- [10] Haridakis, P. and Hanson, G., "Social Interaction and Co-Viewing With YouTube: Blending Mass Communication Reception and Social Connection", *Journal of Broadcasting & Electronic Media*, Vol. 53, No. 2, 2009, pp. 317-335.
- [11] Haythornthwaite, C., "Strong, weak, and latent ties and the impact of new media", *Information Society*, Vol. 18, No. 5, 2002, pp. 385-401.
- [12] Hill, K. and Hurtado, M., "Hunter-gatherers of the new world", *American Scientist*, Vol. 77, 1989, pp. 437-443.
- [13] Janiszewski, C., "The influence of display characteristics on visual exploratory search behavior", *Journal of Consumer Research*, Vol. 25, No. 3, 1998, pp. 290-301.
- [14] Jeong, Y.-J., "The Analysis of the Relationship between Viewing Motivation and the Viewing Continuity Intention of Vlog on YouTube: Viewing Flow and Viewing Satisfaction as Mediator", Department of Communication Graduate School of Dankook University, 2020.
- [15] Jung, B. R. and Kim, S. C., "Predicting and Explaining YouTube Users Continuance Intention to Generate and Share a Parody", *Journal of Cybercommunication Academic Society*, Vol. 30, No. 4, 2013, pp. 131-167.
- [16] Kim, J. Y., "Show one's daily life by video, Vlog in Korean" Sisunnews, 2017, <http://www.sisunnews.co.kr/news/articleView.html?idxno=61776>.
- [17] Kim, Y. J., Bang, G. J., Kim, Y. J., and Kang, S.-R., "Determinants of participa-

- tion in UCC services”, *Journal of Korea Technology Innovation Society*, Vol. 10, No. 3, 2007, pp. 486-508.
- [18] Kong, H. N., “A Study on The Discourse of the Other in YouTube Vlog”, The Graduate School of Ewha Womans University, 2019.
- [19] Korea Internet and Security Agency, “Analysis of Blogger Internet usage”, Seoul, Korea Internet & Security Agency, 2007.
- [20] Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., and Scherlis, W., “Internet paradox: A social technology that reduces social involvement and psychological well-being”, *American Psychologist*, Vol. 53, No. 9, 1998, pp. 1017-1032.
- [21] Lee, H. J., “How does broadcasting evolve in the Internet age? in Korean”, *Broadcasting and Media Magazine*, Vol. 20 No. 4, 2015, pp. 74-80.
- [22] Lee, K. Y., “The Impact of YouTube Daily Vlogs’ Intimate Viewing on Viewing Satisfaction: Focusing on Parasocial Interaction and Social Presence”, The Graduate School of Ewha Womans University, 2018.
- [23] Maignan, I. and Lukas, B. A., “The Nature and Social Users of the Internet: A Qualitative Investigation”, *The Journal of Consumer Affairs*, Vol. 31, No. 2, 1995, pp. 346-371.
- [24] Maslow, A., “A theory of human motivation”, *Psychological Review*, Vol. 50, 1943, pp. 370-396.
- [25] Novak, T. P., Hoffman, D. L., and Yung, Y. F., “Measuring the customer experience in online environments: A structural modeling approach”, *Marketing Science*, Vol. 19, No. 1, 2000, pp. 22-42.
- [26] Nunnally, *Psychometric Theory*, Second Edition, New York, McGraw-Hill, 1978.
- [27] Oh, S. and Syn, S. Y., “Motivations for Sharing Photos and Videos on YouTube and Fliker”, *Journal of the Korean Society for Information Management*, Vol. 34, No. 4, 2017, pp. 227-245.
- [28] Webster, J., Trevino, L. K., and Ryan, L., “The dimensionality and correlates of flow in human-computer interactions”, *Computer in Human Behavior*, Vol. 9, No. 4, 1993, pp. 412-413.
- [29] Yoo, J. M., “A Study on the Promotional Activities Employing SNS(Social Network Service)”, *Research Institute of Business and Economics*, Vol. 35, No. 2, 2012, pp. 101-123.
- [30] Yoon, Y. S. and Lee, H. W., “Personal broadcast platform technology”, *Journal of The Korean Institute of Communication Sciences*, Vol. 33, No. 4, 2016, pp. 56-63.

## ■ Author Profile



Giseob Yu

Giseob Yu graduated from the Y.E.S. MBA and Ph.D in MIS at Hanyang University and is a adjunct professor at Hanyang University. Interesting research fields are Family Business, Succession, Entrepreneurship and Digital Governance in Family Business.



Jeonghun Lim

Jeonghun Lim has a master's degree in YES MBA at Hanyang University and is a Ph.D candidate in Business Administration. Interesting research fields are AI, Big data, IoT and the Family business.



Namjae Cho

Dr. Namjae Cho is a professor of MIS at the School of Business of Hanyang University, Seoul, Korea. He received his doctoral degree in MIS from Boston University, U.

S.A. He has published research papers in journals including Industrial Management and Data Systems, Computers and Industry, International Journal of Information Systems and Supply Chain, Journal of Data and Knowledge Engineering. He also published several books including "Supply Network Coordination in the Dynamic and Intelligent Environment (IGI Global)" and "Innovations in Organizational Coordination Using Smart Mobile Technology (2013, Springer)". He consulted government organizations and several multinational companies. His research interest includes technology planning and innovation, analysis of IT impacts, strategic alignment and IT governance, knowledge management and industrial ICT policy, design thinking, and the management of family business.