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Innovative Information and Knowledge Sharing Platform For Business Sector: Focus on Intranet-based Social Network Service¹

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Abstract

Recently, ICT ecosystems are changing rapidly due to the increasing number of innovative products and services in these ecosystems. Among them, SNS is one of the most important elements that make up the ICT ecosystem. With the phenomenal boom of personal SNS, information and knowledge sharing within an organization through enterprise SNS is increasing exponentially. Many companies are adopting and using intranet-based SNS for communicating and sharing information within the firm. However, there have not been many studies exploring the impact of group intentions on the SNS service within a firm.

In this study, we investigate user intentions as they relate to intranet-based SNS as better information and knowledge sharing communication tools which improve existing internal communication methods due to their system-wide implementation of a top-down approach and mandatory participation. To do this, this study developed a research model for an intranet-based SNS service based on social exchange theory, social learning theory, motivation theory and We-Intention theory.

The results indicated that employees desire to use SNS service when they perceive a reciprocal benefit for themselves and other employees. Usability only affects desire and sociability affects what is termed here as We-Intention. However, sociability's result is opposite in that sociability directly affects We-Intention. Considering that communication and interaction between group members are recently increasingly important, this research results are academically significant because they suggest a meaningful implication to vitalizing information and knowledge sharing in organizations through the use of intranet-based SNS.

Keyword: We-Intention, Intranet-based SNS, Enterprise SNS, Enterprise 2.0, Social Learning Theory, Socio-technical System, Social Exchange Theory

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1. Introduction

Recently, Information and Communication Technology (ICT) ecosystems are changing rapidly owing to the increasing number of innovative products and services available in these ecosystems. Social Network Services (SNS) among them is one of the most important elements that make up the ICT ecosystem. Social platform services completely transformed the decision-making processes and lifestyles of individuals, and consumers of private information are becoming information constructors. This phenomenon has led to the emergence of new business models and a wide range of services. Changes in these individuals are also having a major impact on companies and organizations.

With the phenomenal boom of personal SNS, information and knowledge sharing within the organization through enterprise SNS is increasing exponentially. Sena defined Social Networks as “essential communication tools that allow users to share information or media with selected individuals, with groups of individuals sharing common interests, with an entire network of users, etc.” Additionally, Social Networks provide methods for collaboration to support users to organize and create information on the networks (Sena and Sena 2008).

Among Web 2.0 collaborative technologies, enterprise SNS from the point of view of the communication tools is one of tools that appeared the three characteristics of Enterprise 2.0: participation, share and openness.

Intranet-based SNS configure social networks within the enterprise using such forms as Twitter's Timeline and Facebook's news feeds. Intranet-based SNS aims to promote communication between members, and it can serve as a social software platform and one of the key elements of Enterprise 2.0. The benefits of intranet-based SNS will be the ease in the gathering and dispersing of members by transforming vertical communication into horizontal communication. Therefore, the enterprise software environment is changing into an environment that creates new value via the voluntary participation of individuals and sharing from an environment that enforces the system implementation of a top-down approach and mandatory participation. This change will help enterprises achieve their business goals through the adoption of SNS. In addition, intranet-based SNS facilitates connections between the inter-related information of each topic, and intranet-based SNS allows members to receive fast feedback by providing real-time notifications when data is updated or changed, thus providing a rich user experience as compared to existing communications systems.

Gartner announced that in the top 10 strategic technologies for 2011, the third such technology was ‘social communication and collaboration’. Enterprises are expected to build new forms of communication and collaboration environments by actively using social media.

In this study, we investigate user intentions as they pertain to intranet-based SNS as better information and knowledge sharing communication tools which improve existing internal communications systems and their use of a top-down approach to system implementation and mandatory participation.

2. Theoretical backgrounds

2.1. Enterprise 2.0

Enterprise 2.0, related to the need to create new business value through the expansion of 'collaborations' and 'communications', has been receiving increasing amounts of attention. Enterprise 2.0 is a concept that extends technologies at the business and/or corporate level from Web 2.0 concepts on a personal level. Enterprise 2.0 presents a vision that improves business productivity and ushers in

the creation of new value by internal corporate staff members, external partners, and customers who all share information and collaborate by using social software and social networking.

Enterprise 2.0 is a concept envisioned by Professor Andrew MacAfee at the Harvard Business School. It refers to rapid collaboration and information sharing interaction through the introduction of a web-based system.

Enterprise 2.0 provides a communication channel for customers, partners, and internal corporate employees. Thus, it is closely related to existing enterprise SW such as groupware (collaboration tools) and knowledge management systems (KMSs). Therefore, KMSs, e-mails and blogs can be social networking applications that assist information and knowledge sharing within a company.

Gartner restricted the concept of Enterprise 2.0. Enterprise 2.0 is a concept that embraces Web 2.0 technologies as they apply to all businesses. However, he restricted Enterprise 2.0 to only social SW technology for collaborations by internal corporate employees. Cook (2008) defined Enterprise 2.0 as applying in enterprises in four areas: communication, cooperation, collaboration and connection. Joe (2009) proposed a 4C model based on scenarios related to the introduction and use of Enterprise 2.0 software. The components of the 4C model are connection, communication, collaboration and contents.

Researchers	Classification	Actions	Applications
Cook (2008)	Communication	Information Sharing within people (Text, Image, Video, etc.)	Forum, Blog, Instant Messaging, Virtual Reality, etc.
	Cooperation	Structured / Unstructured way to collaborate	Image/Video Sharing, Social Bookmarking, Social Cataloging
	Collaboration	Direct / indirect way to perform	Wiki etc.
	Connection	Establishing relationship with contents or people	Social Network Service etc.
D. Joe (2009)	Connection	Establishing relationship with contents or people	Microblog, Facebook, LinkedIn, Tag cloud, Search engine, etc.
	Communication	Communicate with desired target	Forum, Messenger, Teleconferencing, Twitter, etc.
	Collaboration	Collaboration have specific goals and creating value	Wiki, Collaboration Tools (ex. Source Forge), Google Apps, etc.
	Contents	Recording valuable contents	Wiki, Blog, etc.

[TABLE 1] Enterprise 2.0 Apply Areas (Lee, Jun et al. 2012)

Therefore, this study focuses on information and knowledge sharing within an enterprise, though we limited research to the area of communication and define Enterprise 2.0 as 'communication or the sharing of information and knowledge between members'.

2.2. Intranet-based Social Network Service

SNS is a service for building a human network of individuals. SNS is generally defined as a means of sharing information by person-to-person communication, as a service established for the purpose of online interaction and

communication, and as a web-based service that generates public/private profiles and facilitates communication between individuals.

Enterprise SNS relies on SNS for corporate tasks. Enterprise SNS can be classified in terms of its application areas in the value chain and by the closure degree of the channel utilization method. The enterprise SNS apply areas is shown in Table 2.

Object	Value Chain	Activity	Apply Areas
Customer	Fundamental activities	Transport	Solve the problem of Transport through Social SCM
		Marketing	Product and brand image management
		Customer Support	Communicating with customers
	Support activities	Research	Customer analysis
		Technology development	New product development through Connect & Development
		HR	Maintaining relationships with professionals and recruitment
Organization	Support activities	Collaboration	Internal communication
			learning and creation of information

[TABLE 2] Enterprise SNS Apply Areas (Lee, Jun et al. 2012)

According to closure degree of utilizing channel Enterprise SNS is classified by open type, open-closed intermediate type and closed type. Enterprise SNS closure degree of utilizing channel is shown in the following Table 3.

Closure Degree	SNS Channel Utilization Methods
Open	Utilizing corporate accounts in personal SNS
Open-Closed intermediate type	Utilizing commercial solutions in corporate SNS (ex. Yammer)
Closed	Utilizing and building an enterprise SNS itself

[TABLE 3] Enterprise SNS classification by closure degree of utilizing channel (Lee, Jun et al. 2012)

Enterprise SNS is broad concept compared to intranet-based SNS. Magnier-Watanabe (2010) held that intranet-based SNS, which facilitates business-related connections, can be used as a supporting platform for information and knowledge sharing and for knowledge-creation activities. Intranet-based SNS restricts the application areas and closure degree of the channel utilization method to a greater extent compared to Enterprise SNS. Intranet-based SNS applied areas are only focused on internal communication and learning and the creation of information. The open-type closure degree is excluded as an intranet-based channel utilization method.

At present, many companies are introducing intranet-based SNS. In the case of overseas companies, IBM is using it for knowledge-based collaborations and SAP is using it for social networking. In Korea, Samsung, LG CNS, SK and KT developed their own SNS, mainly using these systems for internal communications. Shinsegae and LG Electronics introduced 'Yammer' (an Enterprise Twitter service) (Lee, Jun et al. 2012)

It is the goal of this study to investigate the role of an intranet-based network as an internal innovative information and knowledge sharing platform. Therefore, the range of enterprise SNS is limited to internal communication and creation of information. Also, the closure degree of the channel utilization method of enterprise SNS is limited to the open-closed intermediate type and the closed type.

Accordingly, in this study, we define intranet-based SNS as an online/mobile based internal communication and information and knowledge sharing service which corporate members use through a human network within the organization.

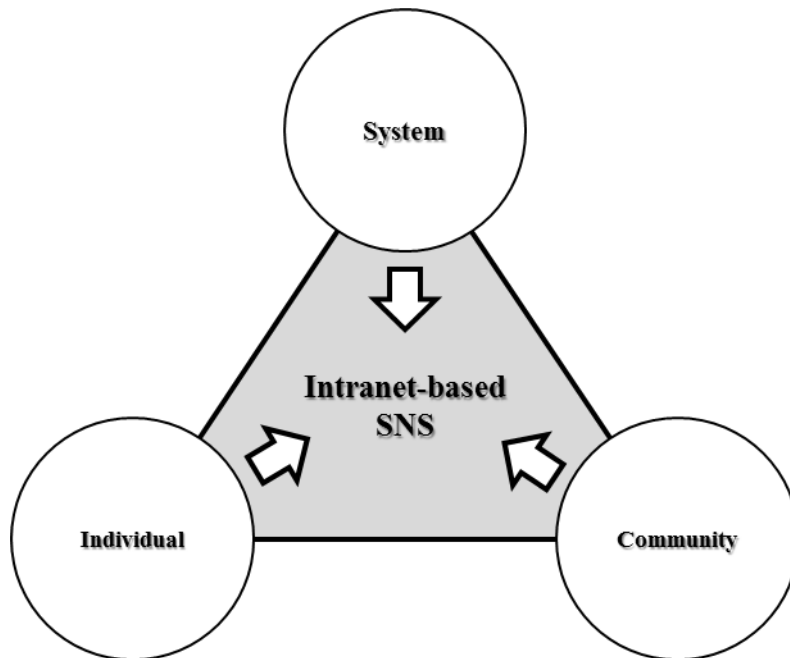
2.3. Social Learning Theory

Social learning theory is derived from the work of Albert Bandura. Social learning theory takes the perspective that people develop their behavioral intentions and are determined to carry out a certain behavior via social interaction. Humans are social beings that both affect and are affected. People observe the behavior of others and learn from it. Social learning is defined as learning by observing others' behavior.

An important factor of Bandura's social learning theory is its emphasis on reciprocal determinism. This theory proposes that an individual's behavior is influenced by their environment and characteristics. In other words, a person's behavior, environment, and personal qualities all reciprocally influence each other (Sincero, 2011). Along with these factors, people adopt behavior when they recognize personal, environmental, and behavioral conditions that are preferable (Kim, 2011).

First, the personal factor is related to cognitive factors, which mainly follows individual learning theory (Elkjaer, 2003). The personal factor is closely related to perceptions of one's own personality, perspective and capability (Kim, 2011). Second, the environmental factor is related to the influence of others, such as friends, co-workers, communities, and societies. Through observational learning and perceptions related to the environmental factor surrounding individuals, people will develop certain subjective opinions about group norms or social norms (Kim, 2011). Finally, the behavioral factor is related to the attributes of a behavior or service. It also determines their behavior how people feel about some specific behavior or service (Kim, 2011). These personal, environment and behavioral factors reciprocally influence an individual's behavioral development (Bandura, 1986; 2001).

This study associates three factors derived from social learning theory with three perspectives suitable for intranet-based SNS. The personal factors can be regarded as an individual perspective. The behavioral factor can be regarded as a system perspective. As mentioned above, how people feel about some specific behavior or service determines their behavior. In this study, the specific service is intranet-based SNS. Therefore, the usability of the system, which refers to the usability of intranet-based SNS, can serve as an estimation of people's feelings about an intranet-based social network service. Additionally, the environment factor can be regarded as a community perspective (See Figure 1). We chose variables from three perspectives based on social learning theory and then investigated intention as it pertains to intranet-based SNS.



[Figure1] Three Perspectives Framework based on Social Learning Theory

2.4. Socio-technical Perspective

The socio-technical perspective is a theoretical perspective which suggests that online communication and interaction can be seen as socio-technical systems. Socio-technical systems consist of both technical and social components (Phang et al., 2009; Kling and Courtright, 2003; Trist and Murray, 1993). We consider that the technical components are a system's usability and that social components are the system's degree of sociability. This highlights perceived usability and sociability as the corresponding antecedents of participation both in terms of a member's knowledge and information sharing and their contribution through the communication and interaction system (Phang et al., 2009; Maloney-Krichmar and Preece, 2005; Preece, 2001). Intranet-based SNS is a communication and interaction platform for knowledge and information sharing, which is a one-of-a-kind socio-technical system. Therefore, in this study, we consider that usability and sociability affect intentions as they pertain to intranet-based SNS.

2.5. Social Exchange Theory

Social exchange theory (Blau, 1964) is a social psychological and sociological perspective that explains social change and stability as a process of negotiated exchanges between parties. The theory has its roots in economics, psychology and sociology.

Social exchange theory proposes that social behavior is the result of an exchange process. The purpose of this exchange is to maximize benefits and minimize costs. According to this theory, people weigh the potential benefits and risks of social relationships. When the risks outweigh the rewards, people will terminate or abandon that relationship.

Costs involve things that are seen as negatives to the individual, such as having to put money, time and effort into a relationship. Benefits are things that the individual gains from the relationship, such as fun, friendship, companionship and social support.

Social exchange theory suggests that we essentially add the benefits and subtract the costs in order to determine how much a relationship is worth. Positive relationships are those in which the benefits outweigh the costs, while negative relationships occur when the costs are greater than the benefits.

Therefore, in this study, we consider that the social behavior referred to here as 'using intranet-based SNS' is affected by the exchange relationship between the costs and benefits. We then looked into which costs and benefits affect intranet-based SNS intentions.

2.6. We-intention

Tuomela (1995) said that We-Intention means that we perform something together and that 'we' refers to 'our' group. The definition of We-Intention is the "commitment of an individual to engage in joint action, and involves an implicit or explicit agreement between the participants to engage in that joint action" (Cheung et al, 2011; Tuomela, 1995). We-intention is when a person views the self as part of a social representation when performing a group joint act (Cheung et al, 2011; Bagozzi & Lee, 2002). We-Intention exists when a person believes that he can perform his part of the joint action and that he, together with his fellow participants, can perform the action jointly at least with some nonzero probability (Cheung et al, 2011; Tuomela, 2006). We-Intention highlights the individual commitment in collectivity and the social nature of group action (Cheung et al, 2011).

There is a set of criteria to stipulate the group intention. First, Tuomela (1995) insists that a We-Intention occurs under the four conditions (Bagozzi & Dholakia, 2002) (See Table 4).

1	Two or more members of a collectivity agree to jointly perform an action on behalf of the collectivity.
2	Each member intends to perform his or her own part contributory to the group action.
3	Members individually and mutually believe that the opportunity for joint action is likely to occur, and the members will perform their parts, and finally.
4	The intention to perform one's part is determined, in part, by the aforementioned individual and mutual beliefs (plus presumably the assurances and obligations entailed by the prior agreement).

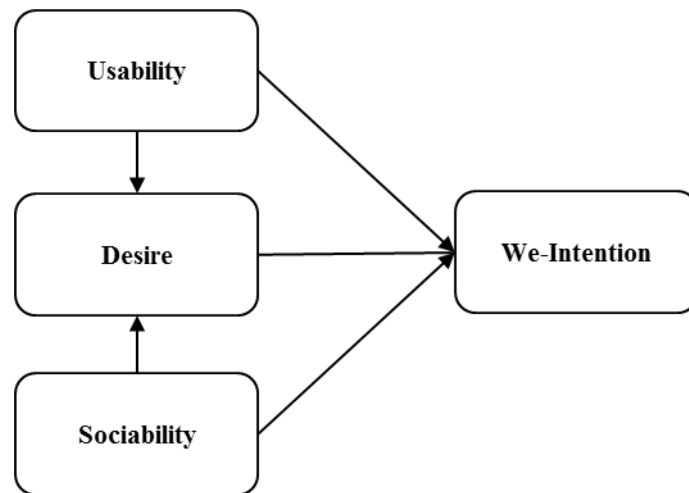
[TABLE 4] Occurrence Conditions of We-Intention
(Bagozzi & Dholakia, 2002; Tuomela, 1995)

Also, Tuomela (1995) insists that the beliefs required for We-Intentions are purely subjective and need not be true, and that a member could, in principle, be the only agent in a group with the We-Intention (assuming that the four conditions listed above are satisfied) (Bagozzi & Dholakia, 2002).

Finally, he insists that We-Intentions require an individual commitment and a commitment to provide a mutual support in the sense that a member is "not only committed to performing the preassigned part but is also committed to furthering" the joint action (such as helping others in performing their parts, when needed) conditions (Bagozzi & Dholakia, 2002).

We-Intention has been investigated in several studies related to online communication and interaction scenarios such as online communities, virtual communities and instant messaging for e-collaboration. In short, We-Intention exists in a group which performing together a joint action referred to as 'information and knowledge sharing in the firm'. Therefore, in this study, we consider We-Intention as an intranet-based SNS intention in the design of the research model.

Figure 2 shows the core framework of our research model based on a socio-technical perspective, social exchange theory and on We-Intention.

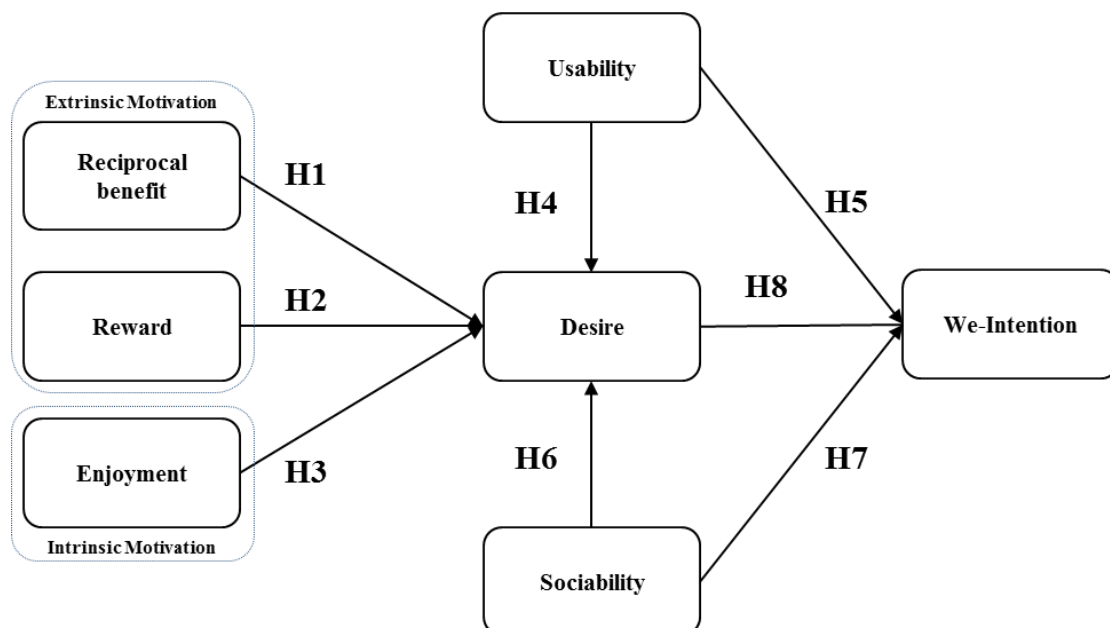


[Figure2] Core Framework of Research Model

3. Research Model and Methodology

3.1. Research Model

This study connects the personal factors derived from social learning theory and two broad classes of motivation. Motivation is divided into intrinsic and extrinsic motivation. Intrinsic and extrinsic motivation have been defined and examined across various studies (Deci, 1975; Deci and Ryan, 1985; 1987; Teo, Lim and Lai, 1999; Vallerand, 2000). Intrinsic and extrinsic motivational factors affect personal behavioral intentions and determine the execution of certain behaviors. Based on our research model we established the hypotheses given below.



[Figure 3] Research Model

H1: Reciprocal benefit has positive effect on desire.

- H2: Reward has positive effect on desire.*
- H1: Enjoyment has positive effect on desire.*
- H4: Usability has positive effect on desire.*
- H5: Usability has positive effect on we-intention.*
- H6: Sociability has positive effect on desire.*
- H7: Sociability has positive effect on we-intention.*
- H8: Desire has positive effect on we-intention.*

3.2. Data Collection

We utilized a survey method to test the research model and hypotheses. We collected samples from workers who were currently working at a firm that provides intranet-based SNS services. A pilot test was conducted to verify our measurement items. 50 workers in total responded to our survey. Table 5 summarizes the sample's characteristics. The sample here was composed of 34 males (68%) and 16 females (32%). 29 were staff-level employees (58%) and 21 were manager-level employees (42%). The respondents were at the time of this study working for Samsung, LG, GS, KT, or etc.

Demographic Category		N=50	
		Frequency	Percentage (%)
Gender	Male	34	68
	Female	16	32
Age	20~29	26	52
	30~39	24	48
Education Level	Bachelor	26	52
	Master	22	44
	Doctorate	2	2
Duration of work	Under 1 year	5	10
	1~3 years	34	68
	3~5 years	2	4
	5~7 years	5	10
	7~10 years	3	6
	10 years and more	1	2
Position	Manager level	21	42
	Staff	29	58
Company	Samsung	20	40
	LG	17	34
	GS	2	4
	KT	2	4
	Etc.	9	18

[TABLE 5] Sample Characteristics

3.3. Measurement Model

The assessment of the measurement model includes an estimation of its reliability and tests of convergent validity and discriminant validity. Table 6 shows the reliability and convergent validity of our sample.

To assess the internal consistency, we computed Cronbach's alpha and measured the composite reliability. The composite reliability ranges were from 0.880 to 0.978, all of which exceed the recommended value of 0.70. All Cronbach's alpha values were over 0.7. The average variance extracts (AVE) values were all over 0.6. These results indicate that the measurement items are reliable and internally consistent (Nunnally, 1978; Hair, 1998).

Construct	AVE	Composite Reliability	Cronbachs Alpha
Desire	0.956	0.978	0.954
Sociability	0.645	0.900	0.858
We-intention	0.910	0.968	0.950
Enjoyment	0.917	0.956	0.910
Reciprocal benefit	0.626	0.832	0.706
Reward	0.941	0.970	0.938
Usability	0.651	0.880	0.822

[TABLE 6] Reliability and Convergent Validity

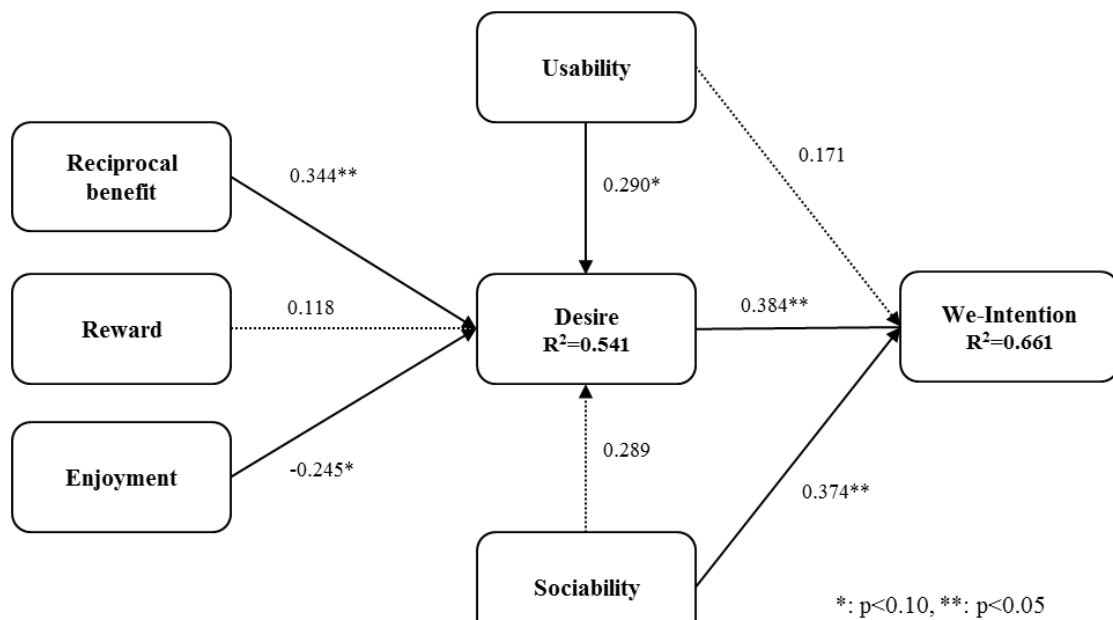
Discriminant validity was assessed by comparing a correlation matrix with the square root of AVE. Table 7 shows that all of the AVE square roots in every construct are greater than all of the construct correlations. This result indicates that the measurement items as used in this study have sufficient levels of discriminant validity (Chin, 1998)

Construct	DE	SOA	WE	EN	RB	RW	USA
Desire	0.978						
Sociability	0.636	0.803					
We-intention	0.725	0.728	0.954				
Enjoyment	0.161	0.427	0.372	0.957			
Reciprocal benefit	0.544	0.681	0.587	0.610	0.791		
Reward	0.280	0.258	0.379	0.111	0.168	0.970	
Usability	0.606	0.641	0.644	0.204	0.457	0.196	0.807

[TABLE 7] Discriminant Validity

4. Result and Hypothesis Testing

The results of a path analysis of the full sample indicate that the direct effect of a reciprocal benefit (H1) on desire and usability (H4), on desire and sociability (H7), and on desire (H8) on We-Intention are all positively influenced. However, enjoyment (H3) significantly influenced desire negatively. Except for the above hypotheses, those pertaining to the influence of reward (H2) on desire and usability (H5) on We-Intention and sociability (H6), and on desire are rejected. The variance result shows that desire is 54.1% and We-Intention is 66.1%.



[Figure 4] Path Analysis (N=50)

5. Discussion and Conclusion

The primary purpose of our study was to determine the effect of multi-dimensional motivation, usability, and sociability on We-Intention. We sought to provide a better understanding of employee behavior when using an intranet-based SNS service, especially as the behavior is related to group intentions (We-Intention) to use this service. Currently, many companies are adopting and using intranet-based SNS for communicating and sharing information within the firm. However, there are not many studies exploring the impact of group intention on the SNS service in these firms. Therefore, this study developed a research model for an intranet-based SNS service based on social exchange theory, social learning theory, motivation theory and We-Intention theory. In the model, we verified that intrinsic motivation (enjoyment) and extrinsic motivation (reciprocal benefit) negatively and positively affect desire. This result indicated that employees have the desire to use SNS service when they perceive a reciprocal benefit as regards other employees. Enjoyment negatively affected this because employees may perceive the SNS service as a boring place. When we assembled the sample, we were informed that

the employees felt that their firm's SNS service was boring and not enjoyable, only using it for communication purposes. Usability only affected desire and sociability affected We-Intention. The usability result indicated that the usability of a SNS service indirectly influences We-Intention and only affects people's desire. However, the sociability result is opposite in that sociability directly affects We-Intention. This indicates that sociability (subjective norms, group norms, social interaction) may strongly influence employee We-Intention to use the SNS service.

This study remains unfinished. We are still collecting data from workers. Our goal is to obtain 150 samples from various firms. In a further study, we will analyze and discuss the results and implications in more detail.

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