Investigating Antecedents of Instagram Attachment and Intention to Post Photos on Instagram

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This study examined effects of the social-psychological motivations to use Instagram (i.e., identity seeking, social interaction) and narcissistic personality on personal attachment to Instagram and intention to post photos on Instagram. Identity seeking, social interaction and narcissistic personality (i.e., grandiose/exhibition) had significant positive effects on personal attachment to Instagram. Identity seeking and social interaction had significant positive effects on intention to post photos on Instagram. However, narcissistic personality had no effect on the intention to post photos on Instagram. The study results support the theory of the extended-self in the digital context. This study also provides useful information to help organizations understand why people use Instagram as well as how to take advantage of Instagram to enhance their services and consumer experiences.

Introduction

Social networking sites (SNSs) are virtual communities that enhance users' self-expression in online social relationships (Ellison, Heino, & Gibbs, 2006; Kapidzic, 2013; Mehdizadeh, 2010; Stefanone, Lackaff, & Rosen, 2011). Image-sharing SNSs such as Instagram have gained enormous popularity and adoption in digital environments (Kim, Lee, Sung, & Choi, 2016; Kim, Seely, & Jung, 2017). Lee et al. (2015, p. 552) used the adage, "pictures speak louder than words," to describe the growing phenomenon of the use of photos for visual communication. On Instagram, the number of photos uploaded daily was estimated to be over 60 million in 2018 and the majority of these photos were selfies (Statista, 2018). SNSs have become an integral

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extension of people's daily life (Ellison, Steinfield, & Lamp, 2007). Users post content to share and document both important and mundane events and experiences (Kim et al., 2016).

There has been an increase in research to examine individuals' motivations (i.e., needs, dispositions) underlying SNS use. Several researchers have suggested that in order to predict consumers' SNS use behaviors, motivations (i.e., needs) and personality traits (i.e., disposition) should be investigated (Jun & Noh, 2015; Kim et al., 2016). However, Ajzen (1991) argues that motivations are a more important determinant of human behavior than personality traits because motivations are more 'proximal causes' than personality traits. Furthermore, some studies have revealed that social psychological motivations (i.e., social interaction, identity seeking) are significant predictors in understanding personal attachment and intention to post photos on SNSs (Jun & Noh, 2015; Kim et al., 2016). However, in the context of Instagram use, these motivations have not been extensively examined. In addition, an increasing body of research on narcissistic personality has revealed that narcissists have unique behaviors and usage patterns on SNSs (Kim et al., 2016; Sorokowski et al., 2015; Weiser, 2015). Through image-sharing virtual platforms, narcissists can easily express their desires for the display of vanity, attention, and self-promotion (Bergman et al., 2011; Buffardi & Campbell, 2008; Capenter, 2012; Devenport et al., 2014; Fox & Rooney, 2015; Parambouskis et al., 2016). But there have been very few studies that examined the effects of narcissistic personality on users' personal attachment to Instagram and intention to post photos on Instagram.

Given that motivations and personality traits are related to Instagram use, this study aims to fill in the gap in research on Instagram by investigating the influence of social psychological motivations (i.e., social interaction, identity seeking) and narcissistic personality on personal attachment to Instagram and intention to post photos on Instagram.

Theoretical Background

According to Belk (1988), "the extended self" refers to the people, things, and places individuals consider as part of themselves. Self-extension is essential to people's ability to articulate who they are, who they want to be, and what is important to them (Jun & Noh, 2015). The advent of Web 2.0 offered an alternative for expressing the extended self through digital media. Individuals can now instantly communicate and represent themselves via digital devices (e.g., smartphones) and digital media (Belk, 2014). People also consider digital objects (e.g., photos, videos, music, digital social networks) as part of the extended self in the same way as tangible possessions and other people (Belk, 2014).

The extended self via online media is dependent on the concepts of presence and co-presence (Belk, 2014). Presence is the illusion of being there in the virtual world (Biocca, 1997). Co-presence pertains to the perception of being in a "shared virtual setting with remote others" (Schultze, 2010, p. 438). People express their presence on digital social networks via their identities and personality traits (Belk, 2013, 2014). The co-presence of others involves the individual's interaction with similar others who can respond to shared content (Belk, 2014).

Self-extension on Instagram is a collaborative experience. As Belk (2013) indicated, digital social networks are important virtual places where users can find self-value by sharing digital contents. For example, people share their selfies manipulated by the photo editing software and get feedback and reactions from other users. All these behaviors (e.g., self-presentation, engagement and interaction with others) contribute to shaping users' self-concept (Belk, 2016; Daer et al., 2014; Smith & Smith, 2012; Yang et al., 2012). Oldenburg (1999) suggests that people have a "third place" which provides an alternative to home, school or work. In the third place, people are able to socialize, express themselves, get relaxed, feel accepted and create and maintain relationships (Craig et al., 2009; Kim, Sohn, & Choi, 2011; Seidman, 2013, Sheldon & Bryant, 2016). People develop attachments to other people, places and things they consider as self-extensions (Belk, 2014; Kim et al., 2016). Thus, by interacting with others and presenting identity, Instagram users form personal attachment to Instagram because they consider the platform as the third place (Belk, 2013). Digital self-extension on SNSs includes posting photos to share pictorial information for self-representation, self-narratives, self-disclosure, and display of competence, expertise and artistic abilities (Belk, 2012). The desire for self-extension through expression and presentation of identity and personality will enhance people to post more content, especially photos, on Instagram for affirmation from others (Belk, 2013).

Social Interaction

Social interaction is one of the fundamental human needs that drive people to seek out interpersonal relationships with other people (Ellison et al., 2007; Geurin-Eagleman & Burch, 2016; Lee et al., 2015; Pittman & Reich, 2016). Some people consider social interactions in the online context as a preferred form of relating to others rather than face-to-face interactions (Caplan, 2003; Ksinan & Vazsonyi, 2016). People can easily feel disinhibited because they feel free to articulate personal aspects of themselves in contrast to face-to-face interactions (Cortès, 2017). The SNSs help users to interact with other users who are similar to them and to seek social support from those users (Nadkarni & Hofmann, 2012; Stefanone et al., 2011). In addition, by maintaining already established social ties and developing new ones through SNSs, users can connect to a wider network of SNS users without barriers of time and physical distance (Ellison et al., 2007). Social interactions on SNSs also mitigate feelings of loneliness (Skues, Williams, & Wise, 2012).

Instagram enables users to contact and interact with others (Huang & Su, 2018). The social function of Instagram is to facilitate users' ability to see visual updates of friends and followers (Sheldon & Bryant, 2016). When people use Instagram, they get to interact with others by seeing what others share (Sheldon & Bryant, 2016). People who engage in social activities (e.g., traveling, eating at popular restaurants, going to music concerts) are likely to post photos of these activities to keep their SNS friends and followers up to date with their lives. To communicate with others, users post photos as a way of keeping in touch with other users (Whiting & Williams, 2013). Sharing photos about one's self is also an avenue to connect and meet people who share the same interest (Lee et al., 2015).

Identity Seeking

Oyserman, Elmore, and Smith (2012) defined identity as "traits and characteristics, social relations, roles, and social group memberships that define who one is" (p. 69). A person's identity is defined in terms of the specific roles the individual occupies within a social structure (Cheng & Guo, 2015; Stryker, 1980; Oyserman et al., 2012). An individual's self-identity is related to constructing a set of identity standards to serve as a guide to identity-relevant behaviors (Stets & Burke, 2000). Identity seeking is referred to as using Instagram to express traits and characteristics that define who one is or aspires to be with the aim of enhancing self-concept (Oyserman et al., 2012; Vignoles et al., 2002).

People share content on SNSs which forms part of who they are, remind them of who they, or represent who they are (Jun & Noh, 2015). Recently, digital photographs have been often used for identity seeking (Chua & Chang, 2016; Mascheroni et al., 2015). On Instagram, users share photos that demonstrate their individuality or their desirable self-image (Rui & Stefanone, 2013). Marcus (2015) observed that photos, specifically selfies, posted on Instagram were intended to present a person's unique identity. Users rely on Instagram as an outlet to communicate their identity and post photos on Instagram that form part of users' need for continuous modification of the self and instant communication (van Djick, 2008).

Narcissistic Personality

Narcissistic personality is characterized as highly positive or inflated self-view and needs for admiration and attention (Buffardi & Campbell, 2008; Morf & Rhodewalt, 2001). Several researchers have suggested that narcissists have an exaggerated sense of self-importance and invest a lot of time and effort into their physical appearance, status and popularity (Brown, Budzek, & Tamborski, 2009; Campbell, Rudich, & Seidikides, 2002). Interestingly a narcissist's view of self often contradicts how others actually perceive them (Ackerman et al., 2011; Weiser, 2015). Although narcissistic individuals lack the ability to develop or maintain emotional connections with others in face-to-face interactions, they yearn to be the center of attention (Bergman et al., 2011).

The SNSs are an ideal virtual place for narcissists because they can easily satisfy their needs (e.g., attracting attention) with superficial relationships (Parambouski et al., 2016). Narcissists share photos on Instagram to obtaining feedback from their followers. The Instagram features (i.e., liking, commenting) do not require much effort to use and followers easily and intuitively use these features without developing deeper relationships (Parambouski et al., 2016). Positive feedbacks from followers support narcissists' self-regulatory strategies such as seeking veneration (Kapidzic, 2013; McCain et al., 2016). Weiser (2015) even described selfies as symptoms of social media narcissism. Some studies have also indicated that people with elevated levels of narcissism frequently share photos to followers on their activities (Weiser, 2015). Numerous studies have shown a positive relationship between narcissism and frequency of SNS

use (Carpenter, 2012; DeWall, Buffardi, Bonser, & Campbell, 2011; Mehdizah, 2010; Panek, Nardis, & Konrath, 2013).

Ackerman et al. (2011) suggested three dimensions of narcissistic personality, leadership/authority, grandiose/exhibition, and entitlement/exploitative. Leadership/authority refers to a desire for superiority over others and the capacity for social agency (Weiser, 2015). Leadership/authority reflects an adaptive type of narcissistic personality with attributes like social boldness, optimism, and values for interpersonal relationships (Brown et al., 2009; Emmons, 1984; Hickman, Watson, & Morris, 1996). Weiser (2015) found that leadership/authority was associated with the selfies-posting frequency on SNSs. Another study also revealed that college students showing the leadership/authority trait were more likely to use Twitter to assert their superiority over others (Panek et al., 2013).

Grandiose/exhibition is characterized by elevated self-importance and a tendency to show off (Weiser, 2015). Grandiose/exhibition is regarded as a maladaptive form of narcissism and individuals with this trait have a desire for attention and seek as many friends as possible on SNSs (Ackerman et al., 2011; Brown et al., 2009; Carpenter, 2012). Such individuals have a more inflated self-image and tendency to express themselves on SNSs in order to offset their low self-esteem (Wright, 2012). Carpenter (2012) discovered that grandiose/exhibition was related to self-promoting behaviors. Several studies have suggested that grandiose/exhibition is a significant factor in predicting the number of selfies posted and frequency in posting selfies on Instagram (Moon et al., 2016).

Entitlement/exploitative is defined as the sense of deserving acknowledgment with a willingness to manipulate and take advantage of others (Weiser, 2015). Entitlement/exploitative is related to anti-social behaviors implying that narcissists expect others to pay attention to their needs without reciprocity (Ackerman et al., 2011). Individuals who are high on entitlement/exploitative demand social support, but they are unwilling to do it for others and are most likely to retaliate to negative comments (Twenge & Campbell, 2003). Carpenter (2012) discovered that entitlement/exploitative was indeed associated with retaliating against mean comments, seeking social support without reciprocation, and checking to discover whether others were talking about them.

Personal Attachment to Instagram

Attachment to SNSs is defined as an emotional connection to SNSs to the extent that SNSs form an important part of the users' daily activities (Ellison et al., 2007). Personal attachment to Instagram pertains to the strength of involvement in the use of Instagram to such an extent that Instagram is integrated into the users' way of life (Orosz et al., 2015). Studies about attachment to SNSs are based on the place attachment theory. Place attachment theory is concerned with "a part of a person's overall identity, consisting of the memories, feelings, beliefs, and meanings

associated with their physical surroundings" (Jack, 2010, p. 757). According to Qi and Fu (2011), the roles of SNS attachment replace the roles of physical place attachment.

Research has indicated that the more people use SNSs the greater the chances of forming an attachment to the SNS (Papacharissi & Mendelson, 2011). Several studies have found that socially excluded people are drawn to SNSs for interaction with others and attention-getting; therefore, those people are more likely to form strong attachments to SNSs (Andreassen et al., 2012; Kuss & Griffiths, 2011). Another study indicates that social connectivity results in SNSs attachment (Wirtz et al., 2017). Kim, Lee, Chung, and Preis (2016) discovered that attachment was an important mediator between motivations and behavioral outcomes. Some studies on Instagram have suggested that identity seeking is related to personal attachment to Instagram (Alhabash & Ma, 2017). Several studies have also revealed narcissism is associated with attachment to SNSs (Blanchino et al., 2018; Lee et al., 2017). Based on the previous research, this study suggests the following hypotheses:

H1: Social interaction is positively associated with personal attachment to Instagram.

H2: Identity seeking is positively associated with personal attachment to Instagram.

H3: Narcissistic personality is positively associated with personal attachment to Instagram.

Intention to Post Photos on Instagram

Intention refers to the amount of effort a person is willing to exert in performing a behavior (Ajzen, 1991). According to Ajzen (1991), if a person has a stronger intention, he/she is more likely to behave as intended. Therefore, the single best predictor of behavior is a person's intention to perform the behavior (e.g., Amin et al., 2007; Hung et al., 2003).

People use Instagram to establish and maintain social relationships with other users. Several studies have indicated that the desire for social interaction will predict users' intention to post photos on Instagram (Lee et al., 2015; Kim et al., 2016). According to Marwick (2015), photos are a preferable choice for making statements about users' identity on SNSs. Cheng and Guo (2015) reported identity seeking was associated with users' intention to post photos on Instagram. The rationale behind posting photos on Instagram is that by manipulating photos narcissists can appear more favorably (Sheldon & Bryant, 2016). Kim et al. (2016) suggest that narcissism increased Instagram users' intention to post selfies. Based on the previous research, this study suggests the following hypotheses:

H4: Social interaction is positively associated with intention to post photos on Instagram.

H5: Identity seeking is positively associated with intention to post photos on Instagram.

H6: Narcissistic personality is positively associated with intention to post photos on Instagram.

Methods

A survey research method was applied in this study. The study population was undergraduate students at a university in South Korea. By using a non-probability convenient sampling method, students were asked to visit the online survey webpage to participate in the study during their class. The survey included five parts: social psychological motivations for using Instagram (i.e., social interaction, identity seeking), narcissistic personality, personal attachment to Instagram, intention to post photos on Instagram and respondents' personal information.

Five items to measure social interaction were adopted from Sheldon and Bryant (2016). To measure identity seeking, four items were adopted from Jun and Noh (2015). The narcissistic personality inventory was measured with 13 items which were originally developed by Gentile et al. (2013). The authors initially suggested three factors of the narcissism personality inventory. Five items were to measure leadership/authority, four items were to measure grandiose/exhibition, and four items were to measure entitlement/exploitative. Six items to measure the personal attachment to Instagram were adopted from Ellison et al. (2007). Three items to measure intention to post photos on Instagram were adopted and modified from Ajzen (1991). All items were measured using a 7-point Likert-type scale, in which "1" represents "strongly disagree" and "7" represents "strongly agree." Respondents were also asked to provide information about their demographic profiles and general SNS use.

A total of 383 undergraduate students participated in this study. Incomplete responses, responses from the same internet protocol (IP) addresses and responses from the respondents who had never used Instagram were excluded. After data cleaning, 257 were usable data for the statistical analyses. Six out of ten respondents were female (64.6%) (Table 1). One-third of the respondents aged 18-19 (28.8%) and another one-third of them aged 22-23 (27.2%). Half of the respondents (51.0%) responded that Instagram was the most often used SNS.

Table 2 presents the results of factor analyses and reliability analyses. In terms of the social psychological motivations, two factors (i.e., social interaction, identity seeking) were suggested. The Kaiser-Meyer-Olkin (KMO) value was 0.820, Bartlett's test was significant at $p < 0.001$ and the total variance extracted by the factors was 78.93%. The factor loading scores of the items were 0.803 to 0.920. The Cronbach's alpha score of the identity seeking was 0.924 and the score of the social interaction was 0.831.

Table 1
Demographic Profiles and SNS Use of Respondents

	Frequency	%		Frequency	%
Gender			Most often used SNS		
Male	91	35.4	Instagram	131	51.0
Female	166	64.6	Facebook	117	45.5
Age			Blog	6	2.3
18-19	74	28.8	Kakaostory	2	0.8
20-21	65	25.3	Band	1	0.4
22-23	70	27.2			
24-25	40	15.6			
26 and older	8	3.1			

Two factors were suggested for the narcissistic personality. Items to measure the leadership/authority and the entitlement/exploitative were merged into a single factor and in this study, this factor was named as the leadership/entitlement. The KMO value was 0.899, Bartlett's test was significant at $p < 0.001$, and the total variance extracted by the factors was 58.00%. The factor loading scores were 0.507 to 0.812. The Cronbach's alpha score for leadership/entitlement was 0.895 and for grandiose/exhibition was 0.800.

In terms of personal attachment to Instagram, the KMO value was 0.846, Bartlett's test was significant at $p < 0.001$, and the total variance extracted by the factor was 64.81%. The factor loading scores were between 0.667 and 0.875. The Cronbach's alpha score was 0.890. In terms of intention to post photos on Instagram, the KMO value was 0.674, Bartlett's test was significant at $p < 0.001$, and the total variance extracted by the factor was 80.28%. The factor loading scores were 0.845 to 0.943. The Cronbach's alpha score was 0.877.

Results

According to Table 3, the correlation coefficients between all pairs of factors were 0.676 or less. The variance inflation factor (VIF) values were less than 2.00 (VIF $_{social\ interaction}$ = 1.269, VIF $_{identity\ seeking}$ = 1.499, VIF $_{leadership/entitlement}$ = 1.699, and VIF $_{grandiose/exhibition}$ = 1.602). All these results show that multicollinearity was not an issue in our data set (Hair, Ringle, & Sastedt, 2011).

The results of the multiple regression analyses were presented in Table 4. In terms of personal attachment, the regression F value of ANOVA was significant at $p < 0.001$ and the adjusted R-squared value was 0.467. The results indicated that identity seeking ($\beta = 0.422$, $p < 0.001$) and social interaction ($\beta = 0.238$, $p < 0.001$) were significantly positively associated with personal attachment to Instagram; therefore, H1 and H2 were supported. Grandiose/exhibition ($\beta = 0.246$, $p < 0.001$) was significantly positively associated with personal attachment to Instagram; however, leadership/entitlement was not significant. Therefore, H3 was partially supported.

Table 2
Results of Factor Analysis and Reliability Analysis

Factor	Items	Factor Loading	Eigen-value	Variance (%)	Cronbach's Alpha
Identity Seeking	..because contents that I post on Instagram are part of who I am	.920	4.057	46.468	.924
	..because contents that I post on Instagram remind me of who I am	.916			
	..because contents that I post on Instagram help me achieve the identity I want to have	.866			
	..because contents that I post on Instagram represent who I am	.815			
Social Interaction	..to see visual updates of my friends	.900	1.466	32.458	.831
	..to interact with my friends	.815			
	..to see what other people share	.803			
KMO = 0.820; Bartlett's χ^2 = 1286.033; Total Variance = 78.927%					
Narcissistic personality: Leadership/ Entitlement	I am a born leader	.812	6.211	47.779	.895
	I have a strong will for power	.806			
	People always recognize my authority	.799			
	I know I am a good person because people keep telling me so	.716			
	I find it easy to manipulate people	.658			
	I expect a great deal from other people	.645			
	I like having authority over other people	.599			
	I usually show off if l get the chance	.577			
	I insist upon getting the respect that is due me	.545			
	I will never be satisfied until I get all that I deserve	.507			
Grandiose/ Exhibition	I like to look at my body	.903	1.259	21.878	.800
	I like to show off my body	.858			
	I like to look at myself in the mirror	.654			
KMO = 0.899; Bartlett's χ^2 = 1765.482; Total Variance = 57.996%					
Personal Attachment	Instagram has become part of my daily routine	.875	3.889	64.809	.890
	I feel out of touch when I haven't logged on Instagram for a while	.871			
	I feel I am part of the Instagram community	.858			
	I am proud to tell people I am on Instagram	.780			
	I would be sorry if Instagram shut down	.758			
	Instagram is part of my every day activity	.667			
KMO = 0.846; Bartlett's χ^2 = 885.150; Total Variance = 64.809%					
Intention	I intend to keep using Instagram to post photos	.898	2.408	80.275	0.877
	I intend to post photos on Instagram as part of my daily activities	.943			
	I intend to use Instagram in the future	.845			
KMO = 0.674; Bartlett's χ^2 = 453.923; Total Variance = 80.275%					

Table 3
Results of Correlation Analysis

	SI	IS	LE	GE	PEI
Social Interaction (SI)					
Identity Seeking (IS)	0.440**				
Leadership/Entitlement (LE)	0.286**	0.464**			
Grandiose/Exhibition (GE)	0.304**	0.415**	0.584**		
Personal Attachment to Instagram (PEI)	0.479**	0.598**	0.342**	0.455**	
Intention to Post Photos on Instagram	0.467**	0.671**	0.396**	0.390**	0.676**

Table 4
Results of Multiple Regression Analysis

	Personal Attachment		**Intention**	
	Beta	*t*	Beta	*t*
Social interaction	0.238	4.436***	0.256	5.121***
Identity seeking	0.422	7. 408***	0.503	9.259***
Narcissistic personality: Leadership/Entitlement	-0.066	-1.092	0.043	0.757
Narcissistic personality: Grandiose/Exhibition	0.246	4.179***	0.065	1.158
Adjusted R^2	0.467		0.497	
ANOVA Regression F ratio	52.669***		64.145***	

Note: *$p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

In terms of intention, the regression *F* value of ANOVA was significant at $p < 0.001$ and the adjusted R-squared value was 0.497. Identity seeking ($\beta = 0.503$, $p < 0.001$) and social interaction ($\beta = 0.256$, $p < 0.001$) were significantly positively associated with intention to post photos on Instagram; therefore, H4 and H5 were supported. Grandiose/exhibition and leadership/entitlement were not significant. Therefore, H6 was not supported.

Discussion and Conclusion

This study examined social interaction, identity seeking, and narcissistic personality as antecedents of personal attachment to Instagram and intention to post photos on Instagram. Our study found that people who used Instagram for social interaction and identity seeking were more likely to have a higher level of personal attachment to Instagram and intend to post photos on Instagram. These findings were in line with previous studies that social interaction and identity seeking were key predictors of users' personal attachment to Instagram and intention to post photos on Instagram (Alhabash & Ma, 2017; Andreassen et al., 2012; Cheng & Guo, 2015; Kim, 2011; Kim et al., 2016; Kuss & Griffiths, 2011; Lee et al., 2015; Wirtz et al., 2017).

The association between narcissistic personality and personal attachment to Instagram produced partially significant results. Our study results indicate that people who have the grandiose/exhibition traits are more likely to be attached to Instagram. It is assumed that Instagram can fulfill the narcissists' needs for getting attention and admiration in front of an audience. This finding supports previous research that narcissism is a significant predictor of attachment to SNSs (O'Sullivan & Hussain, 2017).

There was no significant effect of narcissistic personality on the intention to post photos on Instagram. A possible reason for this outcome may be attributed to the culture of collectivism in the East Asian countries (e.g., South Korea). People in collectivistic cultures emphasize on social values whereas individualistic cultures place importance on the self (Vater, 2018). Studies in East Asian countries have reported low scores on narcissistic personality (e.g., Foster et al., 2014; Hepper et al., 2013). Another explanation for the results of narcissism may be attributed to social desirability. Social desirability is the tendency for participants to answer questions on personality traits in a manner considered acceptable by others (Edwards, 1957). Even though participants in this study were asked to answer survey questions as honestly as possible they may have answered questions on narcissistic personality due to social desirability.

In this study, the narcissistic personality was measured with focus on grandiose aspects of narcissism and not vulnerable narcissism. Vulnerable narcissism has received less attention from researchers compared to grandiose narcissism (Paramboukis et al., 2016). Vulnerable narcissism is associated with feelings of inadequacy, helplessness, emptiness, and shame (Pincus et al., 2014). Examining both grandiose and vulnerable narcissism would provide a better understanding of narcissists on Instagram and other SNSs. Future studies may focus on using the Pathological Narcissism Inventory which can offer comprehensive assessments of both grandiose and vulnerable narcissism (Pincus et al., 2014).

This study was based on the theory of the extended self to explain Instagram users' personal attachment and intention to post photos on Instagram. First, our study findings provide empirical support for self-extension on Instagram via social interaction and Identity seeking. The study offers insight on Instagram as a platform to share experiences and an outlet for self-extension (Belk, 2013). The study confirms that sharing and collaborative consumption of photos is a key feature of social relationships in the digital realm (Belk, 2013). Second, the present study adds to the body of empirical research related to site attachment. In line with budding but limited research on SNSs attachment (e.g., Jun & Noh, 2015; Kim et al., 2016), the study confirms the existing relationship between social interaction, identity seeking, and personal attachment. The study findings also shed light on social interaction and identity seeking as important antecedents of intention to post photos, which contribute to studies, on behavioral intentions in the SNSs context. This study represents one of the few attempts to verify the link between narcissism and attachment. The study provided empirical support for an existing relationship between grandiose/exhibition and personal attachment to Instagram.

This research has useful implications for marketers by providing meaningful insights into understanding the important role of consumers in the online market place. Personal attachment to

Instagram can translate to greater loyalty to the site (Wirtz et al., 2017). People who are attached to SNSs will be more open to personalized advertising because of the strength of involvement. Managers should focus their advertising efforts on social networks that generate the highest attachment. Understanding the specific motives and needs are pivotal to users' personal attachment to Instagram and other similar SNSs. Firms must offer consumers experiences in an environment where they can reinforce self-image which will lead them to share their experience on SNSs. This offers firms free publicity. The practice of posting photos is an important mode for sharing information. This means firms can use photos to promote their brands on SNSs. Firms can solicit users with more social influence on SNSs for product placement and promotion about goods, tourism destinations, social events, and activities. It is important for firms to improve relationships with consumers who consume experiences because they can share ideas, interest, identity, and lifestyle through the content they post. This will not only be helpful to companies but will also enhance the referral mechanism of electronic word of mouth on SNSs. For instance, through social interaction on SNSs users can recommend their experiences to others by posting photos. Finally, SNS organizations can further improve user interface technologies by introducing advanced customization services and interactive photo-sharing applications to facilitate sharing on SNSs (Lallmahomed et al., 2013).

This study had the following limitations. First, the study sample is college students in South Korea and thus the study results are not a representative of the general population. Research would have to be conducted to establish if the findings from this study could be generalized to the population. Second, the measurement items were originally developed in English and translated into Korean. There may have been discrepancies in respondents understanding of the survey questions. Also with regards to the useable data, some participants did not indicate their gender resulting in data size discrepancies. Future studies should focus on Instagram users from other countries and a cross-cultural study will also offer a different perspective on the subject. Future research should also focus on behavioral outcomes such as the amount of Instagram usage, frequency of posting hashtags and selfies, and the amount of time spent editing photos.

References

Ackerman, R. A., Witt E. A., Donnellan, M. B., Trzesniewski, K. H., Robins, M.W.R., & Kashy, D. A. (2011). What does the narcissistic personality inventory really measure? *Assessment*, *18*(1), 67-87.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211.

Ajzen, I, & Fishbein, M. (2005). The influence of attitudes on behavior. In D. Albarracin, B. Johnson, & M. Zanna (Eds.), *The handbook of attitudes* (pp. 173-221). New York, NY: Psychology Press.

Alhabash, S., & Mengyan, M. (2017). A tale of four platforms: Motivations and uses of Facebook, Twitter, Instagram, and Snapchat among college students. *Social Media and Society*, *3*(1), 1-13.

Amin, H. (2007). Extending TAM to SMS banking: Analyzing the gender gap among students. *International Journal of Business and Society*, *8*(1), 24-45.

Andreassen, C. S., Geir, T. T., Brunborg, S., & Stale P. (2012). Development of a Facebook addiction scale. *Psychological Reports*, *110*(2), 501-517.

Belk, R. W. (1988). Possessions and extended self. *Journal of Consumer Research*, *15*(2), 139-168.

Belk, R. W. (2012). Extended self in digital age. In A. A. Ruvio & R. W. Belk (Eds.), *The routledge companion to identity and consumption* (pp. 83-88). London, UK: Routledge.

Belk, R. W. (2013). Extended self in a digital world. *Journal of Consumer Research, 40*(3), 477-500.

Belk, R. W. (2014). Digital consumption and the extended self. *Journal of Marketing Management*, *30*(11-12), 1101-1118.

Belk, R. W. (2016). Extended self and the digital world. *Current Opinion in Psychology*, *10*, 50-54.

Bergman, S. M., Fearrington, M. E., Davenport, S. W., & Bergman, J. Z. (2011). Millennials, narcissism, and social networking: What narcissists do on social networking sites and why. *Personality and Individual Differences*, *50*(5), 706-711.

Berry, W. D., & Feldman, S. (1985). *Multiple regression in practice*. (Sage University Paper series on Quantitative Applications in the Social Sciences, 07-050). Newbury Park, CA: Sage.

Biocca, F. (1997). The cyborg's dilemma: Progressive embodiment in virtual environments. *Journal of Computer-Mediated Communications*, 3, 1-18.

Blanchino, A., Przepiorka, A., & Rudnicka, P. (2016). Narcissism and self-esteem as predictors of dimension of Facebook use. *Personality and Individual Differences*, *90*, 296-301.

Brown, R. P., Budzek, K., & Tamborski, M. (2009). On the meaning and measure of narcissism. *Personality and Social Psychology Bulletin*, *35*(7), 951-964.

Buffardi, L. E., & Campbell, W. K. (2008). Narcissism and social networking websites. *Personality and Social Psychology Bulletin*, *34*, 1303-1314.

Campbell, W. K., Rudich, E. A., & Sedikides, C. (2002). Narcissism, self-esteem, and the positivity of self-views: Two portraits of self-love. *Personality and Social Psychology Bulletin*, *28*, 358-368.

Caplan, S. E. (2003). Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being. *Communication Research*, *30*(6), 625-648.

Carpenter, C. J. (2012). Narcissism on Facebook: Self-promotional and antisocial behavior. *Personality and Individual Differences*, *52*, 482-486.

Cheng, Z. C., & Guo, T. C. (2015). The formation of social identity and self-identity base on knowledge contribution in virtual communities: An inductive route model. *Computers in Human behavior*, *43*, 229-241.

Chua, T. H. H., & Chang, L. (2016). Follow me and like my beautiful selfies: Singapore teenage girls' engagement in self-presentation and peer comparison on social media. *Computers in Human Behavior*, *55*, 190-197.

Cortès, G. L. (2017). The influence of symbolic consumption on experiences value and use of virtual social network. *Spanish Journal of Marketing, 21*, 39-51.

Daer, A. R., Hoffman, R., & Goodman, S. (2014*). Rhetorical functions of hashtag forms across social media applications*. Paper presented at the 32nd Annual International Conference on the Design of Communication, Colorado Springs, CO.

Davernport, S.W., Bergman, S. M., Bergman, J. Z., & Fearrington, M. E. (2014). Twitter versus Facebook: Exploring the role of narcissism in the motives and usage of different social media platforms. *Computers in Human Behavior*, *32*, 212-220.

DeWall, C. N., Buffardi, L. E., Bonser, I., & Campbell, W. K. (2011). Narcissism and implicit attention seeking: Evidence from linguistic analyses of social networking and online presentation. *Personality and Individual Differences*, *51*(1), 57-62.

Edwards, A. (1957). *The social desirability variable in personality assessment and research*. New York, NY: The Dryden Press.

Ellison, N. B., Heino, R. D., & Gibbs, J. L. (2006). Self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication*, *11*(2), 415-441.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, *12*(4), 1143-1168.

Emmons, R. A. (1984). Factor analysis and construct validity of the Narcissistic Personality Inventory. *Journal of Personality Assessment*, *48*, 291-300.

Foster J. D., Campbell, W. K, & Twenge, J. M. (2003). Individual differences in narcissism: Inflated self-views across the lifespan and around the world. *Journal of Research in Personality*. *37*(6) 469-486.

Fox, J., & Rooney, M. C. (2015). The dark triad and trait self-objectification as predictors of men's use and self-presentation behaviors on social networking sites. *Personality and Individual Differences, 76*, 161-165.

Gentile, B., Miller, J. D., Hoffman, B. J., Reidy, D. E., Zeichner, A., & Campbell, W. K. (2013). A test of two brief measures of grandiose narcissism: The narcissistic personality inventory-13 and the narcissistic personality inventory-16. *Psychological Assessment*, *25*, 1120-1136.

Geurin - Eagleman, A. N., & Burch, L. (2016). Communicating via photographs: A gendered analysis of Olympic athletes' visual self-presentation on Instagram. *Sport Management Review*, *19*(2), 133-145

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-sem: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139-151.

Hepper, E. G., Sedikides, C., & Cai, H. (2013). Self-enhancement and self-protection strategies in China: Cultural expressions of a fundamental human motive. *Journal of Cross-Cultural Psychology*, *44*(1), 5-23.

Hickman, E., Watson, S. P., & Morris, J. R. (1996). Optimism, pessimism, and the complexity of narcissism. *Personality and Individual Differences*, *20*, 521-525.

Huang, Y. T., & Su, S. F. (2018). Motives for Instagram use and topics of interest among young adults. *Future Internet, 10*(8), 1-12.

Hung, S. Y., Ku, C. Y., & Chang, C. M. (2003). Critical factors of WAP services adoption: An empirical study. *Electronic Commerce Research and Applications*, *2*, 42-60.

Jack, G. (2010). Place matters: The significance of place attachments for children's well-being. *British Journal of Social Work*, *40*, 755-771.

Jun, S. H., & Noh, J. (2015). Impact of SNS attachment and travel product satisfaction on motivations for sharing product experiences on SNSs. *Journal of Tourism and Leisure Research, 27*(4), 411-432.

Kapidzic, S. (2013). Narcissism as a predictor of motivations behind Facebook profile picture selection. *Cyberpsychology, Behavior, and Social Networking, 16*, 14-19.

Kim, B. (2011). Understanding antecedents of continuance intention in social networking services. *Cyberpsychology Behavior and Social Networking, 14*(4), 199-205.

Kim, E., Lee, J. A., Sung, Y., & Choi, S. M. (2016). Predicting selfie-posting behavior on social networking sites: An extension of theory of planned behavior. *Computers in Human Behavior*, *62*, 116-123.

Kim, M. J., Lee, C. K., Chung, N., & Preis, M. W. (2016). Dual-route communication of mobile tourism shopping: The mediating social network involvement. *Telematics & Informatics*, *33*, 293-308.

Kim, Y., Sohn, D., & Choi, S. M. (2011). Cultural difference in motivations for using social network sites: A comparative study of American and Korean college students. *Computers in Human Behavior*. *27*(1), 365-372.

Ksinan, A. J., & Vazsonyi, A. T. (2016). Narcissism, Internet, and social relations: A study of two tales. *Personality and Individual Differences*, *94*, 118-123.

Kuss, D. J., & Griffiths, M. (2011). Online social networking and addiction: A review of the psychological literature. *International Journal of Environmental Research and Public Health*, *8*(9), 3528-3552.

Lalmahomed, M. Z., Rahim, N. Z. A., Ibrahim, R., & Rahman, A. A. (2013). Predicting different conceptualizations of systems use: Acceptance in hedonic volitional context (Facebook). *Computers in Human Behavior*, *29*(6), 2776-2787.

Lee, E., Lee, J. A., Moon, J. H., & Sung, Y. (2015). Pictures speak louder than words: Motivations for using Instagram. *Cyberpsychology, Behavior and Social Networking, 18*(9), 552-556.

Lee, W. K. (2017). The relationship between Narcissism and problematic social networking sites (SNS) use: Mediating role of attachment instability. *International Journal of Emergency Mental Health and Human Resilience*, *19*(3), 1-5.

Malik, A., Dhir, A., & Nieminen, M. (2016). Uses and gratifications of digital photo sharing on Facebook. *Telematics and Informatics*, *33*(1), 129-138.

Marcus, S. R. (2015). *Picturing' ourselves into being: Assessing identity, sociality and visuality on Instagram.* Paper presented at the *International Communication Association Conference* at San Juan, Puerto Rico.

Marwick, A. (2015). Instafame: Luxury selfies in the attention economy. *Public Culture, 27*(1), 137-160.

Mascheroni, G., Vincent, J., & Jimenez, E. (2015). Girls are addicted to likes so they post semi-naked selfies: Peer mediation, normality and construction of identity online. *Cyberpsychology: Journal of Psychology Research on Cyberspace*, *9*(1), 1-15.

McCain, J. L., Borg, Z. G., Rothenberg A. H., Churillo, K. M., Weiler, P., & Campbell, W.K. (2016). Personality and selfies: Narcissism and the dark triad. *Computers in Human Behavior, 64*, 126-133.

Mehdizadeh, S. (2010). Self-presentation 2.0: Narcissism and self-esteem on Facebook. *Cyberpsychology, Behavior, and Social Networking*, *13*(4), 357-364.

Moon, J. H., Lee, E., Lee, J. A., Choi, T. R., & Sung, Y. (2016). The role of narcissism in self-promotion on Instagram. *Personality and Individual Differences*, *101*, 22-25.

Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, *12*, 177-196.

Nadkarni, A., & Hofmann, S. G. (2012). Why do people use Facebook? *Personality and Individual Differences*, *52*, 243-249.

Oldenburg, R. (1999). *The great good place: Coffee shops, bookstores, bars, hair salons, and other hangouts at the heart of a community*. New York, NY: Marlowe.

Orosz, G., Tróth-Kiràly, I., & Bőthe, B. (2016). Four facets of Facebook intensity: The development of the multidimensional Facebook Intensity Scale. *Personality and Individual Differences*, *100*, 95-104.

O'Sullivan, A., & Hussain, Z. (2017). An exploratory study of Facebook intensity and its links to narcissism, stress, and self-esteem. *Journal of Addictive Behaviors, Therapy & Rehabilitation*, *6*(1), 1-6.

Oyserman, D., Elmore, K., & Smith, G. (2012). Self, self-concept, and identity. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 69-104). New York, NY: The Guilford Press.

Panek, E. T., Nardis, Y., & Konrath, S. (2013). Mirror or megaphone? How relationships between narcissism and social networking site use differ on Facebook and Twitter. *Computers in Human Behavior, 29*(5), 2004-2012.

Papacharissi, Z., & Mendelson, A. (2011). Toward a new(er) sociability: Uses, gratifications and social capital on Facebook. In S. Papathanassopoulos (Ed.), *Media perspectives for the 21st century* (pp. 212–230). New York, NY: Routledge.

Parambouski, O., Skues, J., & Wise, L. (2016). An exploratory study of the relationship between narcissism, self-esteem and Instagram use. *Social Networking*, *5*, 82-92.

Pincus, A. L., Cain, N. M., & Wright, A. G. (2014). Narcissistic grandiosity and narcissistic vulnerability in psychotherapy. *Personality Disorders: Theory, Research, and Treatment, 5*(4), 439-443.

Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. *Computers in Human Behavior*, *62*, 155-167.

Qi, Y., & Fu, C. (2011). The effects of flow and attachment on the e-loyalty of SNS websites. *Management and Service International Conference*, 1-6.

Raacke, J., & Bonds-Raacke, J. (2008). MySpace and Facebook: Applying the uses and gratifications theory to exploring friend-networking sites. *Cyberpsychology & Behavior*, *11*(2), 169-174.

Ross, C., Orr, E. S., Sisic, M., Arseneult, J. M., Simmering, M. G., & Orr, R. (2009). Personality and motivations associated with Facebook use. *Computer in Human Behavior*, *25*, 578-585.

Rui, J., & Stefanone, M. A. (2013). Strategic self-presentation online: A cross-cultural study. *Computers in Human Behavior, 29*(1), 110-118.

Schau, H., & Gilly, M. (2003). Are we what we post? Self-presentation in web space. *Journal of Consumer Research*, *30*, 385-404.

Schultze, U. (2010). Embodiment and presence in virtual worlds: A review. *Journal of Information Technology*, 25, 434-449.

Seidman, G. (2013). Self-presentation and belonging on Facebook: How personality influences social media use and motivations. *Personality and Individual Difference, 54*, 402-407.

Sheldon, P., & Bryant, K. (2016). Instagram: Motives for its use and relationship to narcissism and contextual age. *Computers in Human Behavior*, *58*, 89-97.

Skues, J. L., Williams, B., & Wise, L. (2012). The effects of personality traits, self-esteem loneliness, and narcissism on Facebook use among university students. *Computers in Human Behavior, 28*(6), 2414-2419.

Smith, L., & D Smith, K. (2012). Case study identity in Twitter's hashtag culture: A sport-media-consumption case study. *International Journal of Sport Communicatio*n, *5*, 539-557.

Statista. (2018). *Number of monthly active Instagram users from January 2013 to June 2018*. Retrieved from https://www.statista.com/statistics/253577/number-of-monthly-active-instagram-users/.

Stefanone, M., Lackaff, D., & Rosen, D. (2011). Contingencies of self-worth and social-networking-site behavior. *Cyberpsychology and Social Networking* Sites, *14*(1-2), 41- 49.

Stets, J. E., & Burke (2000). Identity theory and social identity theory. *Social Psychology Quarterly*, 63, 224-237.

Stryker, S. (1980). *Symbolic interactionism: A social structural version*. Palo Alto, CA: Benjamin Cummings.

Sorowski, P., Sorowski, A., Oleszkiewcz, A., Frackowiak, T., Huk, A., & Pisanski, K. (2015). Selfie posting behaviors are associated with narcissism among men. *Personality and Individual Differences*, *85*, 123-127.

Twenge, J. M. & Campbell, W. K. (2003). Isn't it fun to get the respect that we're going to deserve? Narcissism, social rejection, and aggression. *Personality and Social Psychology Bulletin, 29*, 261-272.

Van Dijck, J. (2008). Digital photography: Communication, identity and memory. *Visual Communication*, *7*(1), 57-76.

Vater, A., Moritz, S., & Roepke, S. (2018). Does narcissism epidemic exist in western societies? Comparing narcissism and self-esteem in East and West Germany. *PLOS One, 13*, 1-16.

Vignoles, V., Chryssochoou, X., & Breakwell, G. M. (2002). Evaluating models of identity motivation: Self-esteem is not the whole story. *Self and Identity*, *1*, 201- 218.

Weiser, E. B. (2015). #me: Narcissism and its facets as predictors of selfie-posting frequency. *Personality and Individual Differences*, *86*, 477-481.

Whiting, A., & Williams, D. (2013). Why people use social media: a uses and gratification approach. *Qualitative Market Research: An International Journal*, *16*(4), 362-369.

Wirtz, W. W., Göttel, V., & Daiser, P. (2017). Social networks: Usage Intensity and effects on personalized advertising. *Journal of Electronic Commerce Research*, *18*(2), 103-123.

Wright, K. B. (2012). Emotional support and perceived stress among college students using Facebook.com: An exploration of the relationship between source perception and emotional support. *Communication Research Reports*, *29*(3), 175-184.

Yang, L., Sun, T., Zhang, M., & Mei, Q. (2012). We know what@ you# tag: does the dual role affect hashtag adoption? *Proceedings of the 21st International Conference on World Wide Web*, *France*, 261-270.