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## MANAGEMENT | RESEARCH ARTICLE

# The relationships between personality and Facebook photographs: A study in Taiwan

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**Abstract:** The current study aimed to investigate the relationships between Facebook users' personality traits and Facebook photos categories relating to the users' daily life events. Five hundred and seventy-five Facebook users participated in this study. The results indicated that Extraversion was the strongest significant predictor for most photo categories. The other four personality traits, i.e. Openness to experience, Conscientiousness, Emotional stability, and Agreeableness, were also related to certain photo categories. The current study's findings expand literature a new field to explore Facebook users' underlying dispositions and extend current knowledge to a deeper understanding of what kinds of photo being predicted by what dispositions, and provides a new approach to assessment of applicants' and employees' personality in addition to self-reported personality tests.

**Subjects:** Work & Organizational Psychology; Industrial/Organization Psychology Tests and Assessments; Personality and Identity at Work; Personnel Selection, Assessment, and Human Resource Management

**Keywords:** personality; human resource management; self-expression; Facebook photos; social networks; room with a cue model (RCM)

### 1. Introduction

Facebook has become an essential communication and interpersonal relationship platform. Individuals use Facebook for entertainment, communication, relationship maintenance, and self-expression (Park & Lee, 2014). Facebook users can show their self-image to others through behavior like posting photos, describing interests and making comments. Although the kinds of self-image posted on Facebook have great variation, many of its users seem to attempt to project a self that is socially desirable (Zhao, Grasmuck, & Martin, 2008). These portrayed self-images could still be quite telling of their underlying personality (Shen, Brdiczka, & Liu, 2015).

Since personality acts as the leading factor in understanding why people behave the way they do on the internet (Amichai-Hamburger, 2002), the relationships between personality and social networking have intrigued many scholars' interest. Most of their studies focused on the

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### PUBLIC INTEREST STATEMENT

This paper will answer the question that for each Facebook photo category which personality traits are good predictors. This paper provides significant results beyond previous researches that investigate the relationships between personality and Facebook usage and behavior. This paper's findings of the relationships between personality and photos could have implications in human resource management.

relationships between personality and Facebook usage and behavior (Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011; Kuo & Tang, 2014; Moore & McElroy, 2012; Ross et al., 2009; Wang, 2013). For example, reporting less regret over what they post, spending less time on Facebook, more likely using Facebook to share things about themselves, and so on, were applicable to tell their underlying personality. However, the current study argues that Facebook photos could be another promising indicator to show the Facebook users' dispositions because they are the Facebook users' identity claims and behavioral residue (Gosling, Ko, Mannarelli, & Morris, 2002). Although some studies have investigated the relationships between photos and personality (Eftekhar, Fullwood, & Morris, 2014; Gosling, Gaddis, & Vazire, 2007; Ivcevic & Ambady, 2012; Rind & Gaudet, 1993; Wu, Chang, & Yuan, 2015), they were only concerned with the influences that general photo impression or photo amount have over personality traits. Few studies explored the associations between personality and photo content pertaining to the users' daily life events. If we observe Facebook users' albums, we can find that the content of their photos can be classified into distinct photo categories, which reflect their daily life events such as activities with friends, intellectual leisure activities (visiting museums, exhibitions, etc.), outdoor physical leisure activities, and so forth. From these photo categories, an individual's personality can be read. For example, people posting photographs with friends at various occasions seem to show others they are sociable and may reflect ones' extraverted disposition. Obviously, these photo categories provide more clear information about Facebook users' underlying dispositions than do the photo amount and general photo impression. Moreover, the relationships between personality and Facebook photographs are supported by the theory of "a Room with a Cue" model (RCM), which will be described in the literature review section.

In short, the current study contributes to the literature by exploring the research gap for a need to better understand what photographs are good indicators for revealing Facebook users' personality traits. To this end, the purpose of the current study is to investigate the relationships between Facebook users' personality traits and Facebook photo categories relating to the users' daily life events.

## 2. Literature review

### 2.1. A room with a cue model

In the current study, "Facebook photo categories" are defined as photos posted in Facebook and are classified according to Facebook users' daily life events. The rationale of Facebook photo categories reflecting one's personality is based on the "a Room with a Cue" model (RCM). Gosling et al. (2002) proposed RCM to explain the mechanism of personality judgment based on offices and bedrooms. Their model suggested that an individual's personality can be read from their identity claims and behavioral residue. Identity claims are symbolic statements made by individuals to reinforce their own self-views or to present to others how they would like to be regarded (Gosling et al., 2002). Identity claims can be things such as a room decoration, a collection, a poster of a movie star, and so on. On the other hand, behavioral residue refers to the physical traces of activities that took place, such as disorganized personal belongings, an alphabetized CD collection, or a concert ticket (Gosling et al., 2002). RCM can easily be extended from physical environments to virtual environments, such as personal websites (Vazire & Gosling, 2004). Vazire and Gosling applied this model and employed 11 website raters for rating the personality of 89 website users. The results indicated that the websites provided a coherent and accurate message to observers and that extroverted and agreeable users can through their websites enhance the observers' impression. Their findings suggested that identity claims could convey valid information about personality. Facebook photo categories could be one of the Facebook users' identity claims because the users can decide what kinds of photo to present to show who they are. They can utilize their photos to generate desired impressions to their viewers. Facebook photo categories can also be viewed as behavioral residue because they provide evidences and traces of the users' activities conducted somewhere. For instance, photos of doing

exercises present one's participation in these activities, which could reflect Facebook users' personality traits (Kuo & Tang, 2014).

## 2.2. Facebook photos and personality

Social networking websites like Facebook are a venue for self-presentation and uploaded photos are one of the main self-presentation (Buffardi & Campbell, 2008).

Facebook users can demonstrate themselves through explicit declarations such as their interests, but they appear to rely more on implicit in posted photos (Tifferet & Vilnai-Yavetz, 2014; Zhao et al., 2008). Gosling and colleagues (2007) applied the RCM to investigate personality impressions based on Facebook profiles. Ten randomly selected photos and a main profile page for each targeted Facebook user were investigated in the study. Observers were asked to assess the targets' personality traits by using the instrument of TIPI (Gosling, Rentfrow, & Swann Jr., 2003) through perusing the targets' main page and photos. Their results indicated that observer accuracy was positive and significant to personality traits of Extraversion, Agreeableness, Conscientiousness, and Openness to experience. Other similar studies can be found in literature. For example, judgments based on Facebook profile pictures highly correlated with personality traits ratings based on full information pages (Ivcevic & Ambady, 2012); higher narcissistic impression ratings were associated with greater physically attractive, sexy, and self-promoting photographs in the owners' Facebook (Buffardi & Campbell, 2008); when targets were photographed with constrained pose and facial expression, observers' judgments were accurate for Extraversion (Naumann, Vazire, Rentfrow, & Gosling, 2009); participants believed that their own profile pictures reflect their personality (Wu et al., 2015).

In addition to using the general photo impression obtained from the observers to measure Facebook users' personality, some studies investigated the relationships between photo amount and personality traits. For example, Kuo and Tang (2014) asserted that the number of photos was positively related to Extraversion, while it was negatively associated with Agreeableness and Emotional stability. Gosling and colleagues (2011) suggested that extroverted Facebook users were inclined to upload more photos than introverted ones, which appears to extend their offline personality into the domain of online social networking sites. Eftekhari et al. (2014) indicated that extroverted and neurotic users uploaded more photos; highly conscientious users had more self-generated photo albums. Basing on the Room with a Cue Model that photo categories could be one of Facebook users' identity claims and behavioral residues, from which personality can be read, and the literature's arguments above, the current study proposes the following hypothesis:

H: Facebook photo categories have significant relationships to personality traits

## 3. Method

In behavioral research, common method variance (CMV, i.e., variance attributable to the measurement method rather than to the constructs the measures represent) is a potential problem (Podsakoff, MacKenzie, & Podsakoff, 2003). The current study used a priori procedures recommended by Podsakoff et al. (2003) to reduce CMV. First, using different response scales for the measurement of the predictors (personality traits) and criterion variables (photo categories). This procedure could reduce biases in the retrieval stage of any contextually provided retrieval cues, and biases in consistency motifs and demand characteristics (Podsakoff et al., 2003). Second, allowing the respondents' answers to be anonymous and hiding the meaning of the items. This could reduce the biases of evaluation apprehension and social desirability (Podsakoff et al., 2003). Third, improving scale items by inviting Facebook users for pre-test. This procedure could avoid item ambiguity in comprehension stage so that to reduce the biases of implicit theories, affectivity, central tendency and leniency (Podsakoff et al., 2003). The most commonly used post-hoc approach, Harman's one-factor test, was used in the current study to verify whether the bias of CMV exists (Fuller, Simmering, Atinc, Atinc, & Babin, 2015). CMV may occur if an exploratory factor

analysis with all study variables produces eigenvalues suggesting the first factor accounts for more than 50% of the variance among variables (Fuller et al., 2015; Podsakoff & Organ, 1986).

### 3.1. Sample

The social networking samples used in most studies are from college students or young people partly because they are conveniently collected from colleges or websites. However, Facebook users of ages beyond college students (older subjects) become popular (Statista, 2017) and they seem to be necessarily recruited in the samples. In order to obtain a sample similar to the population of Facebook users, the participants in the current study included undergraduate students, graduate students, and older subjects. Before the formal questionnaires were released, 10 undergraduate students and 5 evening class graduate students were invited for pre-tests to ensure that the questions were well understood. After some vague wordings were revised, the formal questionnaires were distributed to the students in classes, and they were asked to use their smartphone to count the number of photos posted in their Facebook at each photo category (some students used computers to log in to their Facebook in a computer classroom). The questionnaire was also placed on a website for subjects outside the campus of the participated university. Since older subjects are not as active as young people in websites, they were recruited by using the snowball sampling approach (Strano, 2008; Zikmund, Babin, Carr, & Griffin, 2013), in which 30 initial participants were selected from the evening class graduate students, whose ages were between 30 and 50. The initial participants were told to invite their friends from as many different backgrounds as possible. The total numbers of respondents were 575. Of the sample, 47% of the respondents were males and 53% were females. As for age, 39% of the sample below 24 years old, 29% of the sample fell between the ages of 25 and 34, 21% between 35 and 44, 8% between 45 and 54, and 3% above 55 years old. Facebook users distribution worldwide in January 2017 by the same age groups were 39%, 29%, 15%, 8%, and 9%, respectively; as for gender, female users were 44% and male were 56% (Statista, 2017). Both age and gender distribution patterns in the current study are similar to worldwide patterns and thus approximately represent the general population of Facebook users.

### 3.2. Measures

#### 3.2.1. Personality

Two Big Five short version inventories with 10 items each, BFI-10 (Rammstedt & John, 2007) and TIPI (Gosling et al., 2003), were combined into a questionnaire and used simultaneously to measure participants' personality traits. The items are rated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Although these two instruments have been used in many occasions (Back et al., 2010; Gosling et al., 2011, 2007; Kuo & Tang, 2014; Wu et al., 2015), their reliabilities were not acceptable in this study (see Table 1). The combining BFI-10 and TIPI, named as BFSI-20 (Big Five Short version Inventories with 20 items), was therefore used to measure the personality traits. However, the BFSI-20 was also unacceptable because most of its  $\alpha$  coefficients were below 0.6 (see Table 1). The poor reliabilities of the BFI-10, TIPI, and BFSI-20 perhaps are because the method bias was produced by including negatively worded items (one negative item and one positive item for each personality trait construct in the BFI-10 and TIPI). The bias of the

**Table 1. The reliabilities comparison between BFI-10, TIPI, BFSI-20 and BFSI-10.**

Construct	Cronbach's alpha			
	BFI-10	TIPI	BFSI-20	BFSI-10
Extraversion	.441	.476	.691	.742
Agreeableness	.183	.080	.498	.644
Conscientiousness	.375	.408	.655	.637
Emotional stability	.424	.167	.585	.677
Openness to experience	.337	.131	.490	.630

negatively worded items may occur because once respondents establish a pattern of responding to a questionnaire, they may fail to attend to the positive-negative wordings of the items (Podsakoff et al., 2003; Schmitt & Stults, 1986). An item analysis method was used to revise BFSI-20, in which items were deleted because of their lower coefficients of corrected item-total correlation. Then, the remaining 10 items (named as BFSI-10) was obtained (see Appendix A). In the BFSI-10, all the  $\alpha$  coefficients were over 0.6 (see Table 1), showing the reliability of the instrument is acceptable (Hair, Black, Babin, & Anderson, 2010, p. 687). The CMV of the BFSI-10 was tested by using Harman’s one-factor test. Four unrotated factors were extracted from an exploratory factor analysis. The first factor accounts for 27.72% of the variance among the measures indicating CMV is not present. The validity of the BFSI-10 was tested by using Confirmatory factor analysis (CFA) with LISREL software. The Goodness-of-Fit indices for the measurement model of the BFSI-10 were:  $\chi^2/df = 3.02$ , NFI = 0.95, CFI = 0.96, RMSEA = 0.059, SRMR = 0.033, GFI = 0.97, indicating good fit. Most factor loadings to the corresponding personality traits exceeded 0.5 and statistically significant at  $p \leq 0.001$ ; meanwhile, all construct reliabilities (CR) exceeded 0.6 and most AVE estimates exceeded 0.5 (see Table 2). These indices show the BFSI-10 has good convergent validity (Hair et al., 2010, pp. 686–687). Regarding discriminant validity, the correlation matrix for the Big Five personality traits of the BFSI-10 is presented in Table 3. The result indicated that the value 1 or  $-1$  was not included within each confidence interval of the correlation estimate, demonstrating the BFSI-10 has good discriminant validity (Torkzadeh, Koufteros, & Pflughoeft, 2003, p. 266), and showing that these personality traits are distinct and not highly correlated.

To test whether the instrument BFSI-10 can apply to other samples, 575 participants were separated into two groups, younger and older groups. The younger group consists of 208 college students and the older group consists of 367 participants ages older than the college students.

**Table 2. Big Five short version inventory with 10 items (BFSI-10) validity and reliability.**

Construct/Item	Construct reliability (CR)	AVE	Completely standardized factor loading	Mean (Standard deviations)
<b>Extraversion</b>	.75	.61		3.38 (.78)
Is outgoing, sociable			.68	3.25 (.92)
Is enthusiastic			.87	3.51 (.83)
<b>Agreeableness</b>	.66	.50		3.06 <sup>r</sup> (.75)
Tends to find fault with others			.58	3.03 <sup>r</sup> (.88)
Is critical			.81	3.08 <sup>r</sup> (.86)
<b>Conscientiousness</b>	.77	.66		3.56 (.68)
Does a thorough job			1.06	3.65 (.78)
Is self-disciplined			.44	3.46 (.80)
<b>Emotional stability</b>	.68	.51		2.60 <sup>r</sup> (.76)
Gets nervous easily			.70	2.49 <sup>r</sup> (.87)
Is easily upset			.73	2.71 <sup>r</sup> (.88)
<b>Openness to experience</b>	.63	.46		3.53 (.70)
Has an active imagination			.68	3.52 (.83)
Is open to new experiences			.67	3.54 (.80)

Note:  $\chi^2/df = 3.02$ , NFI = .95, CFI = .95, RMSEA = .059, SRMR = .033, GFI = .97; all the factor loadings are statistically significant ( $p \leq .001$ ). r denotes the score has been reversed.

**Table 3. The correlation matrix for the Big Five constructs of the BFSI-10.**

	Extraversion	Agreeableness	Conscientiousness	Emotion	Openness
Extraversion	1				
Agreeableness	-.31 (.05) [-.41 -.21]	1			
Conscientiousness	.24 (.05) [.14 .34]	-.03 (.05) [-.13 .07]	1		
Emotion	.09 (.06) [-.03 .21]	.29 (.06) [.17 .41]	-.12 (.05) [-.22 -.02]	1	
Openness	.81 (.04) [.73 .89]	-.39 (.06) [-.51 -.27]	.36 (.06) [.24 .48]	-.02 (.06) [-.14 .10]	1

Note: () denotes standard error of the correlation estimate; [] denotes confidence interval of the correlation estimate.

Configural invariance test, i.e., the same basic factor structure exists in all of the groups (Hair et al., 2010, p. 745), was conducted. The Goodness-of-Fit indices for the group 1 were:  $\chi^2/df = 2.15$ , NFI = 0.91, CFI = 0.94, RMSEA = 0.075, SRMR = 0.045, GFI = 0.95. The indices for the group 2 were:  $\chi^2/df = 2.47$ , NFI = 0.94, CFI = 0.96, RMSEA = 0.063, SRMR = 0.04, GFI = 0.97. In both groups except one-factor loading equal to 0.44, all factor loadings exceeded 0.5 and statistically significant at  $p \leq 0.001$ . The results indicated that both groups exhibited acceptable levels of model fit and validity, showing the constructs are congeneric across the groups. In summary, the BFSI-10 does not appear CMV and has good reliability and validity.

### 3.2.2. Photo categories

The current study developed a 20-item scale (Photo Categories Survey, PCS) to measure Facebook users' photo content in terms of their daily life events (see Appendix B). In this scale, the leisure activity photo categories were adapted from Kuo and Tang (2014), and the others were adapted from Wu et al. (2015), Nosko, Wood., and Molema (2010) and Strano (2008). A draft of 17 photo categories was built and presented to a focus group with 23 graduate students. After some discussions, another three photo categories were added, that is, interests and hobbies (motorcycles, cars, posters, various collections, DIY projects, etc.), photos of attractive people (handsome men, beautiful women, movie stars, idols, etc.), and information (news and information from websites, TV, books, newspapers, magazines, advertising, etc.). The "other" category was not included for exhaustiveness because it does not help to draw meaningful explanation from personality, and the focus group believes the 20 categories are mutually exclusive and sufficient to cover the majority of Facebook users' photos. In order to minimize the effect of outliers and a large variance in the number of photos within each photo category, a Likert-type intensity scale with scores 1 to 5 (Ellison, Steinfield, & Lampe, 2007; Kuo & Tang, 2014) was used to measure the level of the posted photos (1 = 0, 2 = 1-5, 3 = 6-15, 4 = 16-39, 5 = 40 and above), in which the photo number ranges of the five scores were discussed and generally agreed within the 23 members of the focus group. The  $\alpha$  coefficients of the PCS was 0.94 showing the scale has good reliability. Four unrotated factors were extracted and the first factor accounts for 47.6% of the variance among the items indicating CMV is not a problem.

### 3.3. Analysis

Multiple regression models were used to investigate the associations between personality traits and Facebook photo categories. Since personality traits are enduring personal characteristics, which are not easily affected by other factors, they were treated as independent variables (e.g.,

Eftekhar et al., 2014) and photos categories were viewed as dependent variables in the current study. Twenty multiple regression models with five personality traits (i.e., Extraversion, Agreeableness, Conscientiousness, Emotional stability, and Openness to experience) in each model were proposed. A stepwise regression analysis was performed to explore which of the personality traits are the good predictors for each Facebook photo category. This analysis was conducted by using SPSS software.

#### 4. Results

Table 4 presents the results of the regression analysis. Based on the stepwise method used, *Extraversion* was the strongest significant predictor for most photo categories, which include: self-portraits, traveling with friends, traveling alone, activities with family, activities with friends, meetings, artistic leisure activities, intellectual leisure activities, indoor physical leisure activities, outdoor physical leisure activities, random shots, interests and hobbies, photos of attractive people, information, pets, and food. All coefficients of photo categories mentioned above, except photo category pets ( $p \leq 0.01$ ), were statistically significant at the  $p \leq 0.001$  level. *Conscientiousness* was found to be the most significant predictor for traveling with family ( $p \leq 0.05$ ), and animals and nature ( $p \leq 0.001$ ). *Openness to experience* made the highest significant contribution to predict architecture ( $p \leq 0.01$ ), and scenery ( $p \leq 0.01$ ). Moreover, *Emotional stability* was the second strongest predictor for self-portrait ( $p \leq 0.01$ ), random shots ( $p \leq 0.05$ ), and photos of attractive people ( $p \leq 0.05$ ). Facebook users scoring low on *Emotional stability* (i.e., high on *Neuroticism*) were more likely uploading these photo categories. *Agreeableness* had relatively small influences but appeared to be a significant, negative predictor for photos of attractive people ( $p \leq 0.05$ ). Consequently, hypothesis that Facebook photo categories have significant relationships to personality traits is supported.

#### 5. Discussion

The current study utilized “a Room with a Cue” model (RCM) to explore the relationships between personality traits and Facebook users’ photo categories among a wide population of Facebook users from Taiwan. The current study is to my knowledge the first to focus on these relationships and gets many interesting findings. The first set of findings regards the application of the RCM. The current study provides strong evidence that Facebook photo categories are Facebook users’ identity claims and behavioral residue, and are good indicators of telling the users’ underlying dispositions. Facebook users through posting their photos can present to others who they are. The findings of Facebook photo categories having relationships with personality traits support the RCM that this model not only can be used in physical environments but also can be applied in virtual settings.

The second set of findings regards the associations between personality traits and Facebook photo categories. In line with the previous study that extraversion predicted a variety of behavioral traces (Gosling et al., 2011), the current study’s findings indicated that the highly extroverted Facebook users were more likely to display photos on most photo categories. Those who are extroverted tend to be sociable, gregarious, assertive, talkative, active, and energetic (Barrick & Mount, 1991). Thus, they are more inclined to engage in various interests and activities. These interests and activities could be captured using photos and be displayed on Facebook for projecting the images the users wish to present to others. Apart from *Extraversion*, the other four personality traits also serve as good predictors for certain photo categories. For example, *Openness to experience* was the strongest, most significant predictor for photo categories of architecture and scenery. Architecture itself reflects its design, culture, and creativity; scenery could be a source of inspiration for creators. These are the favors of open people because they are imaginative, cultured, and curious (Barrick & Mount, 1991). Therefore, open individuals are more likely to have these kinds of pictures. This finding complements the Eftekhar and colleagues’ (2014) study, which only examined the quantity of photos and found no significant association with *Openness to experience*. Regarding *Conscientiousness*, it was the most significant predictor for photo categories of animals and nature and traveling with family. Conscientious people are more likely to engage in safer and less stress activities. These pictures seem to be the residues of these activities which reflect the traits of conscientious people who are

**Table 4. The regression results for the effects of personality on photo categories.**

Personality/Overall model fit	Photo categories				
	Self Portrait	Traveling with family	Traveling with friends	Traveling alone	Activities with family
	Beta	Beta	Beta	Beta	Beta
<b>Personality</b>					
Extraversion	.277***	.098*	.237***	.178***	.178***
Agreeableness	-.024	.025	-.007	-.068	.032
Conscientiousness	.005	.101*	.046	.071	.168***
Emotional stability	-.121**	-.062	-.037	.007	-.044
Openness to experience	.055	.099*	.112*	.134**	.055
R <sup>2</sup>	.085	.049	.098	.076	.069
<b>F Ratio</b>	26.480***	9.783***	31.004***	23.484***	21.225***
	<b>Activities with friends</b>	<b>Meetings</b>	<b>Artistic leisure activities</b>	<b>Intellectual leisure activities</b>	<b>Indoor physical leisure activities</b>
<b>Personality</b>					
Extraversion	.209***	.279***	.254***	.185***	.207***
Agreeableness	-.018	-.030	-.037	-.056	-.022
Conscientiousness	.050	.079	.063	.103*	.084*
Emotional stability	-.064	.045	-.011	-.003	.059
Openness to experience	.099*	.031	.080	.087	.132**
R <sup>2</sup>	.076	.078	.065	.051	.109
<b>F Ratio</b>	23.624***	48.236***	39.513***	15.244***	23.229***
	<b>Outdoor physical leisure activities</b>	<b>Random shots</b>	<b>Interests and hobbies</b>	<b>Photos of attractive people</b>	<b>Information</b>
<b>Personality</b>					
Extraversion	.261***	.273***	.184***	.241***	.202***
Agreeableness	-.016	-.066	-.052	-.083*	-.052

(Continued)

**Table 4. (Continued)**

Personality/Overall model fit	Photo categories											
	Self Portrait		Traveling with family		Traveling with friends		Traveling alone		Activities with family		Animals and nature	
	Beta		Beta		Beta		Beta		Beta		Beta	
Conscientiousness	.146***		.020		.091*		.028		.051		.036	
Emotional stability	.028		-.092*		-.039		-.089*		-.080		-.024	
Openness to experience	.081		.060		.085		.068		.072		.144***	
<b>R<sup>2</sup></b>	.101		.078		.048		.080		.041		.123**	
<b>F Ratio</b>	32.252***		24.200***		14.274***		16.580***		24.326***		19.322***	
	<b>Pets</b>		<b>Food</b>		<b>Architecture</b>		<b>Scenery</b>					
<b>Personality</b>												
Extraversion	.131**		.236***		.080		.064		.036		.036	
Agreeableness	-.005		-.023		-.060		-.020		-.024		-.024	
Conscientiousness	.031		.124**		.057		.157***		.144***		.144***	
Emotional stability	-.056		-.109**		-.031		-.054		-.014		-.014	
Openness to experience	.079		.010		.206***		.160***		.123**		.123**	
<b>R<sup>2</sup></b>	.017		.088		.042		.063		.045		.045	
<b>F Ratio</b>	10.066**		18.408***		25.336***		19.322***		13.554***		13.554***	

\*  $p \leq .05$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$ . Beta is a standardized coefficient.

careful, responsible, organized, and plan-oriented (Barrick & Mount, 1991). The current study's finding that Facebook users having low emotional stability (neuroticism) were more likely uploading self-portraits was in line with the previous study that neuroticism was a positive significant predictor of trying to impress others with the photos of self-posted on Facebook (Michikyan, Subrahmanyam, & Dennis, 2014). The individuals displaying higher neuroticism perceive life as stressful, are dissatisfied with social supports, and have low psychological well-being (McRae, 1990). The results showed that Facebook users scoring high on photos of attractive people are prone to low agreeableness. Low agreeable people are suspicious and antagonistic towards others. They cannot get along well with others, which may facilitate their psychological absorption with attractive people (movie stars, idols, etc.) through collecting their photos in an attempt to establish an identity and a sense of fulfilment (Maltby et al., 2004; McCutcheon, Lange, & Houran, 2002). Self-presentation is the present of self that individuals tended to perform intentionally and desired to be seen by others (Wong, 2012). Past studies have indicated many ways to present self on Facebook (Pempek, Yermolayeva, & Calvert, 2009; Seidman, 2013; Wong, 2012). The current study's findings of the personality traits being associated with Facebook photo categories suggest that photos can be another good way to present self. Furthermore, the present study also extends current knowledge to a deeper understanding of what kinds of photo being predicted by what dispositions.

The third set of findings regards the way of personality assessment by using Facebook photos. In previous studies (Gosling et al., 2007; Ivcevic & Ambady, 2012; Rind & Gaudet, 1993), judges were asked to rate the Facebook users' personality traits basing on an examination of the photos uploaded on the Facebook. If the judges do not have good training, they will not obtain an accurate personality assessment. Instead of using judges' subjective evaluation, the current study adopted Facebook users' self-reported photos measured by using the PCS to investigate the relationships between photo categories and personality traits. The results indicated that each Big Five personality trait can be a good predictor for certain photo categories. This finding has extended previous studies in demonstrating that photo quality (i.e., photos categorized by daily life events) conveys more information about Facebook users' personality traits than does photo quantity, which only predicted *Extraversion* (Eftekhar et al., 2014; Gosling et al., 2011) or *Neuroticism* (Eftekhar et al., 2014). Moreover, in past studies, only few personality traits were found to significantly predict Facebook usage and behavior (Gosling et al., 2011; Kuo & Tang, 2014; Moore & McElory, 2012; Wang, 2013; Wilson, Fornasier, & White, 2010). Different from past studies, the current study focused on Facebook photo categories rather than Facebook usage and behavior and found that photos can be good indicators for reflecting most Facebook users' personality traits. This finding also expands literature a new field to explore Facebook users' underlying dispositions.

## 6. Implications

Personality influences the way individuals feel, think and behave. The influence of personality has been widely accepted by managers and is used by them to guide their decisions about employees and interactions with others at work (Barrick & Mount, 2005). There is much evidence that people choose jobs to fit their own personality (Furnham, 2001). Particular personality traits are congruent with vacations that permit the expression of their preferred ways of thinking, feeling and acting (Costa, McCrae, & Kay, 1995). If people are in jobs accordant with their personality, they tend to be more satisfied and are less likely to resign (Holland, 1997; Robbins & Judge, 2013). It has been also observed that personality is a valid predictor of job performance (Barrick & Mount, 1991; Dudley, Orvis, Lebiecki, & Cortina, 2006; Hough & Oswald, 2000; Penney, David, & Witt, 2011; Rothmann & Coetzer, 2003; Salgado et al., 2014; Tett, Jackson, & Rothstein, 1991; Yang & Hwang, 2014).

Owing to the association of personality with jobs, personality tests are being used as a selection method in organizations (Ones & Viswesvaran, 2001; Rothstein & Goffin, 2006; Ryan, McFarland, Baron, & Page, 1999). However, many previous studies have noticed the limited criterion validity and faking of self-reported personality tests (Galić, Jerneić, & Kovačić, 2012; Griffith & Peterson, 2008; Hough & Oswald, 2008; Morgeson et al., 2007a, 2007b; Ones, Dilchert, Viswesvaran, & Judge, 2007; Tett & Christiansen, 2007; Viswesvaran & Ones, 1999). Several approaches have appeared to

reduce the effect of faking on the tests (Dwight & Donovan, 2003; Mueller-Hanson, Heggstad, & Thornton III, 2003; Rothstein & Goffin, 2006). Beyond the predominant self-reported personality assessment, other-rated personality through social networking sites seems quite promising in the selection context (Ollington, Jibb, & Harcourt, 2013). Since social networking sites contain a great amount of personal information, employers have begun using this information to improve hiring decisions for new employees (Brown & Vaughn, 2011; Chauhan, Buckley, & Harvey, 2013; Elzweig & Peeples, 2009; Gosling et al., 2007; Hammer & Parrish, 2013; Klumper & Rosen, 2009). Particularly, Facebook is the most popular site used to screen applicants among recruiters (Ollington et al., 2013). Uploading photos is a popular behavior among Facebook users. Although Facebook users may provide skewed information in effort to be viewed more favorably, photos seem to be difficult to fake (Ollington et al., 2013) because they are easily noticed by the viewers. Therefore, besides considering applicants' qualification, skills, and competencies, the current study's findings of the relationships between photo categories and personality traits could help recruiters or managers to select applicants or assign employees whose personality are most congruent with corresponding posts. For example, applicants scoring high on the photos of architecture and scenery may hold openness personality. They could be good candidates for artistic posts, i.e., prefers ambiguous and unsystematic activities that allow creative expression such as artist, designer, interior decorator, and jobs needing creative thinking (Gottfredson, Jones, & Holland, 1993). Those who have high score on the photos of attractive people are less likely agreeable. Individuals with low agreeableness personality will be less inclined to trust or help others, more inclined to be cold or antagonistic (Nettle, 2009, p. 165), which can be seen as argumentativeness (Toegel & Barsoux, 2012). Therefore, they may be unsuitable for customer service posts. On the other hand, individuals scoring low on agreeableness are argumentative, egotistical, aggressive, headstone and hostile, which make them willing to argue and fight for their ideas and getting their ideas implemented (Hunter & Cushenbery, 2014). Therefore, these low agreeableness people seem to be advantageous for the posts necessary for promoting one's ideas or company's policies. Applicants scoring high on most photo categories could be extroverts. They could be potential candidates for a manager position because extraversion is a relatively strong predictor of leadership emergence in groups (Foti & Hauenstein, 2007). Applicants having high score on animals and nature photos tend to be conscientious. They could be candidates for posts of conventional preferences, i.e., prefers rule-regulated, orderly, and unambiguous activities such as accountant, secretary, administrative assistant, and office clerk, because they were correlated with conscientiousness (De Fruit & Mervielde, 1997; Gottfredson et al., 1993). Applicants scoring high on self-portrait photos are inclined to psychological stress (neuroticism). They are more likely to have high turnover intention (David & Holladay, 2015) and score low on job performance (Salgado, 1997). Therefore, they may be suitable for temporary or sharing jobs. However, they also tend to be strivers and work incredibly hard in order to prevent any dangers they see ahead of them (Nettle, 2009). Moreover, Nettle notes that neurotic people unleash the power of rumination and ceaselessly go over the smallest details of a scenario; therefore, they are suitable for the knowledge work, i.e., jobs with anticipating problems or deeply understanding a subject such as scholars and scientists.

## 7. Limitations and future research

Despite above strengths, the current study has some limitations. Previous studies in social psychology have indicated the culture differences among countries (Hofstede, 1983). The participants of the current study were Chinese people; thus, the results may not be generalized to Western countries. It will be interesting if further studies can explore the effects of the personality traits on the photo categories in cross-country comparisons. Moreover, some studies have examined gender as a possible factor influencing the posted photos on social networking sites (Bond, 2009; Tifferet & Vilnai-Yavetz, 2014). It will be worth considering gender as a control variable and investigating their interaction effects between gender and personality traits on the photo categories in further studies. Finally, although it is likely that the impact of faking in social networking sites is less than with other selection methods (Ollington et al., 2013), it should be cautious as implementing the current study's findings to select applicants. It can be used only as an auxiliary rather than a primary tool because of the different information publicizing criteria among applicants. The

employers should also be aware of the legal issues such as discrimination since the photos easily reveal the applicants' statuses of some specific issues. Therefore, future researches could focus the criterion validity that extends current study to investigate the relationships between Facebook photos, job performance, job satisfaction, and other job attitudes, so that to get more evidences to support the suitability of selection by using Facebook photos.

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## Appendix A

### Big Five Short version Inventory with 10 items (BFSI-10)

I see myself as someone who ...

- (1) is outgoing, sociable
- (2) tends to find fault with others
- (3) does a thorough job
- (4) gets nervous easily
- (5) has an active imagination
- (6) is enthusiastic
- (7) is critical
- (8) is self-disciplined
- (9) is easily upset
- (10) is open to new experiences

Notes: The items are rated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items 1 to 5 were adopted from the BFI-10 (Rammstedt & John, 2007); items 6 to 10 were adopted from the TIPI (Gosling, Rentfrow & Swann Jr., 2003). The Big Five personality traits scoring:

Extraversion: 1, 6; Agreeableness: 2r, 7r; Conscientiousness: 3, 8; Emotional stability: 4r, 9r; Openness to experience: 5, 10 (“r” denotes revers-scored item).

### Appendix B

#### Photo Categories Survey (PCS)

The Facebook photos will be classified into the following categories. Please log on to your Facebook account, count the number of photos in each category, and mark the appropriate circle.

	1= 0	2= 1~5	3= 6~15	4= 15~39	5= 40 and above
1. Self Portrait (at places such as restaurants, scenic locations, at home, etc.)	<input type="radio"/>				
2. Traveling with family (traveling with parents, children, brothers, sisters, and relatives for at least a day)	<input type="radio"/>				
3. Traveling with friends (traveling with friends for at least a day)	<input type="radio"/>				
4. Traveling alone (self-touring or attending tours alone for at least a day, photos are taken by others)	<input type="radio"/>				
5. Activities with family (various types of parties and activities with family such as birthdays, celebrations, and dinners)	<input type="radio"/>				
6. Activities with friends (various types of parties and activities with friends such as birthdays, celebrations, and dinners)	<input type="radio"/>				
7. Meetings (various meeting for different occasions such as graduation, lecture, taking classes, seminar, working, and study)	<input type="radio"/>				
8. Artistic leisure activities (operas, concerts, art galleries, art exhibitions, etc.)	<input type="radio"/>				
9. Intellectual leisure activities (museums, exhibitions, etc.)	<input type="radio"/>				

10. Indoor physical leisure activities (dancing, yoga, indoor exercises, sports and competitions, etc.)
11. Outdoor physical leisure activities (shopping, mountain climbing, camping, outdoor exercises, sports and competitions, etc.)
12. Random shots (of interesting things, street scenery, pedestrians, etc.)
13. Interests and hobbies (motorcycles, cars, posters, various collections, DIY projects, etc.)
14. Photos of attractive people (handsome men, beautiful women, movie stars, idols, etc.)
15. Information (news and information from websites, TV, books, newspapers, magazines, advertising, etc.)
16. Pets (photos without people)
17. Food (photos without people)
18. Architecture (photos without people)
19. Scenery (photos without people)
20. Animals and nature (flowers, birds, insects, various animals and plants without people)



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