Cultural influences on Facebook photographs

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Abstract

Prior research in social psychology indicates that East Asians from collectivistic and interdependent sociocultural systems are more sensitive to contextual information than Westerners, whereas Westerners with individualistic and independent representation have a tendency to process focal and discrete attributes of the environment. Here we have demonstrated that such systematic cultural variations can also be observed in cyberspace, focusing on self-presentation of photographs on Facebook, the most popular worldwide online social network site. We examined cultural differences in face/frame ratios for Facebook profile photographs in two studies. For Study 1, 200 digital profile face photographs of active Facebook users were randomly selected from native and immigrant Taiwanese and Americans. For Study 2, 312 Facebook profiles of undergraduate students of six public universities in East Asia (Hong Kong, Singapore, and Taiwan) and the United States (California and Texas) were randomly selected. Overall, the two studies clearly showed that East Asian Facebook users are more likely to deemphasize their faces compared to Americans. Specifically, East Asians living in Hong Kong, Singapore, and Taiwan exhibited a predilection for context inclusiveness in their profile photographs, whereas Americans tended to prioritize their focal face at the expense of the background. Moreover, East Asian Facebook users had lower intensity of facial expression than Americans on their photographs. These results demonstrate marked cultural differences in context-inclusive styles versus object-focused styles between East Asian and American Facebook users. Our findings extend previous findings from the real world to cyberspace, and provide a novel approach to investigate cognition and behaviors across cultures by using Facebook as a data collection platform.

Keywords

Facebook; Culture and cognition; Self-concept; Cultural differences; Context processing

Psychologists have provided abundant evidence demonstrating that the context of one's culture affects cognition and social behavior, with systematic differences observed between East Asians (specifically, Japanese, Korean, and Chinese) and Westerners with respect to visual perception, attention, and reasoning (Nisbett & Masuda, 2003; Nisbett, Peng, Choi, & Norenzayan, 2001) as well as motivation, relationality, and self-concept (Markus & Kitayama, 1991; Oyserman, Coon, & Kemmelmeier, 2002). Westerners, due to the individualistic, independent, and self-based focus of their culture, have a tendency to process focal objects and organize information via rules and categories in an analytic way. In contrast, East Asians, based on their collectivist and interdependent representation, tend to view themselves as part of a larger whole, resulting in a holistic information-processing bias where object and contextual information are jointly encoded (Kitayama & Uskul, 2011; Masuda & Nisbett, 2001; Nisbett & Masuda, 2003; Park & Huang, 2010).

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Such context-inclusive styles for East Asian and object-focused styles for Westerners were observed on the perception of simplistic and abstract visual stimuli. For example, Kitayama, Duffy, Kawamura, and Larsen (2003) asked Japanese and Americans to reproduce the display after a square frame containing a vertical line was shown. Japanese tended to be more accurate at drawing the line in the relative (proportional) task, suggesting better memory for contextual relationships, but Americans were more accurate in the absolute (context-dependent) task, suggesting better memory for the exact size of the focal object. More recently, Masuda, Gonzalez, Kwan, and Nisbett (2008a) further explored cultural differences in drawing and photographic styles employed by contemporary artists. After analyzing Web-accessible digital images of portraits selected from representative museums in East Asia and the United States, they found that the ratio of the size of the face to the size of the entire frame was substantially smaller in East Asian portraits than in Western portraits, suggesting the attentional tendency for East Asian painters to deemphasize the face and to engage more contextual field information, while Westerners tended to take portraits with the person's face occupying a larger proportion of the picture. Similarly, a study of photograph-taking behavior indicated that when taking photographs of a model, East Asians preferred to make larger backgrounds and smaller models compared to Americans when they were free to set the zoom function of the camera as they saw fit. In addition, when participants were asked to rate the quality and choose the best photographs from sets of pictures, Japanese were less likely than Americans to appreciate extremely narrow backgrounds and larger faces of models. These results indicated that the internalized cultural predilections in visual attention, predominantly context-inclusive styles for East Asians and object-focused styles for Westerners, affect varied artistic and photographic expressions (Masuda et al., 2008a; Morling & Lamoreaux, 2008).

Internet connectivity has become integrated into the milieu of social activities of most societies and is widely used across the world as a popular platform for interaction and social expression (Valkenburg & Peter, 2009). Given the evidence described above showing that internalized cultural predilections shape cognition, it is reasonable to posit that sustained exposure to a set of cultural practices will affect individuals' social cognition both in the offline world and in cyberspace. Internet websites, particularly online social network sites such as Facebook and MySpace, provide the cyberspace for active users to systemize their public profiles to communicate their motivation and interests to other social network participants such as relatives, friends, and strangers. The burgeoning field of social and personality psychology has provided evidence that there are striking consistencies in the way individuals express and communicate their personality at online social network sites that appear to be a product of extended social cognitions and behaviors (i.e., extended real-life hypothesis; Ambady & Skowronski, 2008; Vazire & Gosling, 2004). Specifically, online social network sites constitute an extended social context in which to reflect individuals' characteristics, providing personal information that mirrors private thoughts, facial images, and social behaviors (Ambady & Skowronski, 2008; Back et al., 2010; Vazire & Gosling, 2004).

The most popular online social network site is Facebook. As of January 2011, it attracted more than 500 million users who spent an average of almost one hour per day on this site (Facebook, 2011), and this global site had captured about 70% of social network users outside the United States. In addition, Facebook had been successful in providing people with a pathway to bridge their online (virtual world) and offline (real world) contacts with other people living in varied sociocultural environments. For example, with a valid email address, any user may create a personal profile complete with a profile photograph and a variety of specific personal information (e.g., hometown, current city, date of birth, current relationship status, favorite music/books/films, and the number of personal friends). This information is voluntarily supplied by Facebook users. Therefore, users are given the

opportunity to consider which aspects of their personality they prefer to present to other users and which profile photos convey the best images of themselves. Accordingly, Facebook users can actively manage their self-representation more systematically than in face-to-face situations (Ellison, Heino, & Gibbs, 2006; Krämer & Winter, 2008).

In the present study, we demonstrate the continuity of attentional tendencies associated with culture by studying variations of visual image on Facebook as a function of culture. We measured the ratio of the face area to the area of the entire profile photograph and analyzed the characteristics of profile photographs across cultural groups. As the area of the face becomes larger, it limits the space of photo for contextual information (Masuda et al., 2008a). In Studies 1 and 2, we examined cultural differences in self-presentation of Facebook profile photographs with objective and subjective measures, respectively. In Study 2, we further tested the impact of culture on Facebook profile photos from a variety of cities in East Asia and the United States. Given the evidence of the context-inclusive styles utilized by East Asians and object-focused styles preferred by Westerners in visual presentation, we hypothesized that the East Asian Facebook users would be predisposed to post profile photos that depicted less face area and incorporated more context, whereas Western Facebook users would post personal profile photos where context was less salient.

STUDY 1

The first study examined the cultural differences in profile photographs at online social network sites (i.e., Facebook). Individuals from Taiwan and the United States were selected; half of each group lived in their culture of origin and half were immigrants to the other culture.

Methods

Samples—A total sample of 200 public digital profile photographs with faces of active Facebook users (ages 18–29) in Taiwan and the United States were randomly selected across gender using the network search tool provided by Facebook between February 10, 2010 and February 18, 2010. There were four groups of subjects: 50 Taiwanese students in National Taiwan University in Taipei, Taiwan and 50 American students from the University of Illinois at Urbana-Champaign, IL; in addition, we selected 50 Taiwanese nationals studying at the University of Illinois and 50 Americans currently studying in Taipei, Taiwan. To isolate the cultural group, we used the Facebook search tool and located their current city and hometown by their self-reported information. To isolate the 50 Taiwanese subjects, we filtered their current city to "Taipei, Taiwan" and hometown to "Taiwan". This yielded more than 1000 profiles and from these, 50 students were randomly selected across gender by eliciting a random number generator, with 26 males and 24 females. We used a similar search process to isolate 50 students at the University of Illinois by filtering their current city to "Champaign, IL" and hometown to any cities in the "United Sates", focusing on Caucasians (25 males, 25 females) based on their online photographs. We also isolated 50 Taiwanese students at the University of Illinois (26 male, 24 females) by filtering their current city to "Champaign, IL" and hometown to any cities in "Taiwan." Similarly, 50 Americans who were currently studying in Taiwan were selected by filtering their current city to "Taipei, Taiwan" and hometown to any cities in the "United Sates," focusing on Caucasians based on their online photographs (27 males, 23 females). Because we are interested in how culture influences the way subjects present their face, any individuals who used a nonhuman object such as animated pictures, portraits of animals, and scenic settings were excluded from the selections. Also, photos with low resolution (fewer than 200×121 pixels) were excluded.

Measures—To evaluate the cultural variation in the use of context in profile photos on Facebook, we followed the procedure conducted by Masuda et al. (2008a) and measured the ratio of the face area to the area of the entire frames by using software ImageJ (National Institute of Health, USA). The face area was measured according to the following two criteria: (1) Height was determined by measuring the distance from the top of the head to the chin, including hair or hat, and (2) width was determined by measuring the longest horizontal distance across the entire face, excluding hair and hat.

Results and discussion

For all analyses, we adopted an overall significant level of at least $p < .05$. A two-way analysis of variance (ANOVA) was conducted with *culture of original group* (Taiwanese vs. American) and *culture location* (Taiwan vs. United States) as between-subjects independent variables, and the ratio of face area as the dependent variable. The analysis revealed a significant main effect of culture of original group: Taiwanese showed smaller ratio of face areas on Facebook photos than Americans, regardless of the cultural locations of the Facebook users, $F(1, 199) = 7.57$, $p < .01$, $\eta^2 = 0.037$ (means of 8.81 % and 12.67 % for Taiwanese and Americans respectively). Neither the main effect of *cultural location*, $F(1, 199) = 2.35$, $p = .13$, $\eta^2 = 0.012$, nor *culture of original groups by cultural location interaction*, $F(1, 199) = 0.58$, $p = 0.45$, $\eta^2 = 0.003$, reached significance. These results first demonstrated that Taiwanese deemphasized their faces and exhibited a predilection for context inclusiveness in Facebook profile photos, whereas Americans tended to prioritize the focal figure at the expense of the background. Although not significant, we do note that congruent with the holistic/analytic hypothesis (Nisbett & Masuda, 2003; Nisbett et al., 2001), Americans studying in Taiwan and Taiwanese studying in the United States both showed a tendency to adjust their profile photos to perceptual tendencies of their host country (see Figure 1).

STUDY 2

The finding of Study 1 suggests that there is a cultural variation of attentional tendencies at online social network sites. We considered, however, that ecology such as climate can have substantial impact on psychological process (Kitayama & Uskul, 2011) and might play a role in self-presentation, as the Taipei students were in warmer environments, possibly leading to a more contextual, outdoor presentation of photos that would include more contexts. We thus collected new data from cities with more comparable climates and from a broader range of cities as well. For Study 2, we collected Facebook profiles from three Asian and three US cities with more comparable climates: Hong Kong, Singapore and Taipei in East Asia and San Diego, CA, Austin, TX, and Berkeley, CA in the US. Moreover, Facebook penetration rates were comparable among these cities. Digital profile photographs and number of friends of each profile were examined in this study. In addition, to evaluate the potential culture-independent and culture-specific characteristics of profile photos on Facebook, we examined the characteristics on profile photos, including body portion, number of people, background, and smile intensity, which had been suggested to play critical roles on interpersonal perception and impression agreement on online social networks (Krämer & Winter, 2008; Fitzgerald Steele, Evans, & Green, 2009). Given the evidence form Study 1, we predicted that East Asian Facebook users living in Hong Kong, Singapore, and Taiwan would present their online profile photos in context-inclusive style, which depicted less face area and incorporated more context, whereas Western Facebook users living in California and Texas would post personal online profile photos where context was less salient. Moreover, based on previous studies of cultural psychology in laboratory, we expected that American Facebook users would demonstrate greater smile intensity, a

smaller number of friends, more head-only presentation, and equivalent outdoor-scene background in photos, compared to their East Asian counterparts.

Methods

Samples—A total sample of 312 profiles accessible on Facebook of undergraduate students (age 18–24 years) of public universities in three East Asian regions and three areas in the United States were selected using the network search tool provided by Facebook, between February 20, 2010 and March 5, 2010. The universities were selected according to student population and had a high level of student selectivity. The Asian universities selected were the Chinese University of Hong Kong, the National University of Singapore, and National Taiwan University. The American universities selected were the University of California, San Diego, the University of Texas at Austin and the University of California–Berkeley. None of the selected samples from Study 1 were utilized in this study. Fifty-two undergraduate students were randomly selected across genders from each university, and the male/female distribution ranged from 30/22 to 25/27 (see Table 1). These were public profile photographs and self-reported information on Facebook that were posted by active users. The procedures for selection were the same as those described in Study 1.

We should note that the regions sampled in this study were ranked as the top three populations of Facebook users in East Asia (52.4%, 49.7%, and 47.1% for Hong Kong, Taiwan, and Singapore, respectively) and the top two populations of Facebook users in the United States (51.5% and 44.6% for California and Texas, respectively) (Socialbakers, www.facebakers.com), reflecting a representative sample of Facebook users from each cultural environment. In addition, these regions reported a constant climate with relatively warm weather and above-average daily sunshine hours (National Oceanic and Atmospheric Administration, www.noaa.gov). In order to treat "City" as a systematic variable, we ranked the cities within each culture from small to large so that for Asia, the cities were Taipei, Singapore, Hong Kong and for the US cities, the order was Berkeley, Austin, and San Diego. This allowed us to assess interactions between culture and city.

Measures—Digital profile photographs and number of friends of each profile were both examined in this study. In the analysis of profile photographs, we measured the ratio of the face area to the area of the entire frame for each sample. The criteria for identifying the area of the face (Masuda et al., 2008a) and measuring method were identical to those in Study 1. Because public information was voluntarily supplied and could change across days, we recorded the number of friends associated with each profile on March 5, 2010.

To evaluate the potential culture-independent and culture-specific characteristics of profile photos on Facebook, three independent raters who were blind to the hypotheses further coded each profile photo into four different categories, including body portion (head with full body, head only, or head with partial body), number of people (only one person, more than one person, or a large group with more than six persons), background (indoor, outdoor, or unsure), and smile intensity (smile with teeth, smile without teeth, or no smile) (Abel & Kruger, 2010; Freese, Meland, & Irwin, 2007). These characteristics of profile photos posted at online social networks had been suggested to play critical roles in interpersonal perception and impression agreement (Fitzgerald Steele et al., 2009; Krämer & Winter, 2008).

Results and discussion

For all analyses, we adopted an overall significance level of at least $p < .05$. A two-factor (culture and city) ANOVA including the ratios of face area as dependent variable revealed a significant main effect of culture: Americans showed significantly larger size of the ratio of face areas on Facebook profile photos than their East Asian counterparts, $F(1, 306) = 15.53$,

$p < .01$, $\eta^2 = 0.048$ (Table 1). In addition, neither the city main effect, $F(2, 306) = 0.39$, $p = .68$, $\eta^2 = 0.003$, nor the interaction of culture with city reached significance, $F(2, 306) = 0.64$, $p = .53$, $\eta^2 = 0.004$. Thus the results confirmed our findings from Study 1.

Another two-factor (culture and city) ANOVA that included the number of friends as dependent variable revealed no effect of culture, $F(1, 306) = 6.928$, $p = .53$, $\eta^2 = 0.002$, or interaction of culture with city, $F(2, 306) = 1.32$, $p = .27$, $\eta^2 = 0.019$. The main effect of city, however, was significant, $F(2, 306) = 6.928$, $p < .01$, $\eta^2 = 0.06$. An examination of means suggests that students in Taipei and Berkeley had the fewest friends whereas students in Austin and Singapore had the most (see Table 1), reflecting that the tendency to communicate and associate with other Facebook users may be more tightly bound to local than to national culture.

The reliability coefficient for the coding of characteristics among three raters was high (averaged kappa = 0.93). Therefore, we averaged across raters for the four categories (a total of 12 items) and computed proportions (percentage of total number) in which the characteristics were manifested as shown in Table 2. The results indicated that East Asians and Americans showed similar presentations of background information, as there was no effect of indoor/outdoor background ($\chi^2 = 0.20$, $p = 0.905$), nor did the cultures differ in the number of people in their profile photos ($\chi^2 = 4.46$, $p = 0.107$). However, culture-specific presentations of body portion ($\chi^2 = 17.33$, $p < .01$) and smile intensity ($\chi^2 = 7.57$, $p < .05$) on their profile photos were reported. With regard to body portion, Americans were more likely to exhibit their entire face without other body part on the photo, demonstrating their preference for prioritizing their face at the expense of the background, consistent with the holistic/analytic hypothesis (Nisbett & Masuda, 2003; Nisbett et al., 2001). Interestingly, with regard to smile intensity, Americans tended to show greater intensity of smiling (i.e. smile with teeth) compared to their East Asian counterparts (58.3% vs. 45.5%), whereas East Asians more likely to be less emotionally expressive (i.e. smile without teeth) than Americans (28.6% vs. 16.5%), reflecting the cultural variations in emotional expression for happiness when personal photographs were taken by others. This finding is consistent with a series of previous results showing that the intensity of Easy Asians' facial expression was weaker than that of North Americans (Chim, Moon, & Tsai, 2009; Tsai, 2007; Tsai, Knutson, & Fung, 2006; Tsai, Louie, Chen, & Uchida, 2007; Tsai, Miao, & Seppala, 2007). Furthermore, our result is considered in light of evidence that American culture encourages open emotional expression for happiness (Kitayama & Markus 1994; Kitayama, Markus, & Kurokawa, 2000; Matsumoto, 2009) and of observation that East Asian cultures place greater emphasis on promoting emotional balance and control (Markus & Kitayama, 1991; Matsumoto, 2009; Uchida & Kitayama, 2009).

GENERAL DISCUSSION

Overall, our results demonstrated cultural variations in online social network (Facebook) profile photographs. Study 1 examined the salience of face versus background in the online profile photos among four cultural groups: native and immigrant Taiwanese and Americans. The results indicated that Taiwanese Facebook users exhibited a predilection for context inclusiveness whereas American Facebook users tended to prioritize the focal face in profile photos. Study 2 demonstrated the generality of the effect, as natives were sampled from three East Asian and three American cities. We reported that Americans tended to exhibit their entire face without other body parts and also were more likely to show greater smile intensity compared to their East Asian counterparts on Facebook profile photos. The finding is congruent with the notion of context-inclusive styles for East Asian and object-focused styles for Westerners (Kitayama & Uskul, 2011; Masuda & Nisbett, 2001; Nisbett & Masuda, 2003; Park & Huang, 2010), and provides evidence supporting the notion that

culture-preferred styles are implicitly embedded in cultural products (Morling & Lamoreaux, 2008; Masuda et al., 2008a). We believe this may be the first demonstration that culture influences self-presentation on Facebook, the most popular worldwide online social network site.

Given the suggestion that Facebook constitutes an extended social context and mirrors various perspectives of individuals' characteristics into a personal profile (Ambady & Skowronski, 2008; Back et al., 2010; Vazire & Gosling, 2004), the cultural differences of attentional biasing between focal face and contextual information in the virtual world (i.e., Facebook) is likely derived from repeated exposure to culturally characteristic systems (Markus & Kitayama, 1991; Masuda & Nisbett, 2001; Miyamoto, Nisbett, & Masuda, 2006; Oyserman et al., 2002). One seminal framework for understanding the impact of culture on visual attention suggests that sustained social practices and ideas of interdependence in East Asian cultures (specifically, Japan, Korea, Taiwan, China, and Hong Kong) facilitate their sensitivity to social and contextual cues, and the training of social practices and ideas of independence in Westerners shapes their emphasis on focal and discrete attributes of the environment (Masuda & Nisbett, 2001; Nisbett & Masuda, 2003). Although there is no significant effect of acculturation in Study 1, our data found that Americans studying in Taiwan and Taiwanese studying in the United States both showed a tendency to adjust their profile photos to attentional biases of their host country, congruent with the prediction of the situated cognition hypothesis and the notion of the holistic/analytic hypothesis (Nisbett & Masuda, 2003; Nisbett et al., 2001). The observed cultural variation in the ratio of the face area to the entire frame on Facebook photos in the present study appears to result from cultural preferences for contextual processing. Recent studies have measured individuals' eye movements, suggesting that there are cultural preferences for attending to different aspects of visual images. For example, Chua, Boland, and Nisbett (2005) examined the pattern of eye movement in East Asians and Westerners when viewing scenes with embedded central objects. They reported that Westerners tended to fixate longer and more on focal objects, whereas Chinese participants had shorter fixation durations and more saccades to background scenes, indicating that East Asians are likely to see visual images contextually, attending to more relational information between objects and backgrounds. Following that, Goh, Tan, and Park (2009) reported a distinct eye-movement pattern within cultures, favoring the conclusion that East Asians are more sensitive to context in aesthetic preference and representational domains than Westerners. Finally, Masuda et al. (2008a) demonstrated that Americans took portrait photographs in which the face of the portrait occupied a larger area of the frame than the background, whereas photographs taken by Japanese consisted of a much larger portion of the background relative to the face. Therefore, we suggested that the cultural variations on Facebook profile photographs can be attributed to a context-inclusive preference for East Asians and object-focused preference for Westerners.

Although evidence on cultural variations of attentional tendency for the real world is accumulating, cultural influences on cognition and social behavior in the virtual world are still unexplored. In one of the crosscultural studies on the Internet, Masuda, Wang, and Ito (2008b) investigated the characteristics of the websites related to governmental institutions in East Asia (China, Japan, and Korea) and North America (Canada and USA). Despite not directly examining the cultural variations in context-inclusive versus object-focused styles on photographs, they reported that the home pages created by East Asians were more likely than those of their North American counterparts to have more verbose descriptions and to contain more links to other websites, suggesting a greater complexity of information presented by East Asians, in agreement with the notion of a more context-inclusive style. Congruent with these findings on cyberspace, our results demonstrated that East Asian Facebook users are more likely as well to display contextual information in photographs of

self. This extends the observation that the analysis of cultural values is implicitly embedded in cultural products (Morling & Lamoreaux, 2008), from traditional measures to Web-based measures.

There is an emerging literature suggesting that genders are differentially displayed on several traditional media such as newspapers and magazines in the real world, with women framed from a more distant perspective compared to men—a phenomenon known as "face-ism" or "face prominence" (Archer, Iritani, Kimes, & Barrios, 1983; Szillis & Stahlberg, 2007). The differential display of men and women has been suggested to be invariant across different cultural groups (Archer et al., 1983). In line with this perspective, we further examined whether gender impacted our findings. Our results showed that, although not significant, there was a tendency for men to be higher in facial prominence than women across cultures (male vs. female: 9.52 vs. 8.14% for Taiwanese, and male vs. female: 13.98% vs. 11.43% for Americans in Study 1; male vs. female: 7.99% vs. 7.05% for East Asians, and male vs. female: 13.67% vs. 11.63% for Westerners in Study 2), congruent with recent researches demonstrating gender differences in self-posted profile photos in online social network sites (Cooley & Reichart Smith, 2010; Smith & Cooley, 2010; Szillis & Stahlberg, 2007). Our findings are thus suggestive of a crossculturally invariant form of gender stereotype (Williams & Spencer-Rodgers, 2010) and provide evidence that cultural values as well as social gender stereotypes appear to be internalized by individuals and jointly influence their presentation of photographs in cyberspace.

One of the limitations of the work reported here is that, because we were interested in how culture influences the way individuals present their face on cyberspace, all nonhuman objects (e.g., animated pictures, portraits of animals, and scenic settings) were excluded from the selections. This selection bias may ignore the possibility that the visual presentation of the proportion of nonhuman objects differs by culture. One hypothesis would be that, according to the idea of individualism/collectivism and context-inclusive/object-focused style, East Asian Facebook users would tend to display more nonhuman photographs, indicating less emphasis on the individual and lower intensity of self-presentation. This study examined only Facebook profile photographs with users' faces, and further work is required to examine the cultural impact on other types of profile photograph. Moreover, there also may be a subtle difference between individuals who post publicly versus privately. These issues should be considered in further research regarding online behaviors.

In sum, we demonstrated culture-specific and culture-independent characteristics in Facebook profiles. The two studies together demonstrate the context-inclusive style characteristic of East Asians and object-focused styles for Westerners in self-presentation on Facebook, the most popular worldwide online social network site. The findings support the notion that the analysis of cultural values are internalized by individuals and implicitly embedded in cultural products (Morling & Lamoreaux, 2008). Our findings further extend previous evidence of systematic cultural differences in the offline world to cyberspace, supporting the extended real-life hypothesis (Ambady & Skowronski, 2008; Vazire & Gosling, 2004) which suggests that individuals express and communicate their self-representation at online social network sites as a product of extended social cognitions and behaviors. Importantly, this research also provided a novel approach to investigate social cognition and human behaviors across cultures by using Facebook as a research platform.

References

Abel EL, Kruger ML. Smile intensity in photographs predicts longevity. Psychological Science. 2010; 21:542–544. [PubMed: 20424098]

Ambady, N.; Skowronski, JJ. First impressions. New York, NY: Guilford Press; 2008.

Archer D, Iritani B, Kimes DD, Barrios M. Face-ism: Five studies of sex differences in facial prominence. Journal of Personality and Social Psychology. 1983; 45:725–735.

Back MD, Stopfer JM, Vazire S, Gaddis S, Schmukle SC, Egloff B, et al. Facebook profiles reflect actual personality, not self-idealization. Psychological Science. 2010; 21:372–374. [PubMed: 20424071]

Chim, L.; Moon, A.; Tsai, JL. Beauty is in the culture of the beholden: The occurrence and perception of American and Chinese smiles in magazines. Poster presented at the 10th Annual Meeting of the Society of Personality and Social Psychology; Tampa, FL. 2009.

Chua HF, Boland JE, Nisbett RE. Cultural variation in eye movements during scene perception. Proceedings of the National Academy of Sciences of the United States of America. 2005; 102:12629–12633. [PubMed: 16116075]

Cooley, SC.; Reichart Smith, LM. International Facebook faces: An analysis of self inflicted face-ism in online profile pictures. Paper presented at the annual convention of the International Communication Association; Singapore. 2010.

Ellison N, Heino R, Gibbs J. Managing impressions online: Self-presentation processes in the online dating environment. Journal of Computer-Mediated Communication. 2006; 11:415–441.

Facebook. Statistics. 2011. Retrieved February 28, 2011 from www.facebook.com/press/info.php?statistics

Fitzgerald Steele, J.; Evans, DC.; Green, RK. Is your profile picture worth 1000 words? Photo characteristics associated with personality impression agreement. Paper presented at the International AAAI Conference on Weblogs and Social Media; San Jose, CA. 2009.

Freese J, Meland S, Irwin W. Expressions of positive emotion in photographs, personality, and later-life marital and health outcomes. Journal of Research in Personality. 2007; 41:488–497.

Goh JO, Tan JC, Park DC. Culture modulates eye-movements to visual novelty. PloS One. 2009; 4:e8238. [PubMed: 20016829]

Kitayama S, Duffy S, Kawamura T, Larsen JT. Perceiving an object and its context in different cultures: Acultural look at new look. Psychological Science. 2003; 14:201–206. [PubMed: 12741741]

Kitayama, S.; Markus, HR. Emotion and culture: Empirical studies of mutual influence. Washington, DC: American Psychological Association; 1994.

Kitayama S, Markus HR, Kurokawa M. Culture, emotion, and well-being: Good feelings in Japan and the United States. Cognition & Emotion. 2000; 14:93–124.

Kitayama S, Uskul AK. Culture, mind, and the brain: Current evidence and future directions. Annual Review of Psychology. 2011; 62:419–449.

Krämer NC, Winter S. Impression management 2.0: The relationship of self-esteem, extraversion, self-efficacy, and self-presentation within social networking sites. Journal of Media Psychology. 2008; 20:106–116.

Markus HR, Kitayama S. Culture and the self: Implications for cognition, emotion, and motivation. Psychological Review. 1991; 98:224–253.

Masuda T, Gonzalez R, Kwan L, Nisbett RE. Culture and aesthetic preference: Comparing the attention to context of East Asians and Americans. Personality and Social Psychology Bulletin. 2008a; 34:1260–1275. [PubMed: 18678860]

Masuda T, Nisbett RE. Attending holistically versus analytically: Comparing the context sensitivity of Japanese and Americans. Journal of Personality and Social Psychology. 2001; 81:922–934. [PubMed: 11708567]

Masuda, T.; Wang, H.; Ito, K. Culture and internet environment: Comparing complexity of design between East Asian and North American homepages. Pre-conference Poster session presented at the 9th Annual Meeting of the Society of Personality and Social Psychology; Albuquerque, NM. 2008b.

Matsumoto, D. Culture and emotional expression. In: Chiu, CY., et al., editors. Problems and solutions in cross-cultural theory, research, and application. New York, NY: Psychology Press; 2009. p. 271-287.

Miyamoto Y, Nisbett RE, Masuda T. Culture and the physical environment: Holistic versus analytic perceptual affordances. Psychological Science. 2006; 17:113–119. [PubMed: 16466418]

Morling B, Lamoreaux M. Measuring culture outside the head: A meta-analysis of individualism collectivism in cultural products. Personality and Social Psychology Review. 2008; 12:199–211. [PubMed: 18544712]

Nisbett RE, Masuda T. Culture and point of view. Proceedings of the National Academy of Sciences of the United States of America. 2003; 100:11163–11170. [PubMed: 12960375]

Nisbett RE, Peng K, Choi I, Norenzayan A. Culture and systems of thought: Holistic versus analytic cognition. Psychological Review. 2001; 108:291–310. [PubMed: 11381831]

Oyserman D, Coon HM, Kemmelmeier M. Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. Psychological Bulletin. 2002; 128:3–72. [PubMed: 11843547]

Park D, Huang CM. Culture wires the brain: A cognitive neuroscience perspective. Perspectives on Psychological Science. 2010; 5:391–400. [PubMed: 22866061]

Reichart, LM.; Cooley, SC. Face-ism on Facebook: An analysis of self-inflicted face-ism in online profile pictures. Paper presented at annual convention of the International Communication Association; Chicago, IL. 2008.

Szillis U, Stahlberg D. The face-ism effect in the internet differences in facial prominence of women and men. International Journal of Internet Science. 2007; 2:3–11.

Tsai JL. Ideal affect: Cultural causes and behavioral consequences. Perspectives on Psychological Science. 2007; 2:242–259.

Tsai JL, Knutson B, Fung HH. Cultural variation in affect valuation. Journal of Personality and Social Psychology. 2006; 90:288–307. [PubMed: 16536652]

Tsai JL, Louie JY, Chen EE, Uchida Y. Learning what feelings to desire: Socialization of ideal affect through children's storybooks. Personality and Social Psychology Bulletin. 2007; 33:17–30. [PubMed: 17178927]

Tsai JL, Miao FF, Seppala E. Good feelings in Christianity and Buddhism: Religious differences in ideal affect. Personality and Social Psychology Bulletin. 2007; 33:409–421. [PubMed: 17312321]

Uchida Y, Kitayama S. Happiness and unhappiness in east and west: Themes and variations. Emotion. 2009; 9:441–456. [PubMed: 19653765]

Valkenburg PM, Peter J. Social consequences of the Internet for adolescents. Current Directions in Psychological Science. 2009; 18:1–5.

Vazire S, Gosling SD. e-Perceptions: Personality impressions based on personal websites. Journal of Personality and Social Psychology. 2004; 87:123–132. [PubMed: 15250797]

Williams MJ, Spencer-Rodgers J. Culture and stereotyping processes: Integration and new directions. Social and Personality Psychology Compass. 2010; 4:591–604.
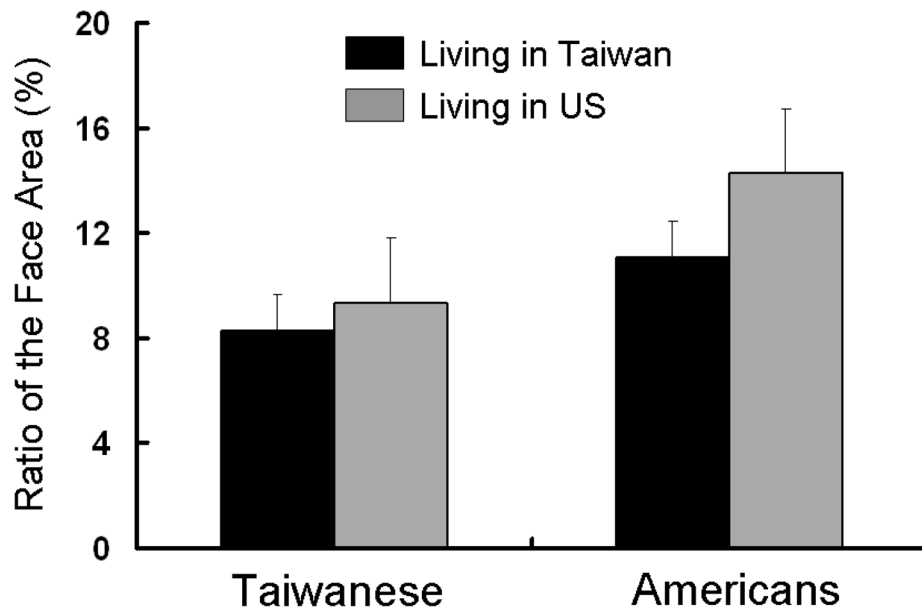
Figure 1.
The ratio of the face area to the size of the entire frame on Facebook profile photographs across four groups in Study 1. The error bars indicate the standard errors of the means for each group.

TABLE 1

Average ratio (%) of the face area to the total photograph and average number of personal friends for East Asian and American Facebook profiles in Study 2

	East Asia				United States				F
	Hong Kong	Singapore	Taipei	Total	San Diego, CA	Austin, TX	Berkeley, CA	Total	
N	52	52	52	156	52	52	52	156	
Male	27	26	25	58	28	27	30	85	
Face area (%)	6.39 % (6.08)	7.03 % (6.70)	9.35 % (7.93)	7.50 % (7.00)	12.13 % (14.44)	13.39 % (14.34)	11.80 % (13.28)	12.44 % (13.96)	15.53 [**]
Number of friends	378.3 (153.1)	397.6 (154.9)	272.5 (122.2)	349.6 (153.2)	349.5 (204.5)	409.8 (161.7)	331.0 (188.6)	362.0 (187.7)	0.39

Mean (standard deviation);

[**]
$p < .01$.

TABLE 2

The characteristics of profile photographs for East Asian and American Facebook users

	East Asian (n =156)		American (n =156)		X^2
	Total	% of Total	Total	% of Total	
Body portion					17.3 **
Full body	44	28.0%	40	25.9%	
Head with partial body	111	71.2%	97	62.2%	
Head only	1	0.9%	19	12.0%	
Smile intensity					7.57 *
Smile with teeth	71	45.5%	91	58.3%	
Smile without teeth	45	28.6%	26	16.5%	
No smile	40	25.9%	39	25.2%	
Photo background					0.20
Indoor	63	40.6%	61	39.1%	
Outdoor	82	52.4%	82	52.8%	
Unsure	11	7.1%	13	8.1%	
Number of people					4.46
Only one person	119	76.1%	105	67.1%	
More than one person	36	23.3%	51	32.9%	
Large group (>6 people)	1	0.6%	0	0.0%	

X^2 = chi-square value;

*
$p < .05$;

**
$p < .01$.