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Exploring associations between young adults' facebook use and psychological well-being: A goal hierarchy approach

Yoonhyuk Jung [a], Suzanne D. Pawlowski [b], Hee-Woong Kim [c,*]

[a] School of Business Administration, Ulsan National University of Science and Technology (UNIST), UNIST-gil 50, Ulsan 689-798, Republic of Korea
[b] E. J. Ourso College of Business, Louisiana State University Baton Rouge, LA 70803, United States
[c] Graduate School of Information, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul 120-749, Republic of Korea

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ABSTRACT

There is scant research on the broader outcomes of IT in users' life contexts beyond adoption. This study uses a goal hierarchy approach to deepen our understanding of the relationship between the use of Facebook and psychological well-being (PWB) in young adults. The study applies a mixed-method design that combines means-end analysis and regression analysis to examine data collected from laddering interviews with 161 Facebook users. The means-end chain analysis provided knowledge of the hierarchical goal structure in Facebook (i.e., activities → mediated goals → ultimate goals). Regression analysis was used to identify the relationships between the ultimate goals of Facebook use (e.g., psychological stability, belongingness) and the dimensions of PWB (e.g., self-acceptance, autonomy). The findings explain the significant association of Facebook use with well-being and the dual outcomes of enjoyment (positive in SNS; negative in users' lives). Prior research focused on relationships among abstract factors, but this study delivers a more specific and nuanced explanation of user behavior on SNSs by providing knowledge of how specific Facebook activities relate to goals and PWB.

1. Introduction

As information technology (IT) has become increasingly pervasive in the everyday lives of individuals, IT has truly become "personal." In addition, the trend of user empowerment/user tailorability, characterized by a rich user experience, user self-configuration, and openness, has enabled IT users to have a much broader range of personalized experiences (Germonprez, Hovorka, & Collopy, 2007). The growing embeddedness of IT in users' lives and enhanced capabilities of personalization call for more extensive investigation of experiential computing involving the ordinary use of IT. It is important to understand the effects of IT use on human life, and the topic of "the nature and consequences of the digital meditation of everyday experiences" is considered an emerging domain of information systems (IS) research (Yoo, 2010, p. 220).

Although IT has become more influential in users' life, IS research still tends to examine a narrow range of IT impacts focusing on consequences regarding tasks or systems, rather than examining its holistic effect on human living (Choi, Lee, Lm, & Kim, 2007). The outcomes of using IT, which have been traditionally examined, have been largely limited to the context of system use itself, such as usage intention, system satisfaction, and intention to return (Bhattacherjee & Premkumar, 2004; Davis, Bagozzi, & Warshaw, 1992; van der Heijden, 2004). Prior research on IT use largely regards adoption itself as the ultimate goal (e.g. Venkatesh, Morris, Davis, & Davis, 2003). This predisposition may not only hinder a holistic understanding of the impact of IT use, but also limit the expansion and diversity of IS research areas. More focus needs to be placed on the comprehensive outcomes of IT use and the relationship between the processes of IT use and its comprehensive consequences.

To gain a better understanding of personal IT consequences, the research coverage may need to be extended to the broad context of daily life beyond user adoption. Nowadays, IT use is related to meeting a broader and deeper range of users' needs than performance improvement (Yoo, 2010), and the daily use of IT has the potential to proceed to the ultimate human goal of well-being. In the current study, we focus on one of the most commonly used applications today, social networking sites (SNSs),[1] which have become a part of everyday social interaction for many (Lin & Utz, 2015).

* Corresponding author.
E-mail addresses: yjung@unist.ac.kr (Y. Jung), spawlowski@lsu.edu (S.D. Pawlowski), kimhw@yonsei.ac.kr (H.-W. Kim).

[1] 1.79 billion people use SNSs worldwide, and 73 percent of the population in the United States use SNSs (http://www.statista.com/topics/1164/social-networks/)

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0268-4012/

As social media use has exploded in popularity, researchers have turned their attention to questions concerning the psychological costs and benefits of SNS use (Ngai, Tao, & Moon, 2015). Examples of benefits identified in prior studies are experiencing decreased depressive symptoms (Wright et al., 2013) and receiving social and emotional support (Nabi, Prestin, & So, 2013) and happiness (Lin & Utz, 2015). Examples of psychological costs are being victimized by cyberbullying (O'Keeffe & Clarke-Pearson, 2011), addictive behavior (Turel, Serenko, & Giles, 2011), social distress (Chiou, Lee, & Liao, 2015), and fatigue, or "technostrain" (Salanova, Llorens, & Cifre, 2013). Given the wide range of psychological states that can be associated with social media use, one high-priority avenue of research is work directed towards deepening our understanding of the relationship between SNS use and well-being (Chen & Lee, 2013; Chiu, Cheng, Huang, & Chen, 2013; Valkenburg, Peter, & Schouten, 2006). Some of these studies posit a one-directional causal relationship between use and psychological well-being (PWB), indicating the degree of meaningfulness in life (e.g. Vergeer & Pelzer, 2009), while other research perspectives assume a more complex, reciprocal relationship between the two factors (e.g. Kim, LaRose, & Peng, 2009).

Even though the relationship between SNS use and PWB has been explored in a number of studies, there is still much to learn. One major challenge has been to reconcile findings that report positive associations between use and well-being with findings showing negative associations. This conundrum has prompted more in-depth studies for understanding the various social and psychological mechanisms that may be linked to SNS use. Chen and Lee (2013), for example, developed a model incorporating Facebook interaction, communication, and self-esteem with psychological distress. Another recent example is a study by Kim and Hancock (2015) using the concept of optimistic bias to understand how the way individuals perceive themselves as subject to the positive and negative outcomes of Facebook use may influence their perceptions of the likelihood that they and others will experience potential risks and benefits, as well as the implications of these perceptions. With the same broad goal as these studies, the purpose of the exploratory research reported in this paper is to provide new insights into the complex relationship between SNS use and PWB.

Our research takes a novel approach by identifying the high-level goals sought by SNS users and exploring the relationships between these goals and each of the dimensions in the model of psychological well-being developed by Ryff and colleagues (Ryff & Keyes, 1995; Ryff & Singer, 1996; Ryff, 1989). This follows observations on Internet use and the user's PWB suggesting that this relationship is dependent on the particular *goals* that users have in their use in interaction with the unique qualities of the communication mode (Bargh & McKenna, 2004). Our study is the first to adopt a goal-based orientation for examining this relationship specifically for SNS use.

Two broad research questions frame the investigation. The first is "What goals do users seek in their use of Facebook,[2] and how are these goals related?" A goal indicates a desired outcome of an action (Locke & Latham, 1990). To examine this question, we follow the widely accepted perspective on human goals that they are hierarchically organized, with each goal located between its subordinate goal and superordinate goal (Newell & Simon, 1972). Based on this assumption, we adopt the means-end analysis approach for the investigation. The advantage of this analytical approach is that it enables us to identify how individuals' goals for Facebook use are organized along a means-end chain. SNSs enable users to achieve a diversity of goals, which may have complicated relations among them as well as to psychological well-being. According to the argument of goal hierarchies (Locke & Latham, 1990), these diverse SNS goals may be hierarchically organized. A means-end chain approach based on the view of a hierarchical structure of human goals (Gutman, 1982) enables us to investigate the ways in which SNS activities are a means to achieve goals, which are subsequently means to more abstract goals, which in turn may be related to the abstract dimensions of psychological well-being.

The second, follow-on research question is "How are users' high-level goals in the use of Facebook associated with their psychological well-being?" We employ the concept of PWB, indicating self-fulfillment of well-being rather than overall satisfaction- and affection-based well-being, which has been criticized as leaning toward a hedonic aspect of quality of life (Keyes, Shmotkin, & Ryff, 2002). Regression analysis is used to examine the relationship between users' high-level goals for Facebook use and each of the six dimensions of psychological well-being (Ryff, 1989). Data collected from Facebook users was analyzed for both the means-end chain and regression analyses.

In particular, we explored two research questions in the context of *digital natives*, who are in their 20 s and 30 s and have grown up with information technologies and are familiar with digital environments (Prensky, 2001). Digital technologies are deeply embedded in their daily living; thus, these technologies may be more interrelated with young adults' quality of life than that of seniors. By investigating the relationships between their Facebook use and PWB, this study explores the associations between digital environments and young adults' quality of life.

There are two particular reasons why we selected young adults as a subject of investigation. Young adults are regarded as a main user segment in terms of the number of users and the amount of daily time spent with Facebook. The 20 s age group corresponds to 28 percent of Facebook users, and the 30 s age group accounts for 21 percent of users in the USA.[3] These two age groups represent half of all Facebook users. In addition, users in their 20 s and 30 s are a group who stay on Facebook longer than any other age groups.[4] Accordingly, young adults are regarded as a leading user group of Facebook (Chaffey, 2016). The other reason is that well-being is particularly important for young adults. Because young adults lack "the psychological resources of maturity and experience," they are vulnerable to stressful situations (Jackson & Finney, 2002 p. 186). In particular, their stress can be triggered by their identity confusion, which lessens their psychological well-being (Brook, Garcia, & Fleming, 2008). Recently, increasing unemployment among young adults has caused them serious distress (Reneflot & Evensen, 2012). Psychological well-being is therefore an important issue for young adults. Young adults' Facebook use may be associated with their well-being in that 91 percent of Millennials, or those aged 15 to 34, use Facebook (Smith, 2016). For this reason, we selected young adults in their 20 s and 30 s and examine how their Facebook use is associated with their psychological well-being.

As the initial study of SNS use and PWB from a hierarchical goal perspective, the research makes several contributions. First, the findings provide a more holistic and nuanced view beyond prior research focusing on relationships among abstract factors related to SNS user adoption (e.g., Braun, 2013; Ifinedo, 2016; Kim, 2011) in that the study provides knowledge of how par-

[2] Facebook, whose monthly active users have reached 1.1 billion, is a leading SNS in terms of reach and scope (http://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/).

[3] Distribution of Facebook users in the United States as of January 2016, by age group. Statista (http://www.statista.com/statistics/187041/us-user-age-distribution-on-facebook/)

[4] Younger Users Spend More Daily Time on Social Networks. eMarketer (http://www.emarketer.com/Article/Younger-Users-Spend-More-Daily-Time-on-Social-Networks/1011592)

ticular Facebook activities are related to Facebook goals that are subsequently associated with PWB. Second, by highlighting the significant relationships between the goals of Facebook use and specific dimensions of PWB (i.e., self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth), the study suggests combinations of goals and aspects of well-being warranting further exploration. Finally, the study illustrates the value of the hierarchical goal approach to this area of research. The methodology applied in the study can be used in future research to identify and compare goal/well-being associations for different user groups (e.g., gender, age cohort, or national culture studies).

2. Theoretical background

2.1. Involvement of IT in everyday life

A recent technology development has been the trend of adaptable, user-tailorable technologies and environments (Germonprez et al., 2007). User-tailorable devices and systems provide users with a wide range of options for configuration, modes of use, and the mix-and-match integration of functions. What distinguishes these applications is the high degree of personalization afforded to the user in determining the ways in which they provide value (e.g., utilitarian, hedonic, and social benefits) (Hong & Tam, 2006). Technological advances have reduced the cost of designing and producing products for "markets of one," making innovation toolkits that allow users to change the system according to their preferences more common (Franke & von Hippel, 2003). Smartphone users, for example, configure their own devices or services by installing and using mobile applications acquired from online application stores, creating very personalized artifacts that provide the types of experiences desired by the individual. The phenomenon of end-user design is even more salient in social virtual worlds, such as *Second Life*, where both the environments and experiences are designed and created by the end users. As users employ technologies in different ways for diverse goals, the usage of technology enables a much broader set of user goals and values than models of adoption currently reflect (Yoo, 2010). Thus, more attention needs to be given to the goals of technology use and what users are using IT for, rather than adoption itself (Bagozzi, 2007; Yoo, 2010).

The current IT environment makes IT use more related to users' lives in that their purposive behavior can proceed to deeper human goals, which are ultimately a means of improving well-being (Burke, Marlow, & Lento, 2010; Choi et al., 2007). Prior research on IT use has largely regarded adoption itself as an ultimate goal; therefore, historically, there has been little concern on the outcomes of IT use beyond adoption. This has especially been the case from the personal IT use perspective. Nevertheless, some studies have investigated the effects of IT use in broader contexts (Fig. 1). On the one hand, there may be negative IT effects on quality of life. Sum, Mathews, Pourghasem, and Hughes, 2008, for example, found that the Internet has a negative influence on users' social life by detaching them from friends and making them socially isolated. Other undesired effects of IS use include IT addiction (Balakrishnan & Raj, 2012; Kim & Haridakis, 2009), technostress (Ayyagari, Grover, & Purvis, 2011), and the intrusion of mobile phones into private lives, blurring the border between the work and private spheres (Prasopoulou, Pouloudi, & Panteli, 2006).

On the other hand, the majority of studies to date have reported that diverse IT modes for common users, such as the Internet, mobile phones, and health information systems, have a significant positive influence on users' quality of life (Akter, D'Ambra, Ray, & Hani, 2013; Choi et al., 2007; Contarello & Sarrica, 2007; Wei & Leung, 1998). New media technologies raise life quality by supporting diverse leisure activities (e.g., playing video games, listening to new music) and enhancing family relationships and friendships (Wei & Leung, 1998). Prior studies also reveal that IT contributes to users' satisfaction in diverse dimensions of life, such as social, work, and health areas (Choi et al., 2007; Contarello & Sarrica, 2007), or their overall assessment of life (Akter et al., 2013). Despite such findings, there is still little knowledge within the IS research domain about the influence of IT on the quality of users' lives, particularly regarding the process of how the use of SNSs can improve well-being. Given that IT has become more interwoven with daily life, further research regarding the relationship between IT use and quality of life is required.

2.2. Psychological well-being

Aristotel (1925/1998) held that *eudaimonie* or happiness is the highest human good and the ultimate goal of life. Happiness has been a fundamental topic in research on humans (Lin & Utz, 2015). There are two broad research streams in humans' quality of life: subjective well-being and psychological well-being (Keyes et al., 2002; Ryan & Deci, 2001). While subjective well-being (SWB) indicates affective evaluation of life (e.g., hedonic well-being and life satisfaction), psychological well-being (PWB) reflects well-being in terms of self-fulfillment (Keyes et al., 2002). The positive/negative affect and life satisfaction of SWB are not only intuitively understood as indicators of well-being, but are also easily used as measures of well-being. In spite of its ease-of-understanding and ease-of-use advantages, SWB encompasses only an affective side of well-being and places emphasis on highly global evaluations of well-being (i.e., life satisfaction). On the other hand, PWB is based on human development and existential challenges (Keyes et al., 2002). PWB is more appropriate for this study in that the fundamental assumption of the research is users' purposive behavior (i.e., users' goal-orientation with user-empowering IT). The study, therefore, employs PWB to examine the relationship between SNS use and quality of life.

PWB involves personal assessment of the meaningfulness of one's life. Based on mental health, clinical, and life-span theories, Ryff and colleagues defined PWB as a multidimensional concept consisting of six components: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (Ryff & Keyes, 1995; Ryff & Singer, 1996; Ryff, 1989). The acceptance of self and one's past life can be an important criterion for a good life; thus, *self-acceptance*, indicating one's evaluation of self-actualization, optimal functioning, and maturity, is an essential facet of well-being. *Positive relations with others* implies that a good life depends on warm and trusting interpersonal relations. Positive connections with others are a central component of mental health. *Autonomy* is related to the personal quality of self-determination, independence, and the regulation of behavior. When people make decisions based on personal standards rather than the opinions of others, they may gain a sense of well-being. *Environmental mastery* indicates the personal ability to control environments. People are inclined to manipulate environments in a way that is suitable to their desires; thus, such an ability may make one feel that life is better. *Purpose in life* refers to one's recognition of life goals, a sense of directedness, and intentionality. The more purposive and directed one's life is, the greater the positive feeling about the quality of life. Lastly, one who lives a good life may seek *personal growth*, indicating continuously coping with challenges and the development of one's potential. Continuous growth, therefore, can be regarded as a prominent aspect of well-being.

PWB has been widely used to understand and measure the well-being of people of different ages and in different countries. For example, PWB has been applied in examining personal well-

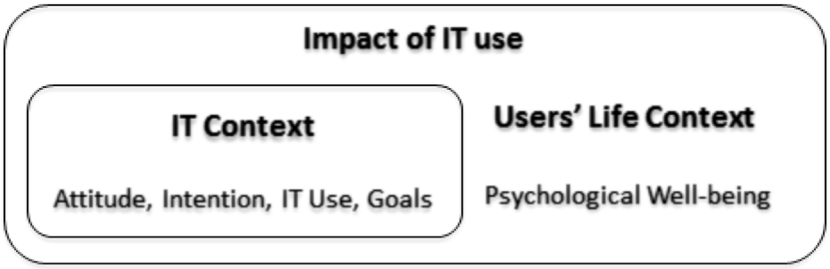

Fig. 1. Outcomes of IT use.

being in the U.S. (Keyes, Shmotkin, & Ryff, 2002), Sweden (Lindfors, Berntsson, & Lundberg, 2006), and China (Liu, Li, Xiao, & Feldman, 2014). It has also been found that PWB can be improved by personal and social activities (e.g., older adults' formal volunteer work (Greenfield & Marks, 2004)) and social support (Liu et al., 2014). Because people engage in personal and social activities may enjoy social support through interaction from networking with others through SNSs, this is one way in which the use of SNSs can influence PWB.

3. Methodology

3.1. Participants

The study participants were composed of 177 Facebook users. Facebook, which is used by 70 percent of online adults, is still the largest social network site in the world (Pew Research Center, 2015). By targeting young users in their 20 s and 30s, we conducted interviews on campus, where we could easily recruit participants and schedule a time and place for interviews. Accordingly, participants were undergraduate and graduate students and administrative staff members who were in their 20s, while some were in their early 30s. We gave participants a gift certificate worth ten dollars. This age group corresponds to digital natives and is the largest age group for SNS users (Global Web Index, 2014). The average Facebook usage time was 5.8 h per week, and our participants had been Facebook users for 21 months on average. Information on participant demographics and Facebook usage is summarized in Table 1.

Table 1
Participants' Demographics and Facebook Usage.

Demographic Variable		*Frequency*	*Percentage*
Gender	Male	102	57.6
	Female	75	42.4
Age	Teens	3	1.9
	20s	156	88.0
	30s	21	12.0
Education	High School	7	4.0
	Community College/University	124	70.1
	Graduate School	45	25.4
	Missing	1	0.6
Usage time (per week)	Less than 1 h	5	2.8
	1 to less than 4 h	72	40.7
	4 to less than 7 h	31	17.5
	7 to less than 10 h	31	17.5
	Greater than or equal to 10 h	29	16.4
	Missing	9	5.1
Usage period	Less than 3 months	7	4.0
	3 months to less than 1 year	30	16.9
	1 to less than 2 years	66	37.3
	2 to less than 3 years	47	26.6
	Greater than or equal to 3 years	23	13.0
	Missing	4	2.3

3.2. Measuring psychological well-being

Before the laddering interview, participants completed questions regarding PWB and supplementary questions. PWB is an assessment of the development of the self; thus, our participants (in their 20 s and 30s) should be able to evaluate their PWB. Actually, many studies have explained young people's quality of life by using PWB (e.g., Norris, Carroll, & Cochrane, 2009; Quick, Loth, MacLehose, Linde, & Neumark-Sztainer, 2013; Stein, 2012), which these studies measure with measurement items.

Ryff's scale, including seven items for each of the six dimensions (42 items in total), has been widely used (Ryff, 2014). We selected three items for each dimension (18 items) from among the 42 items based on the results of exploratory factor analysis and Cronbach's Alpha reliability test (see Table 2). Because our participants needed to fill out laddering questions requiring their concentration for 30 min, we used the short version of the PWB scale. Previous research has also used the reduced version of measurement scales for PWB (e.g. Ryff & Keyes, 1995). Questions were rated on a seven-point Likert scale from strongly disagree (1) to strongly agree (7).

3.3. Means-end chain analysis

This study attempts to explore the goals of users' activities on SNSs and how their SNS use is related to their psychological well-being. The study thus assumes a hierarchical structure of SNS activities and SNS goals. We employed a means-end analysis to understand this hierarchical structure. Means-end chain analysis (MECA) was developed to understand consumer decision making by relating consumers' knowledge of a product or service to their self-knowledge (e.g., goals, values) (Gutman, 1982; Olson & Reynolds, 1983). The approach posits that product or service attributes can be regarded as the means by which consumers achieve benefits and fulfill important values (i.e., ends) (Olson & Reynolds, 1983). MECA has been employed in IS research to investigate user values in Internet commerce (Keeney, 1999) and to identify critical success factors in information system planning (Peffers, Gengler, & Tuunanen, 2003; Peffers & Tuunanen, 2005).

Step 1: Laddering interview. A laddering interview technique was used to elicit hierarchical constructs. The laddering technique has been widely used to understand personal preferences for objects or activities (e.g., Klenosky, 2002; Peffers et al., 2003). A paper-pencil laddering interview was conducted for our study. One of the authors guided participants in a classroom to write their answers in a laddering questionnaire (see Appendix). Four laddering questions, which helped respondents elicit lower or higher levels of abstraction for the concepts, were asked in the following order: (1) What activities do you do on Facebook?; (2) Why do you do them?

Table 2
Measurement Items for Psychological Well-being (PWB).

Dimension of PWB	*Question Items*	*Factor loadings*	*Cronbach's Alpha*
Self-acceptance (SA)	SA1: When I look at the story of my life, I am pleased with how things have turned out.	0.803	0.623
	SA2: I like most aspects of my personality.	0.626	
	SA3: When I compare myself to friends and acquaintances, it makes me feel good about who I am.	0.570	
Environmental mastery (EM)	EM1: The demands of everyday life often get me down.	0.764	0.753
	EM2: I often feel overwhelmed by my responsibilities.	0.758	
	EM3: I have difficulty arranging my life in a way that is satisfying to me.	0.656	
Positive relations with others (PR)	PR1: Maintaining close relationships has been difficult and frustrating for me.	0.760	0.691
	PR2: I often feel lonely because I have few close friends with whom to share my concerns.	0.737	
	PR3: I have not experienced many warm and trusting relationships with others.	0.668	
Purpose in life (PL)	PL1: I live life one day at a time and don't really think about the future.	−0.710	0.797
	PL2: I enjoy making plans for the future and working to make them a reality.	0.868	
	PL3: I have a sense of direction and purpose in life.	0.798	
Personal growth (PG)	PG1: I do not enjoy being in new situations that require me to change my old, familiar ways of doing things.	0.819	0.620
	PG2: I gave up trying to make big improvements or changes in my life a long time ago.	0.653	
	PG3: I am not interested in activities that will expand my horizons.	0.572	
Autonomy (AU)	AU1: My decisions are not usually influenced by what everyone else is doing.	0.793	0.691
	AU2: I tend to worry about what other people think of me.	−0.858	
	AU3: I tend to be influenced by people with strong opinions.	−0.701	

or What is consequence of these activities?; (3) Why is the reason (the answer in question 2) important?; (4) Why is the reason (the answer in question 3) important? As shown in the Appendix, we asked respondents to provide five SNS activities (question [1]), and then they answered the follow-up questions (questions [2] to [5]) for each activity they answered in response to the first question. Although prior studies employing MECA usually use three laddering questions, we asked one more probing question in this study (i.e., the last "Why" questions) to acquire deeper reflections from respondents. We recommended that participants provide answers to all questions, although some respondents did not answer all questions (the fourth and last questions in particular).

Step 2: Content analysis of interview responses. The next step in MECA is a content analysis of the responses to the interview questions. This study employed a multi-coder strategy to establish the reliability of coding responses. The first coder, who is one of the authors, coded the data using an open coding procedure in which the codes were not predetermined, but emerged from the data. In other words, our choices of words or phrases for codes were based on the expressions that respondents used in the interview. In the next stage of content analysis, coding facilitators participated in re-classifying the data to mitigate the bias of the initial classification conducted by the first coder. Two facilitators, who were experienced Facebook users, re-grouped the data using the set of codes identified by the first coder, and then the words or phrases for codes were elaborated through discussion.

Six activities and fifteen goals, which were generated by these activities, were extracted through this process. Based on the elaborated set, the first coder classified the data again, and a second coder independently re-categorized the data using the elaborated set of categories (see Table 3). The two raters were in agreement on 645 of the 722 categorizations assigned (Cohen's Kappa = 0.83), indicating an acceptable level of inter-rater reliability (Fleiss, 1981). Inter-rater disagreements were then reconciled through discussion. Table 3 shows the content analysis procedure in detail.

Step 3: Generating a goal structure. The next step in the analysis was to generate the goal hierarchy for SNS use. The coded responses generated a means-end chain, or a ladder of meanings; that is, answers to the first question asking "what activity do you do on Facebook?" became a starting point, and answers to the second question corresponded to both the goal of the answer of the first question and the means to attain the goal reflected in the response to the next probing question. All relations were summarized in an implication matrix, which depicts the number of times each topic (super-code) led to each other topic in the responses (Klenosky, 2002) (Table 4).

This study produces a hierarchical goal structure by comparing the number of times each topic is mentioned as the means versus the end, following the approaches of Bagozzi and Dabholkar (1994) and Pieters, Baumgartner, and Allen (1995). Elements with high abstractness scores are regarded mainly as ends, while ones with low abstractness scores are thought of primarily as means. The centrality of each element was also generated, which represents the degree to which the element has a central role in the structure (Knoke & Burt, 1982), for informative analysis. Centrality was calculated by dividing the ratio of in-degree to out-degree of a particular element by the sum of all active linkages (722 in the current study) in the implication matrix.

The next step was to generate the hierarchical goal map according to the information in the implication matrix. In this stage, the important point was to determine what linkages were to be included in the map. Because the inclusion of all linkages can decrease a map's usefulness and informativeness, we did not embrace all linkages and decided to employ a cutoff level (Reynolds & Gutman, 1988). Following Bagozzi and Dabholkar's (1994) method, we constructed Table 5 to choose the cutoff level. Considering the balance between complexity and interpretability and Gengler and Reynolds' (1995) recommendation of a cutoff level including at least two-thirds of all relations, we selected a cutoff level of nine, so that only the relations with nine or greater from the implication matrix were included in the map (see Fig. 2). This cutoff level represented 83.8% of the active linkages, which corresponds to a measure of variance (Gengler & Reynolds, 1995).

3.4. Stepwise regression analysis

Stepwise regression analysis was conducted to examine the relation between the goals and dimensions of PWB. Given that human goals are hierarchically organized (Newell & Simon, 1972) and the highest goal is well-being, six ultimate goals for SNS use, which are located in the upper area of the hierarchical goal map, may have a relationship with the dimensions of PWB. Independent variables included the six most abstract goals (i.e., Belongingness, Productivity, Retrospection, Enjoyment, Psychological stability,

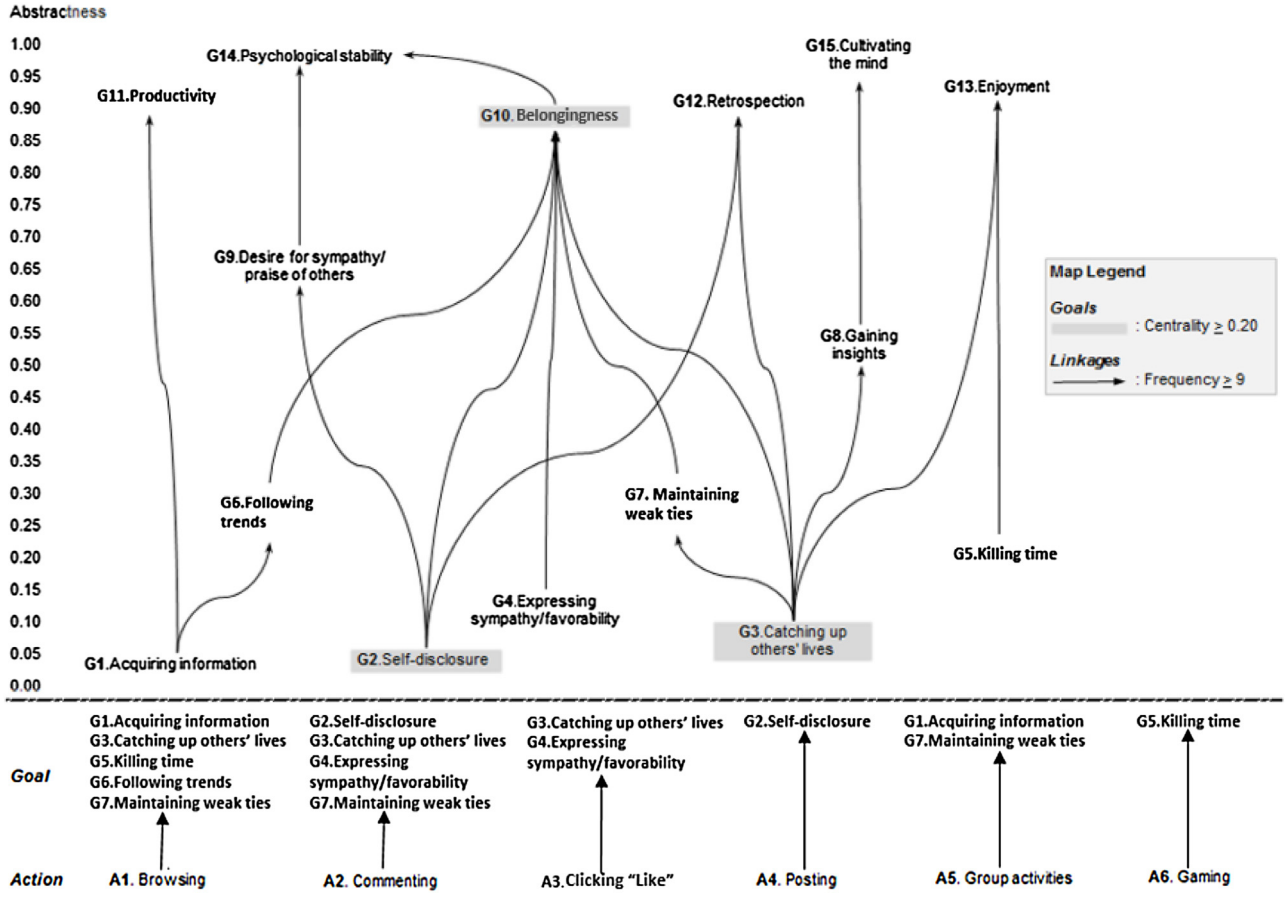

Fig. 2. Goal Hierarchy Map.

and Cultivating the mind). Although Belongingness is used as the means for a more abstract goal (i.e., Psychological stability), we regarded it as an ultimate goal for two reasons. Its abstractness value (0.88) is similar to those of the other ultimate goals (e.g. 0.92 for Productivity) and is much higher than the next less abstract goal (i.e., 0.65 for Desire for the sympathy/praise of others). The other reason is that previous research proposes belongingness as an essential motivation for using SNSs (e.g., Pai & Arnott, 2013; Xu, Ryan, Prybutok, & Wen, 2012). Each ultimate SNS goal (i.e., independent variable) was coded with a binary scale based on whether a respondent mentioned it in their questionnaire. The summated scores of the three questions for measuring each dimension of PWB were used as the values of independent variables.

4. Results

MECA analysis revealed that Facebook usage consists of six main activities: Browsing, Posting, Commenting, Gaming, Clicking "Like," and Group activities. Among Facebook activities, *Browsing* others' pages and *Posting* one's own articles/pictures are the most dominant activities, corresponding to 60 percent of activities mentioned in the interviews. As seen in Table 6, both activities enable users to achieve most of the preliminary goals, which occupy the lower part of the hierarchical goal map (i.e., G1 to G7). The goals supported by both activities do not overlap. Additionally, *Browsing* supports the goals of Acquiring information (G1), Catching up on others' lives (G3), Killing time (G5), Following trends (G6), and Maintaining weak ties (G7); *Posting* involves the other preliminary goal of Self-disclosure (G2). Browsing and Posting, therefore, can be considered idiosyncratic behavior in terms of behavioral goals. The other Facebook activities support some of the goals of Browsing. Users achieve Acquiring information (G1) and Maintaining weak ties (G7) through *Group activity* and Killing time (G5) through *Gaming*. Although *Commenting* usually supports the goals of Browsing, together with *Clicking "Like,"* it supports Expressing sympathy/favorability (G4), which is not achieved by Browsing or Posting. In terms of the relations of goals, while Browsing and Posting are regarded as central activities, Commenting and Clicking "Like" have a unique function to support a goal that is not covered by these main activities.

The findings of the study reveal that users have fifteen goals in their use of Facebook: seven preliminary goals (G1 to G7), two mediating goals (G8, G9), and six ultimate goals (G10 to G15). Seven goals, which are directly supported by Facebook activities in the hierarchical goal map, are considered preliminary goals, which are a means to achieve their superordinate goals. Two goals play the role of a mediator connecting the preliminary goals and the ultimate goals. Six goals are final goals, which users ultimately pursue on Facebook and are located in the most abstract area of the map: Belongingness (G10), Improving productivity (G11), Retrospection (G12), Enjoyment (G13), Psychological stability (G14), and Cultivating the mind (G15).

In terms of the centrality of goals, three goals are core elements: Self-disclosure (G2), Catching up on others' lives (G3), and Belongingness (G10). The relations with these three goals correspond to 49 percent of all linkages. Therefore, the two goal linkages of Catching up on others' lives (G3) → Belongingness (G10) and Self-disclosure (G2) → Belongingness (G10) can be considered the key usage features of Facebook. In particular, Belongingness (G10) plays the most central role (i.e., the highest centrality value) in that it is not only

Table 3
Codes and Example Input.

Codes	*Examples*
A1. Browsing	Visiting friends' pages; visiting corporate pages; viewing others' posts; reading news feeds
A2. Commenting	Responding to others' posts; writing comments; chatting; leaving messages on others' wall
A3. Clicking "Like"	Clicking "Like"
A4. Posting	Posting own articles or photos; sharing funny photos or video clips
A5. Group activities	Organizing groups; interacting with group members; sharing news on group members
A6. Gaming	Playing games
G1. Acquiring information	Obtaining useful information; easily finding information; acquiring information about events
G2. Self-disclosure	Sharing own daily life; expressing own ideas/feelings; letting others know about my daily life
G3. Catching up on others' lives	Learning about friends' daily life; understanding others' current interests or concerns
G4. Expressing sympathy/favorability	Expressing sympathy with friends' experiences; expressing favorability regarding others' thoughts; congratulating others
G5. Killing time	Engaging in pastime; relaxing
G6. Following trends	Learning about contemporary issues; engaging in current conversation topics
G7. Maintaining weak ties	Communicating with friends who are rarely seen in person; learning about daily lives of acquaintances who have weak ties to the user
G8. Gaining insights	Gaining indirect experiences; reading others' thoughts or words of wisdom
G9. Desire for sympathy/praise from others	Pursuing others' sympathy with my situation; gaining others' positive feedback
G10. Belongingness	Feeling connectedness with others; identifying oneself with others; feeling socialized
G11. Productivity	Improving task efficiency; obtaining money-off coupons
G12. Retrospection	Thinking of the past; nostalgia; experiencing feelings regarding past events again
G13. Enjoyment	Having fun; feeling pleasure
G14. Psychological stability	Feeling comfortable; achieving mental calm; lessening tension
G15. Cultivating the mind	Self-reflection; comparing my thoughts with those of others; developing positive attitude towards own life; thinking about the meaning of life

connected with six of seven preliminary goals, but is also involved in 25 percent of relations in the map.

As far as the relationships between the ultimate goals in SNS use and the dimensions of PWB are concerned, the five dimensions of PWB have significant relations with some of the ultimate outcomes of Facebook use. The one exception is Autonomy, which has no significant relationship with ultimate outcomes (see Table 7). Self-acceptance of life is significantly related to Retrospection (G12) and Cultivating the mind (G15), which are outcomes of using Facebook. Additionally, positive relations with others in life is associated with the ultimate outcomes of Facebook use, such as Belongingness (G10), Retrospection (G12), and Psychological stability (G14). One interesting finding is that Enjoyment (G13), which is an outcome of Facebook use, has a negative relationship with three sub-dimensions of PWB. Although some outcomes of Facebook use (i.e., Belongingness [G10], Psychological stability [G14]) have a positive relationship with users' assessment of their control of the environment, Enjoyment (G13) has a negative relationship

Table 4
Implication Matrix.

Topics	*G1*	*G2*	*G3*	*G4*	*G5*	*G6*	*G7*	*G8*	*G9*	*G10*	*G11*	*G12*	*G13*	*G14*	*G15*	*Out-degrees*
A1. Browsing	52		98	1	37	14	23	7		8			7			247
A2. Commenting		11	42	23	1		24			8						109
A3. Clicking "Like"		2	8	35			2			2						49
A4. Posting		150	8	1					4	1			1			165
A5. Group activities	15	4	4				15			2	5					45
A6. Gaming			1		11					1		2	1			16
G1. Acquiring information		1	1			14		5		1	40		2			64
G2. Self-disclosure	1		8	3	1		2	1	44	96	4	31	2	2		195
G3. Catching up on others' lives	1	2		4	2		38	16		42	3	11	10		1	130
G4. Expressing sympathy/favorability		3	1				1			57			3			65
G5. Killing time								1					35			36
G6. Following trends								3		33						36
G7. Maintaining weak ties		1	1	1				1		73	5	3		2		87
G8. Gaining insights										1			2	3	22	28
G9. Desire for sympathy/praise from others										5				20	1	26
G10. Belongingness		1			5			3	3		2	2		22	2	40
G11. Productivity								1		3				1		5
G12. Retrospection										1				3		4
G13. Enjoyment											1			4		5
G14. Psychological stability										1						1
G15. Cultivating the mind																0
In-degrees	2	8	11	8	8	14	41	31	47	313	55	47	54	57	26	722
Abstractness	0.03	0.04	0.08	0.11	0.18	0.28	0.32	0.53	0.64	0.89	0.92	0.92	0.92	0.98	1.00	
Centrality	0.09	0.28	0.20	0.10	0.06	0.07	0.18	0.08	0.10	0.49	0.08	0.07	0.08	0.08	0.04	

* Out-degree: the number of times the topic serves as the source or origin (means) of linkages with other topics.
*In-degree: the number of times the topic serves as the object or end of linkages with other topics.
*Abstractness = (In-degrees)/(In-degrees + Out-degrees).
*Centrality = (In-degree + Out-degree)/the sum of all active linkages.

Table 5
Statistics for Determining Cutoff Level.

Cutoff level	*Number of active linkages in the implication matrix*	*Percentage of active linkages at or above the cutoff level (%)*
1	722	100.0
5	633	87.7
8	613	84.9
9	***605***	***83.8***
10	605	83.8
11	595	82.4
12	584	80.9

with this assessment. Such a negative relationship appears in its influence on Purpose in life and Personal growth. The results thus disclose a negative relationship between users' goal of enjoyment in SNS use and the psychological aspects of life. Both Purpose in life and Personal growth are related only to Enjoyment (G13) among the other ultimate outcomes of Facebook use, and these relationships are negative.

5. Discussion

5.1. Activities and goals in SNS use

This study investigated what users do on SNSs (i.e., activities and goals) and how SNS use is related to a meaningful life as reflected in psychological well-being. As described in the results section, prevalent activities on Facebook include posting remarks/photos and browsing others' pages, which lead to most of the preliminary goals. While posting supports four of ten preliminary goals not supported by the other activities, the goals of browsing overlap with other activities. Browsing others' pages and commenting on others' shared information are major activities for catching up on the lives of others (Lin & Utz, 2015; Oliveria & Huertas, 2015). Although clicking "Like" also supports social connections, it primarily aims to maintain established relationships with others. In other words, the "Like" function of Facebook is used as a way to respond to the Facebook activities of those with whom users have interactions with online or offline rather than those with whom users rarely interact. Although clicking "Like" and commenting seem to play a similar role in that both activities are used to maintain social relationships and express sympathy/favorability, the central roles of these activities are different. While keeping in touch is the chief purpose of commenting, expressing sympathy/favorability is a principal goal of the "Like" function (see Table 5). Even though clicking "Like" is not included in the main activities on Facebook (e.g., Smock, Ellison, Lampe, & Wohn, 2011; Xu et al., 2012), this finding indicates that clicking "Like" is an idiosyncratic activity on Facebook in terms of activity goals.

Our findings specified six high-level goals on Facebook. Belongingness (G10) is the most centralized ultimate goal, which is supported by several subordinate goals. Catching up on others' lives (G3) is a fundamental means for users to achieve a sense of community. By catching up on others' lives on Facebook, users can maintain their social relationships and, ultimately, gain a sense of belongingness. Additionally, catching up on others' lives on Facebook enables users to maintain connections with weak-tie acquaintances with whom users rarely interact offline; subsequently, users can achieve a sense of belongingness. These findings show that users seek belongingness on Facebook by managing social relationships, including distant relations.

The goal of belongingness is also achieved in diverse ways. Users' disclosure of their thoughts and feelings on Facebook can enhance their sense that they are tied with others. In this study, the disclosure of thoughts/feelings is classified into the disclosure of one's own thoughts/feelings (G2) and emotional response to others (G4). Previous studies deal with both as a single concept, such as affection (Xu et al., 2012) or self-disclosure (Lee, Lee, & Kwon, 2011). Disclosing one's own information/feelings is regarded as a critical behavior for developing connectedness to others and socialization (Cutler, 1995; McMahon, 1997). In the same vein, it can be a means for users to gain a sense of belongingness in an SNS. Previous research demonstrates that the disclosure of thoughts/feelings in an SNS leads to SNS adoption and satisfaction (Lee et al., 2011; Xu et al., 2012). In particular, it is reported that the need for affiliation leads to the disclosure of one's own information, thoughts, and feelings on SNSs (Park, Jin, & Jin, 2011). Our findings confirm this function of disclosure behavior on SNSs.

Furthermore, the findings suggest that, as mediated by a sense of belongingness (G10) or emotional support from others (G9),

Table 6
Relations between Activities and Preliminary Goals on Facebook.

Goals / *Activities*	Acquiring information (G1)	Maintaining weak ties (G7)	Catching up on others' lives (G3)	Killing time (G5)	Following trends (G6)	Expressing sympathy/favorability (G4)	Self-disclosure (G2)
Browsing (A1)	√	√	√	√	√		
Group activity (A5)	√	√					
Commenting (A2)		√	√			√	√
Gaming (A6)				√			
Clicking "Like" (A3)						√	
Posting (A4)							√

* The checks indicate that the activity supports the goal.

Table 7
Relations between Ultimate Goals in Facebook Use and Psychological Well-Being.

PWB / *Ultimate goals*	Self-acceptance (R^2=0.236)	Environmental mastery (R^2=0.227)	Positive relations (R^2=0.281)	Purpose in life (R^2=0.069)	Personal growth (R^2=0.098)	Autonomy (R^2=0.014)
Belongingness (G10)		0.147*	0.408**			
Productivity (G11)						
Retrospection (G12)	0.340**		0.212**			
Enjoyment (G13)		−0.240**		−0.223**	−0.239**	
Psychological stability (G14)		0.361**	0.201**			
Cultivating the mind (G15)	0.247**					

**: *p-value* < 0.01, *: *p-value* < 0.05

the disclosure of thoughts/feelings on SNSs (G2) indirectly affects users' satisfaction of or attitude towards their life rather than have a direct influence. Additionally, the findings reveal that emotional response to others (G4) can be differentiated from expressing one's own thoughts/feelings (G2). In terms of superordinate goals, while the disclosure of one's own thoughts/feelings (G2) is conducted to acquire both a sense of belongingness and emotional support from others (G9), expressing sympathy/favorability (G4) is conducted only to gain belongingness. In addition, while the disclosure of one's own thoughts/feelings is achieved mainly through posting one's own articles/photos (A4), emotional response to others is expressed by clicking "Like" (A3). Therefore, despite little examination in prior research, emotional response to others needs to be regarded as a potential factor that has its own function on SNSs.

Another means for belongingness is following the latest information/trends (G6), which is achieved by acquiring information (G1). Knowing what others know may not only lead directly to a feeling that users share a common sense of the world, but can also facilitate participation in conversations. Additionally, users may exploit information, which is gained through browsing or group activities on SNSs, to improve productivity in daily life (G11). For example, users obtain information about famous restaurants or digital coupons from corporate social network accounts. This finding implies that SNSs provide users with utilitarian values.

Psychological stability is another ultimate goal on SNSs. There are two ways in which users reach a state of Psychological stability (G4). Affective support from others, such as sympathy or praise (G14), can make users feel comforted. Additionally, a sense of belongingness (G10) through Facebook is a means to achieve the ultimate goal of psychological stability. Humans can gain a greater sense of comfort when they have more positive social relations (Kolcaba & DiMarco, 2005). An enhanced sense of belongingness from Facebook may lead to users' feelings of inner peace. Our finding suggests that although psychological stability does not appear in prior research on users' acceptance of SNS, it can be an ultimate goal for SNS use. Specifically, it can be assumed that the influence of belongingness on users' satisfaction or intention to use SNSs is mediated by psychological stability.

By observing others' lives on SNSs (G3), users can learn about diverse lives and different perspectives which can improve their insights (G8) and finally help them cultivate their mind (G15). Together with expressing one's own thoughts/feelings on SNSs (G2), observing others' lives (G3) is also a resource with which users can trace their personal history, facilitating retrospection (G12). Along with psychological stability, cultivating the mind and retrospection have not been examined in prior research on SNS users. Our findings imply that users seek a variety of goals in SNSs beyond a limited set of values, such as utility, hedonism, and socialization, which have been the focus of prior studies (e.g., Burke et al., 2010; Kwon & Wen, 2010; Smock et al., 2011; Xu et al., 2012).

Finally, enjoyment (G13) is one of users' ultimate goals in SNS use. Users derive enjoyment from glimpsing others' lives portrayed on SNSs or from simply killing time with games. As demonstrated in prior studies (e.g., Kang & Lee, 2010; Hu, Poston, & Kettinger, 2011), our findings confirm that enjoyment is an important motivation for SNS use. Conclusively, although the triad of typical factors (i.e., utilitarian, hedonic, and social) has been widely examined in prior studies regarding SNS users, our findings reveal that there are diverse types of preliminary, mediated, and ultimate goals in SNS use.

5.2. SNS goals and psychological well-being

The overall ultimate goals in SNS use have significant relations with the components of PWB. In particular, three dimensions of PWB (i.e., positive relations, self-acceptance, and environmental mastery) are strongly associated with high-level goals in SNS use. From gaining a sense of belongingness from SNSs, users can feel that they have positive relations with others in life. Considering that SNSs are used to maintain established relations with others, we can expect that belongingness in the online realm affects one's own assessment of social relations in daily life. Additionally, both the psychological stability retrospection achieved by using SNSs can warm users' hearts and ultimately lead to positive evaluations of their social relations.

Self-acceptance can be enhanced by knowing the self and acknowledging one's limitations (Ryff, 2014). People who gain a sense of fulfillment from reflecting on their life when they are older can achieve a high level of ego integrity (Erikson, 1973), which has a strong relation with PWB (James & Zarrett, 2006). On SNSs, users tend to record memorable events and trivial ones at least rather than negative ones. Retrospection through SNSs, therefore, may also lead to a higher level of ego integrity, which induces acceptance of the self. Similar to retrospection through SNSs, cultivating the mind through SNSs can contribute to the development of the self and can ultimately lead to the positive influence of acceptance of the self.

SNS use also relates to users' evaluation of their control over environments. Because social relations are an important part of the environment surrounding humans, users may have a sense of control over their environments when maintaining good social relations. Belongingness in SNSs, therefore, may make users feel a level of mastery over their environments in life. In addition, because optimistic psychological states can lead to a sense of control (Ferguson & Goodwin, 2010), psychological stability gained from SNS use may enhance users' sense of environmental mastery.

In contrast to positive relations between other ultimate goals in SNS use and PWB, enjoyment in SNS use has a negative relationship with PWB. As described in the results section, while enjoyment from catching up on others' lives through SNSs (G3 → G13) has no significant relation with PWB, enjoyment from killing time on SNSs (G5 → G13) is negatively related with PWB. On the one hand, such a result may reflect the fact that PWB focuses on self-fulfillment and the meaningfulness of life rather than the affective assessment of life. Additionally, this result may imply that enjoyment without specific goals in SNS use may lead to regrets, which results in negative consequences in the extended context of SNS use. Because pleasure seeking may not fit with the serious aspect of life, users may recognize pleasure from SNS use as a negative effect from the perspective of a purposive life and personal growth. Additionally, pleasure from using SNSs may have a negative influence on users' sense of environmental mastery. Users who pursue more pleasure in SNS use may be more likely to feel that they are being negligent in the creation of situations for achieving goals in daily life. Hence, enjoyment from SNS use can be regarded as *bounded* enjoyment, indicating duality (i.e. a positive outcome in the narrow context of SNS use, but a negative outcome [e.g. SNS addiction] in the broader life context) (Turel & Serenko, 2012).

Finally, gratification from using SNSs has no significant relationship with improving the autonomy of users' lives. This result implies that SNS use has no influence on users' evaluation of self by personal standards, resistance to social pressures to think and act, or self-determination in their lives.

5.3. Limitations and future research

This study has the following limitations. Our research subjects were all digital natives in their 20 s to early 30s. The sampling may limit the generalizability of the findings of the study. However, over half of the users who use SNSs are aged between their late teens to early 30 s (Global Web Index, 2014), implying that they are the main users of SNSs and lead the diffusion of SNS use. This study focuses

on the leading segment of SNS users. Nevertheless, the comparison of young adults and seniors is a promising topic for future research in that it can provide a more comprehensive understanding of the impact of SNS use on PWB.

Another limitation related to generalizability may come from our participant users of Facebook, which is a type of SNS. Considering the popularity and reputation of Facebook, our findings can provide important knowledge for understanding SNS users. Facebook is still the most influential SNS in terms of account ownership (81 percent of SNS users) and active users (42 percent of Facebook users) (Global Web Index, 2014); thus, Facebook may be thought of as a benchmark target for other SNSs. Nevertheless, there are different types of SNSs, including photo-sharing SNSs (e.g. Pinterest) and microblogs (e.g. Twitter). This study used data from Facebook users; thus, caution needs to be used in applying our findings to other types of SNS. Future research needs to compare goals in the usage of different types of SNS, and furthermore, may compare the associations between SNS use, goals, and psychological well-being in diverse types of SNS.

Next, the single-survey design of this study may be another limitation. The study chose a one-round survey to measure PWB, following the example of previous research (e.g., Lindfors et al., 2006; Liu et al., 2014; Ryff & Keyes, 1995). An exact understanding of the associations between SNS use and PWB may require longitudinal investigation. Future research can test the causal relationship between them by adopting a longitudinal research method. In particular, it may be valuable to determine how SNS users' assessment of their well-being changes over time in a longitudinal research setting.

The last limitation is that we did not take into account possible differences between the goals of experienced users and values of novice users. The goals that users pursue in SNS use can change over time. A future research strategy for this is the comparison of goals pursued between long-term users and new users and the relationships between SNS use and psychological well-being for each group.

6. Implications

6.1. Implications for research

This study makes several theoretical contributions. The most important contribution of the study is an attempt to examine an important but largely ignored outcome of IT use – that is, the connection between personal IT use and daily life. As IT becomes more interwoven with daily life, IT adoption needs to be examined in broader contexts than the current focus on IT use itself. Considering that IT has been embedded in daily life beyond organizational contexts, the impact of IT on everyday living needs to be regarded as a key research topic in IS research (Yoo, 2010). In particular, the emerging experiential computing trend has encouraged researchers to devote greater attention to the daily use of IT and diverse consequences of IT use. This study provides a rich picture of users' purposive activities and goals on Facebook through the analysis of a hierarchical goal structure and further investigates the relations between their goals in Facebook use and psychological well-being. In exploring the relations between Facebook use and psychological well-being, this study contributes to the understanding of the consequences of personal IT use.

In the same vein as the above contribution, this study initially employed and examined the concept of psychological well-being in the domain of IS research. Although well-being can be a key outcome of personal IT use, it has rarely been examined in IS research. Some studies employing the concept of well-being focus on the affective side of well-being, such as pleasure or satisfaction, and do not use psychological well-being, which has been widely used to measure well-being in other disciplines (Ryff, 2014). Given the purposive use of IT for personal goals, psychological well-being, which focuses on self-actualization in life, could be an essential factor in our understanding of the users of emerging IT. This study makes contributions to research on IT users by introducing and empirically examining psychological well-being, which is a novel construct in the IS field.

Another contribution of this study is the demonstration of the dynamics of users' activities and goals in SNSs. While prior studies regarding SNSs focus on factors influencing the adoption of or separate goals in SNS use, this study provides a vivid depiction of how users' activities and goals are organized in SNSs. Although user adoption has been regarded as an imperative research topic in the IS discipline, its importance has become less relevant to the new generation of users, who are familiar with emerging experiential computing (Yoo, 2010). To these users, adoption is taken for granted; thus, the research focus should be on how they really use the technology. The current study heralds a paradigm of actual activity- and goal-centric research in the IS field beyond the horizon of traditional user adoption research. By examining users' goal hierarchy in SNSs, this study ultimately contributes to a better understanding of user behavior on SNSs.

The goals and their relations specified in our results can be used for developing hypotheses or research models investigating user behavior in SNSs. Belongingness, productivity, and enjoyment, which appear in the goal hierarchy, are commonly used in prior research to explain user behavior in SNSs. In particular, although there are some attempts to examine various types of intrinsic motivation (e.g., escapism by Smock et al. (2011) and Xu et al. (2012)), enjoyment is mainly employed as an intrinsic motivational factor. According to our findings, there may be different and more specific intrinsic factors driving SNS use, such as psychological stability, cultivating the mind, and retrospection, which are rarely examined in the prior research. In addition, the retrospection proposed by this study is a novel construct that has not been examined in the prior research. In terms of the relations among factors, our findings suggest that psychological stability can be a result variable affected by social factors, including belongingness and desire for the sympathy/praise of others. Simply regarded as an antecedent of intention and use (e.g., Kim, Sohn, & Choi, 2011; Smock et al., 2011; Xu et al., 2012), the function of social factors is not well discussed in literature on the users of SNSs. Our findings suggest a potential function of social factors – that is, an antecedent of psychological stability or comfortableness (Kolcaba & Kolcaba, 1991). In short, concepts and their relation in our goal hierarchy of SNSs can be valuable knowledge for future research.

The findings of our study also include two additional intrinsic factors driving SNS use that have rarely been explored in prior research – psychological stability and cultivating the mind. Based on the current findings, further exploration of these factors and their incorporation into theoretical models is warranted. The remaining high-level goal proposed by this study – retrospection – is a novel construct that has not been examined in the prior research. While previously overlooked, the ability to review and present past events as a part of one's life narrative may be a strong intrinsic motivator for SNS use. Research in psychology, for example, supports the idea that the process of reflecting sentimentally on past events is related to an increased sense of meaning in life (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010; Routledge, Sedikides, Wildschut, & Juhl, 2013). Finally, in terms of the relations among factors, our findings suggest that psychological stability can be a result variable that is affected by social factors, including belongingness and desire for the sympathy/praise of others. This insight suggests going beyond simply regarding these factors as antecedents of intention and use, as seen in the literature on users

of SNSs (e.g., Kim et al., 2011; Smock et al., 2011; Xu et al., 2012). Our findings suggest the potential function of social factors as an antecedent of psychological stability or comfortableness (Kolcaba & Kolcaba, 1991).

The relationships between high-level goals provide new insights into potential reasons for the mixed results of prior studies of SNS use and psychological well-being/psychological distress. Given the study design, we must remain agnostic in terms of the direction of causality between the two sets of factors. Rather, we focus on associations of significance and the new insights they provide, especially those that may be related to the mixed results of prior research on SNS use and psychological well-being/psychological distress. One intriguing result is the disclosure of dual outcomes of enjoyment in SNS use. Enjoyment, which is a form of intrinsic motivation, has been regarded as a desirable factor that facilitates the user adoption of IT (e.g., van der Heijden, 2004; Venkatesh, Thong, & Xu, 2012). Similarly, the findings of the current study show that enjoyment is one of the ultimate goals in SNS use. However, SNS-based enjoyment as an ultimate goal has a negative relationship with three dimensions of users' psychological well-being. The results indicate that enjoyment as a goal of SNS use is associated with lower levels of the purpose in life, personal growth, and environmental mastery dimensions of PWB. This confirms the finding that the relationship between Facebook use and self-esteem, which has a well-established positive relationship with PWB (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995), is likely to be negative (Carpenter, 2011). In addition, enjoyment in SNS use can result in the habitual use of IT; furthermore, this can lead to a state of addiction (Turel & Serenko, 2012). While some previous studies demonstrate a negative side of SNS use (e.g., Lin et al., 2016; Shensa, Sidani, Lin, Bowman, & Primack, 2016), they provide limited knowledge of the function of enjoyment. This study makes a contribution by revealing the duality of enjoyment in using IT and suggesting that researchers consider a context of analysis (i.e., system use vs. quality of life) in employing enjoyment as a construct. On the other hand, the positive associations between self-acceptance and the high-level goals of retrospection and cultivating the mind show a more affirmative side to SNS use. As noted previously, the process of retrospection can contribute to an increased sense of meaning in life (Juhl et al., 2010; Routledge et al., 2013). Similarly, the SNS use goal of cultivating the mind presents a more positive side to SNS use and indicates opportunities for social learning and leveraging distributed skills and knowledge (Tian, Yu, Vogel, & Kwok, 2011). The association between these goals and self-acceptance and the lack of a relationship between enjoyment and self-acceptance may indicate that this particular dimension of PWB plays a central role in the positivity or negativity associated with SNS use. This suggests a promising topic for further research.

6.2. Implications for practice

This study provides some practical implications for SNS providers. The first practical contribution is the generation of baseline knowledge about the activities and goals of SNS users. Prior research regarding the usage or adoption of SNSs lacks a broad perspective on users' actual behavior. This study provides concrete information by identifying diverse activities/goals in SNS use and their associations. Such knowledge benefits service providers in developing marketing and design strategies. More specifically, SNS providers can offer highly customized advertisements by analyzing each user's SNS activities. For example, when users' main SNS activities are browsing and gaming, they are inclined to be killing time and ultimately pursuing enjoyment in SNSs. In such cases, by targeting those SNS users, providers can deliver entertaining advertisements to stimulate their hedonic desires. When users post comments and click the "Like" button in SNS, they are apt to express their sympathy or preferences for the goals of belongingness and psychological stability. In such cases, by targeting those users, SNS providers can deliver advertisements reflecting social and psychological values.

This study further suggests that providing psychological therapies or counseling can be an effective strategy to keep users in SNSs. Use of SNSs is significantly associated with users' life, and furthermore, users pursue psychological goals (e.g., psychological stability, cultivating the mind) on SNSs. The literature shows that when users achieve their goals with IT, they feel satisfaction, which leads to continuous use of IT (Ku, Chen, & Zhang, 2013; Mäntymäki & Riemer, 2014). As for providing counseling services or supporting professionals' counseling activities on SNSs, SNS providers can facilitate users' pursuit of goals on SNSs and make them happier and ultimately retain them. Online communications through SNS can be a way to heal symptoms of depression and can be an alternative to improve the mental health of young people who are familiar with digital media (Appelbaum & Kopelman, 2014). Despite little empirical evidence, researchers have proposed that SNSs are a powerful tool for promotion of mental health (e.g., Onrust, Bubera, & Lazic, 2015; Rice et al., 2014; Robinson et al., 2016). On the other hand, SNS providers' provision of counseling services or support for professionals' counseling activities can be recognized as a corporate social responsibility (CSR) activity. Digital media, including SNSs, may cause side effects, such as cyberbullying, addiction, and SNS fatigue. SNS providers' counseling activities may not only mitigate those effects but also appease criticism of them. Therefore, their counseling services can be regarded as a good strategy in terms of user retention and CSR.

Another managerial implication is that SNS providers can use the results of the means-end chain analysis to develop marketing and development strategies. The means-end chain approach has been used as guidance for marketing strategies (Reynolds & Olson, 2001). SNS providers can apply our findings in advertising their SNSs. For example, providers can attract users through advertisement showing that their SNS enables users to express sympathy with or favorability to others, to feel connections with others, and to subsequently feel comfortableness. In this manner, providers can utilize the findings in developing marketing strategies.

Additionally, as SNS interfaces and functions supporting users' ultimate goals advance, providers will be able to improve users' satisfaction. For example, "Like"-similar functions need to be utilized in SNSs. The "Like" button, a simply way to express users' agreement with others' postings on Facebook, is a valuable function that is connected to five of the six ultimate goals mediated by two preliminary goals (G4. Expressing sympathy/favorability; G3. Catching up on others' lives). When users want to respond to others' celebratory events but do not have enough time, the "Like" button is a useful way to show their interest. Furthermore, because the "Like" button is just a way to express agreement, a function to express a variety of emotional states would be a valuable addition. Emoticons, for instance, could be an approach for this. In particular, as users increasingly access SNSs with smartphones, a simple way to express their thoughts is required. Our findings imply that a simple function for expressing their emotions or thoughts, such as the Like function and emoticons, is an essential consideration for SNSs.

Given that SNS use consists of diverse activities and goals and is related to the broader value of well-being, the study reminds SNS providers of the importance of comprehensive platforms. Providers need to build environments encompassing such diversity. Open application programming interfaces (API) are a potential mechanism for comprehensive platforms. In offering the environment of open API, SNS providers can attract individual developers to develop various applications for SNS users and can ultimately keep up with users' diverse and often capricious needs. To encourage developers' participation, SNS providers also need to consider

the introduction of a payment system that facilitates transactions between developers and users, as well as App portals. SNS providers should consider a profit model in which they make profit by charging fees per transaction. Therefore, open API could be a win–win strategy for service providers, users, and developers.

7. Conclusion

With the means-end chain approach and stepwise regression analysis, the current study explored the goals that users pursue in social network sites, the relationships among these goals, and how these goals are related to psychological well-being. The findings provide evidence of both the diversity of user goals on SNSs and their significant relationships with psychological well-being, demonstrating the value of a goal perspective. We believe that this study and the proposed method offer a solid conceptual basis for further investigations of this type. We hope that more effort will be devoted to this important research area.

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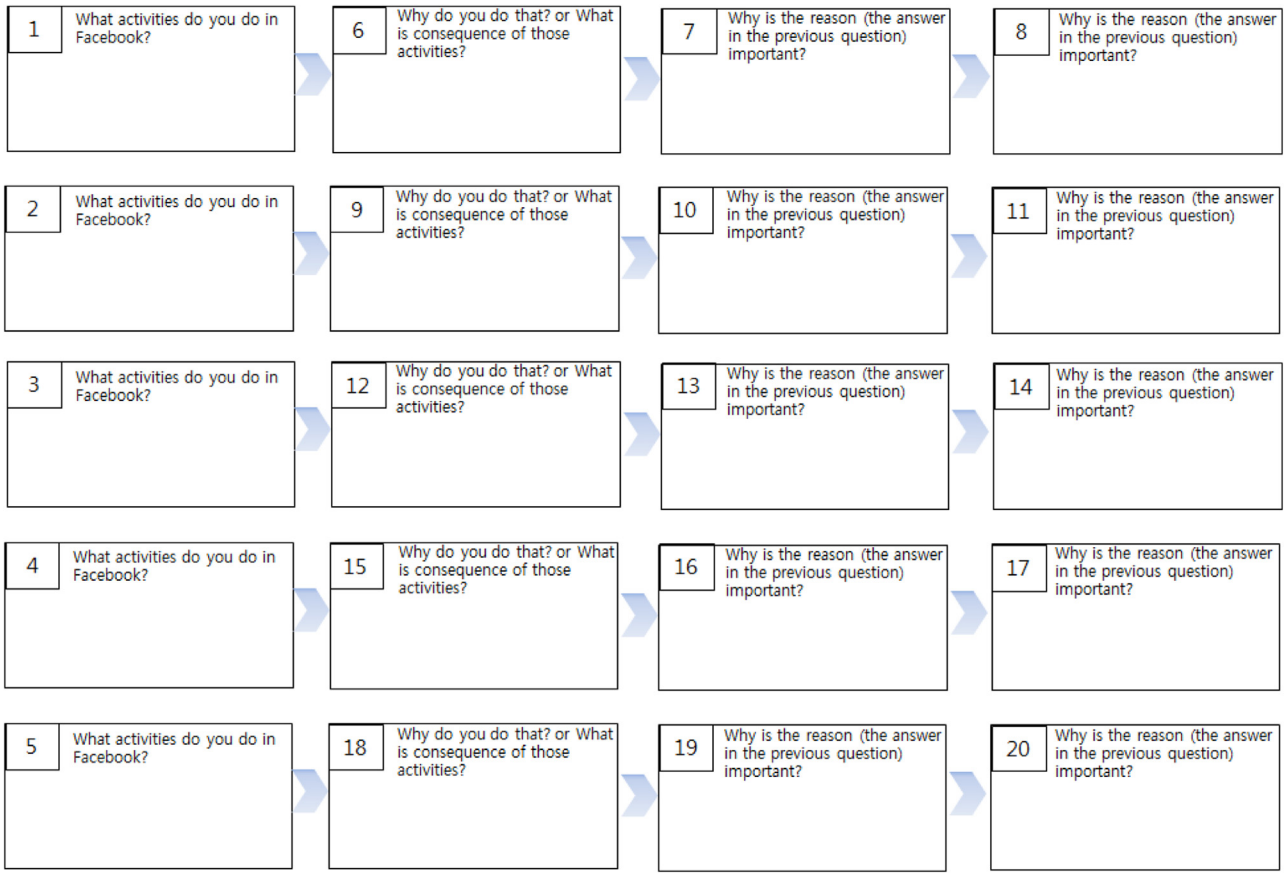
Appendix A. Laddering Questionnaire.



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