

“Keep In E-Touch”: Personality and Facebook Use

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Abstract

How are personality and Facebook related? This paper tries to find out the relationship between extraversion and the number of Facebook friends; extraversion and time spent on Facebook; personality and Facebook use; gender and Facebook use; and Facebook account age and the number of Facebook friends. A total of 103 participants aged 19 to 25 from SEGi University College (Malaysia) took part in the study. The Internet Motives Scale was used to measure Facebook use and the Ten-Item Personality Inventory to measure Big Five personality traits. A set of questions were asked in addition to the scales to obtain more information about specific uses of Facebook. To uncover the relationships at hand, descriptive statistics, frequency analyses, independent-samples t-tests, Pearson correlation analyses, one-way ANOVA, reliability analysis, and factor analysis were conducted. It was found that introverts have a smaller number of Facebook friends; extroverts use Facebook for relationship maintenance, passing time, virtual community, entertainment, and coolness; both extroverts and emotionally stable users spend more time on Facebook for relationship maintenance, while only extroverts spend more time for virtual community and companionship; and males use Facebook more for virtual community, entertainment, coolness, and companionship compared to females. The findings are discussed with regard to social enhancement and social compensation hypotheses as well as uses and gratifications theory.

Keywords: Psychology of Communication, Social Media, Personality, Uses and Gratifications Theory.

“E-Bağlantıda Ol”: Kişilik ve Facebook Kullanımı

Özet

Kişilik ile Facebook ilişkisi nasıldır? Bu çalışma, dışa dönüklük ve Facebook arkadaşı sayısı; dışadönüklük ve Facebook'ta harcanan zaman; kişilik ve Facebook kullanımı; cinsiyet ve Facebook kullanımı; ve Facebook hesap yaşı ve Facebook arkadaşı sayısı arasındaki ilişkileri bulmaya çalışmaktadır. Bu çalışmada, SEGi University College'dan (Malezya) yaşları 19 ile 25 yaş arasında değişmekte olan toplam 103 katılımcı yer almaktadır. Facebook kullanımını ölçmek için İnternet Motifleri Ölçeği; büyük beş kişilik özelliklerini ölçmek için ise 10 maddeli kişilik envanteri kullanıldı. Ölçeklere ek olarak, Facebook'un özel kullanımları hakkında daha fazla bilgi alabilmek için test soruları soruldu. Söz konusu ilişkileri ortaya çıkarmak için betimsel istatistik, sıklık çözümlemesi, bağımsız örneklemlili t testleri, Pearson korelasyon çözümlemesi, tek yönlü ANOVA, güvenilirlik çözümlemesi ve etmen çözümlemesi gerçekleştirildi.

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Bu bağlamda, içe dönük kişiliklerin daha az sayıda Facebook arkadaşına sahip olduğu; dışa dönüklerin ise Facebook'u, ilişkilerini sürdürme, zaman geçirme, sanal topluluk, eğlenme ve havalılık amacıyla kullandığı; dışa dönüklerin ve duygusal olarak istikrarlı kullanıcıların Facebook'ta ilişkilerini sürdürme amacıyla daha fazla zaman geçirdiği; yalnızca içe dönüklerin daha çok sanal topluluk ve eşlik etme amacıyla zaman harcadığı; ve erkeklerin Facebook'u daha çok sanal topluluk, eğlence, havalılık ve eşlik etme amacıyla kullandığı ortaya konulmuştur. Bulgular, toplumsal güçlendirme ve toplumsal telafi denenceleri ve kullanımlar ve doyumlar kuramı ile ilişkili bir biçimde tartışılmaktadır.

Anahtar Kelimeler: İletişim Psikolojisi, Sosyal Medya, Kişilik, Kullanımlar ve Doyumlar Kuramı.

Introduction

The advancement of technology brings along new areas of interest for psychology researchers. An example of this is media psychology. Media psychology is a subarea of psychology that studies media from a psychological point of view and by psychological methods as well as the psychological antecedents and psychological consequences of media use (Gezgin, 2012). One of the most popular topics in media psychology is about television viewing and related issues (Anschutz et al., 2008a; Anschutz et al., 2009; Anschutz et al., 2008b; Bagdasarov et al., 2010; Bushman, 2006; Courage & Setliff, 2009; Robinson et al., 2001).

With the advent of the Internet, studies have begun to explore a new area of interest: the social media. Social media provides a system for users to interact and communicate with one another through services such as instant messaging and social networking sites (Correa et al., 2010). In fact, issues related to social networking sites are among the most widely studied in recent years (Anderson et al., 2012; Bonds-Raacke&Raacke, 2010; Correa et al., 2010; Ellison et al., 2007; Fogel&Nehmad, 2009; Gosling et al., 2011; Kalpidou et al., 2011; Kim & Lee, 2011). Social networking sites "allow individuals to present themselves, articulate their social networks, and establish or maintain connections with others" (Ellison et al., 2007: 1143). Users of these sites can connect to and interact with existing contacts they have offline or new people online (Ellison et al., 2007). Among social networking sites, one of the most popular is Facebook.

Facebook was founded by Mark Zuckerberg in February 2004 (Phillips, 2007). Mark was a psychology student at Harvard University and at that time, was already known for developing several social-networking websites such as Coursematch and Facemash (Phillips, 2007). Facebook was originally named "The facebook", inspired by the papers profiling students. Within a day "The facebook" was launched, up to 1,200 students at Harvard University had registered an account, and more than half of the undergraduate student population signed up in just a month. Following the success, the service was quickly extended to other universities and eventually all universities in the United States. It was renamed "Facebook" in August 2005, and in September 2005 high school students in the United States were allowed access. Ultimately, Facebook went international as it generated profit from advertising revenue (Phillips, 2007).

As of December 2011, Facebook had 845 million international active users per month and 483 million international active users per day (Facebook, 2012). In Malaysia, Facebook users reached 12,366,580 as of March 2012 (Socialbakers, 2012). Out of these users, 53% are male and 47% are female and more than half of all Malaysian Facebook users are young people aged between 18 and 34 (Socialbakers, 2012).

The use of Facebook can be explained by the uses and gratifications (U&G) theory or approach. This theory as a form of media effects approach explains uses and kinds of media on the basis of user satisfaction. U&G theory has come a long way. Its ability to evolve overtime into a more complex theoretical model is one of its strengths (Ruggiero, 2000). With the advent of new forms of media, focus of the U&G theory has shifted from traditional media such as newspaper, radio, and television to computer-mediated communication, as summarized by Ruggiero (2000). Along the way, the approach of the U&G theory changed from assuming that users of media are passive consumers to assuming that users of media actively make their choices in the way they consume media (Urista et al., 2009). However, from both theoretical and practical perspectives, the central question stays the same: "why do people become involved in one particular type of mediated communication or another, and what gratifications do they receive from it?" (Ruggiero, 2000: 29).

U&G theory suggests four types of motivations for the use of media: diversion (to temporarily escape from everyday schedules or release emotion), social utility (to obtain information for social interactions), personal identity (to seek for values and beliefs that reinforce oneself), and surveillance (to find out information regarding events and news in one's community) (Ruggiero, 2000: 26). Not surprisingly, Facebook is able to fulfill all four of these motivations. Diversion can be fulfilled through the entertainments one is able to enjoy on Facebook, such as games, videos, music, and posting as well as reading all sorts of links and jokes. Social utility, on the other hand, is achieved by fostering a sense of belonging, connecting with friends and family, and learning about the lives of others. Needs for personal identity are met through feedback from others, and surveillance is accomplished through the News Feed feature of Facebook that delivers posts made by others to a Facebook user (Valenzuela et al., 2009). All of these explain the motivations and gratifications of Facebook use.

Since its birth, numerous studies have been conducted to examine the uses of Facebook. Park et al. (2009) conducted a study to examine, while applying U&G theory, the use of Facebook groups by students from two universities in Texas. A total of 1,715 students aged 18 to 29 participated in the study. It was found that students used Facebook groups to gather information about various events both within and out of campus, to interact with friends, to acquire self-status, and to enjoy the entertainment Facebook provided. This matched the motivations suggested by the U&G theory.

Another study by Sheldon (2008a) examined students' motives for Facebook use. Participants were 172 students from Louisiana State University with a mean age of 19.92. They were given a survey that asked about the way they use Facebook. Factor analysis was performed on the data and six factors were obtained: relationship maintenance, passing time, virtual community, entertainment, coolness, and companionship. While six of these Facebook uses were identified, relationship maintenance was the most important use as most participants used Facebook for this purpose.

Other studies had also consistently found an association between Facebook use and relationship maintenance. A study was conducted by Lampe et al. (2008) in 2006, 2007, and 2008 with 288, 468, and 419 participants in the respective years in Michigan State University. The purpose of the study was to find out the way Facebook use changed overtime. Results showed that participants used Facebook typically for the maintenance of superficial contact with people they had already met offline, and little change was observed throughout the three years. Another study by Manago et al. (2012) which examined university students' networks on Facebook and their communication patterns yielded similar findings. A total of 88 students in University of California, Los Angeles aged 18 to 28 participated in the study. Manago et al. (2012) found that participants mainly used Facebook to gather large networks of superficial connections. Yet another study was conducted by Joinson (2008) to determine the motives and uses of Facebook. It involved 241 participants with a mean age of 25.97 recruited online through networks in Facebook and academic survey websites. Similarly, results showed that participants used Facebook primarily to keep in touch with old friends and to maintain relationships.

Gender differences in terms of Facebook use were also explored in the literature. In Sheldon's (2008a) study, as reviewed earlier, several gender differences among the uses of Facebook were found. Females used Facebook to maintain relationships, pass time, and seek entertainment more than males, while males used Facebook to develop new relationships with people more than females. No significant gender differences were found for appearing cool or looking for

companionship. In Joinson's (2008) study, another study reviewed earlier, it was found that females used Facebook to maintain social connections and to view and share photographs more than males. Bonds-Raacke and Raacke (2010) also studied students' use of social networking sites such as Facebook and MySpace. A total of 201 students from a public East Coast University participated in the study. Findings showed that males used social networking sites for the purpose of dating more than females. However, in Raacke and Bonds-Raacke's (2008) study, another study by the same authors to examine students' use of social networking sites, no gender differences were found for the use of social networking sites among a sample of 116 students from the same public East Coast University. On the other hand, Mehdizadeh (2010) carried out a study to examine narcissism and self-esteem on Facebook. The study involved 100 students aged 18 to 25 from York University. Gender differences were observed in the findings, as males disclosed self-promotional information more than females and females revealed self-promotional photographs more than males.

Use of Facebook has also been studied along with other psychological variables. As reviewed previously, Mehdizadeh's (2010) study examined narcissism and self-esteem on Facebook. Besides the gender differences found, results showed that the more narcissistic a user was and the lower a user's self-esteem, the more the user logged into Facebook per day, and the more time the user spent on Facebook per session. Interestingly, Kalpidou et al. (2011) found similar results. Facebook use and self-esteem, among other variables, were studied by Kalpidou et al. (2011) using a sample of 70 undergraduate students from a small, Catholic institution in the Northeast. The study also found an association between low self-esteem and spending more time on Facebook. In another study by Kim and Lee (2011), the relationship between Facebook use and subjective well-being was examined. A total of 391 students with a mean age of 19.57 from a large Midwestern university participated in the study. Findings revealed positive associations between number of Facebook friends and subjective well-being. Ong et al. (2011), on the other hand, studied the relationship between narcissism, extraversion, and self-presentation on Facebook. Participants were 275 adolescent students aged 12 to 18 from two secondary schools in Singapore. It was found that more narcissistic adolescents disclosed profile photographs that were more physically appealing and posted Facebook status messages more frequently. In addition, extraversion was found to predict number of Facebook friends and number of photographs.

As can be seen from a few studies reviewed above, extraversion is one of the variables, in terms of personality, to be studied with the use of social networking sites. There were also other studies that explored the relationships between use of social networking sites and Big Five personality traits, not just extraversion. The Big Five states that there are five factors of personality: extraversion, agreeableness, neuroticism, conscientiousness, and openness (Cloninger, 2004: 157). The neuroticism factor is sometimes referred to as emotional stability (Poropat, 2009: 325), the opposite end of the trait of neuroticism. Extraversion is characterized by activity, sociability, and the propensity to experience positive feelings and emotions while agreeableness is characterized by trustfulness, sympathy, cooperation, friendliness, and soft-heartedness (Barrick& Mount, 1991: 3; Costa & McCrae, 1992: 8; Poropat, 2009: 325). On the other hand, neuroticism has the characteristics of anxiety, depression, anger, and insecurity (Barrick& Mount, 1991: 3). Conscientiousness is represented by dependability, thoroughness, diligence, and willfulness while openness by imaginativeness, curiosity, broad-mindedness, and artistic sensitivity (Barrick& Mount, 1991: 4; Costa & McCrae, 1992: 9; Poropat, 2009: 325).

As mentioned, there were studies that examined the relationships between use of social

networking sites and Big Five factors. One of these studies was the one by Wilson et al. (2010). Wilson et al. (2010) examined predictors of the use of social networking sites based on their personality. Participants in the study were 201 students, with the majority being female, aged 17 to 24 from a major Australian university. Big Five factors were measured using the 60-item NEO Five-Factor Inventory (NEO-FFI) and the use of social networking sites was measured in terms of time spent on them. Results showed that participants who were less conscientious and more extroverted spent more time on social networking sites while openness, agreeableness, and neuroticism did not predict use of them.

Another study was conducted by Ross et al. (2009) to investigate the relationships between Facebook use and Big Five factors. A total of 97 students from a university in Southwestern Ontario, with the large majority being female and the mean age being 21.69, participated in the study. An e-mail with the study's URL and related information was sent to every participant. Facebook use was measured using a 28-item questionnaire that the researchers developed. It had three sections assessing basic Facebook use, attitudes towards Facebook, and the disclosure of personally identifiable information. On the other hand, Big Five factors were measured by NEO-PI-R. Findings revealed that more extroverted participants joined more Facebook groups but had no association with the number of Facebook friends. Participants who were higher on neuroticism preferred the Wall while those who were lower preferred photographs. As for openness, more open participants were more likely to socialize on Facebook. However, agreeableness and conscientiousness were not associated with more Facebook use.

Gosling et al.'s (2011) study was also to explore the relationships between Facebook use and Big Five factors. There were 159 participants in the study with 68 percent being female. The mean age or age range of participants was not reported, however. Participants were psychology students recruited from Washington University in St. Louis. Each participant completed the Ten-Item Personality Inventory (TIPI), which measured Big Five factors, and an 11-item self-report scale that measured Facebook use. The participants were asked to enter a lab one by one to complete the scales on a computer. Results of the study showed that extraversion was associated with many uses of Facebook, especially those related to socialization and relationship maintenance such as leaving comments and having a larger number of Facebook friends. Conscientiousness, on the other hand, was negatively correlated with time spent on Facebook. In other words, participants who were less conscientious spent more time on Facebook than those who were more conscientious (Gosling et al., 2011). These were consistent with the findings in Wilson et al.'s (2010) study, which found that less conscientious and more extroverted participants spent more time on social networking sites. Agreeableness was found to be related to more frequent viewing of all Facebook pages while openness was associated with adding and changing photographs. Neuroticism was not found to be correlated with any Facebook use, however.

The studies reviewed above were some of the studies done on Facebook use and Big Five factors. However, earlier studies exploring Internet use and personality had come up with two opposing hypotheses in relation to extraversion and Internet use. The first hypothesis is called the social enhancement (Zywica&Danowski, 2008: 3), or "rich-get-richer", hypothesis (Kraut et al., 2002). This hypothesis states that extroverts, who have more social support, will be more benefited by using the Internet. Extroverts may use the Internet to reach more people and establish more contacts along the way. They can also make use of the Internet to strengthen existing relationships with people they already know offline (Kraut et al., 2002: 66). The second hypothesis, on the other hand, is called the social compensation, or "poor-get-richer", hypothesis (Kraut et al., 2002: 66; Zywica&Danowski, 2008: 3). This hypothesis asserts that introverts, who

have less social support, will be more benefited by using the Internet. Introverts may make use of the new opportunities for communication provided by the Internet, that are otherwise unavailable offline, to form more relationships with people (Kraut et al., 2002: 66).

The majority of studies seemed to have yielded results that supported the social enhancement hypothesis. As reviewed above, Wilson et al.'s (2010) study showed that extroverts spent more time on social networking sites while Gosling et al.'s (2011) study found that extroverts had more Facebook friends. Sheldon's (2008b) study, using the same sample from Sheldon's (2008a) study, also had similar findings. Sheldon (2008b) examined the relationship between motives of Facebook use and unwillingness-to-communicate and found that participants who were anxious about interpersonal communication had less Facebook friends and that people who took part in online communication tended to be people who were not afraid of communicating in real-life. In another study by Orr et al. (2009), the relationship between Facebook use and shyness was examined. Participants were 103 undergraduate students, with the large majority being female and a mean age of 21.5, recruited from a university in southwestern Ontario. It was found that participants who were shyer had less Facebook friends. However, shy participants were found to have spent more time on Facebook. Interestingly, Ross et al.'s (2009) study, a study reviewed earlier, was the only study presented so far to have found no association between extraversion and number of Facebook friends. Even the authors of the study were surprised by this lack of relationship. Ross et al. (2009) explained that this finding suggests that while extroverts used Facebook as a tool for socializing, they did not replace offline social activities with Facebook. It could be possible that extroverts did not find in Facebook the kind of direct social contact they found in offline, real-life communications (Ross et al., 2009: 582).

The purpose of the current study was to examine the relationship between personality and Facebook use. From the studies reviewed so far, the following hypotheses were proposed:

- (1) Introverts have a smaller number of Facebook friends than extroverts.
- (2) Introverts spend more time on Facebook than extroverts.
- (3) There is a relationship between personality and Facebook use.
 - (3a) There is a relationship between personality and specific uses of Facebook.
 - (3b) There is a relationship between personality and time spent on specific uses of Facebook.
 - (3c) There is a relationship between personality and time spent on Facebook.
 - (3d) There is a relationship between personality and proportion of time spent on Facebook over time spent on the Internet.
 - (3e) There is a relationship between personality and number of Facebook friends.
- (4) There is a relationship between gender and specific uses of Facebook.
- (5) There is a positive correlation between Facebook account age and number of Facebook friends.

It should be noted that even though hypothesis 3c and hypothesis 3e cover hypothesis 1 and hypothesis 2, they were stated separately for theoretical reasons. In addition, the proportion of time spent on Facebook over time spent on the Internet was made part of the hypotheses to test whether more time was spent on Facebook or on the Internet in general. In this study, the term "Facebook account age" will be used to refer to the length of time from the time a Facebook account was first registered. Hypothesis 5 was proposed because one would expect an older Facebook account to have a higher number of Facebook friends.

1. Method

1.1. Participants

A total of 103 participants (51 males, 52 females) took part in this study. Participants were students aged 19 to 25 ($M = 21.62$, $SD = 1.663$) in SEGi University College, Kota Damansara. SEGi University College, Kota Damansara, is the flagship campus among several other SEGi College campuses in Malaysia and has up to 12,000 students. It offers programs such as business, engineering, pharmacy, American Degree Program, and others. SEGi University College also has connections with The University of Sheffield, Teesside University, Upper Iowa University, and other international universities (SEGi University College, 2012).

Due to time limitation and funding issue, convenience sampling was used and students in the library and student lounge were approached and asked to participate. Out of the 103 participants, 69.9% were Chinese ($n = 72$), 16.5% were Malay ($n = 17$), 11.7% were Indian ($n = 12$), and 1.9% were of other ethnicities ($n = 2$).

1.2. Materials & Procedure

Participants were first asked whether they had a Facebook account. For those that had a Facebook account, they were very quickly briefed about the study and, if willing to participate, were given the questionnaire. Participants were given as much time as they required to complete the questionnaire. The questionnaire used in this study consisted of the Internet Motives Scale (Sheldon, 2008b) and the TIP1 (Gosling et al., 2003). In the beginning section of the questionnaire, extra information was gathered: the time spent on the Internet in a typical day ("How many hours do you spend on the Internet in a typical day?"), the time spent on Facebook in a typical day ("How many hours do you spend on Facebook in a typical day?"), the time when a Facebook account was first registered ("When did you register your Facebook account?"), and the approximate number of Facebook friends ("Approximately how many Facebook friends do you have?"). Furthermore, immediately after the Internet Motives Scale, participants were asked to indicate the time they spent on each specific use of Facebook in a typical day, as measured by the item, "In a typical day, how many hours do you use Facebook for..." followed by the six uses of Facebook.

Internet Motives Scale. Facebook use was assessed using the Internet Motives Scale developed by Sheldon (2008b). In Sheldon's (2008b) study about the relationship between unwillingness-to-communicate and students' motives for Facebook use, factor analysis of the results produced six identifiable factors for Facebook use. They include Relationship Maintenance, Passing Time, Virtual Community, Entertainment, Coolness, and Companionship. Relationship Maintenance contained six items (e.g., "To send a message to a friend," "To stay in touch with friends"), Passing Time contained four (e.g., "To pass time when bored," "It is one of the routine things I do when online"), Virtual Community contained five (e.g., "Develop a romantic relationship," "Meet new friends"), Entertainment contained five (e.g., "To see other people's pictures," "To read other people's profiles"), Coolness contained three (e.g., "It makes me cool among my peers," "It is cool"), and Companionship contained three as well (e.g., "No one to talk or be with," "So I won't be alone"). The sequence of all 26 items was randomized in the questionnaire of this study.

Participants responded to the items by writing down a number beside each item on a five-point Likert scale from 1 (disagree strongly) to 5 (agree strongly). The higher the score, the more an item, and ultimately a factor, applied to the participants.

Ten-Item Personality Inventory. The TIPI was used to assess participants' Big Five factors. Recognizing the need for an extremely brief measure of the Big Five factors, Gosling et al. (2003) developed this instrument that contains only 10 items, with two items corresponding to each of the Big Five factors. Each item consists of a pair of traits with which participants used to rate themselves on a seven-point Likert scale, ranging from 1 (disagree strongly) to 7 (agree strongly).

It has good convergent correlation with the Big Five Inventory (BFI) and the NEO Personality Inventory, Revised (NEO-PI-R). It also has considerable test-retest reliability ranging from .62 to .77 with a mean of .72 over a period of six weeks (Gosling et al., 2003).

2. Results

2.1. Gender Differences

Independent-samples t-tests were conducted to find gender differences. Results indicated significant differences between genders on four specific uses of Facebook: males ($M = 3.02$, $SD = .78$) used Facebook for virtual community more than females ($M = 2.58$, $SD = .84$), $t(101) = 2.71$, $p = .008$; males ($M = 3.68$, $SD = .71$) used Facebook for entertainment more than females ($M = 3.28$, $SD = .72$), $t(101) = 2.82$, $p = .006$; males ($M = 2.97$, $SD = .76$) used Facebook for coolness more than females ($M = 2.63$, $SD = .76$), $t(101) = 2.23$, $p = .028$; males ($M = 2.73$, $SD = .87$) used Facebook for companionship more than females ($M = 2.35$, $SD = .90$), $t(101) = 2.18$, $p = .032$. There were no gender differences on relationship maintenance and passing time, $p > .05$. There were also no significant differences between genders on all Big Five factors, $p > .05$.

2.2. Facebook and Its Specific Uses

A confirmatory factor analysis using principle components method and Varimax rotation as extraction method failed to find the same factor structure in the Internet Motives Scale as the one reported by Sheldon (2008b). Factor 1 loaded on item 23, 22, 14, 15, 18, and 24; factor 2 loaded on item 10, 9, 4, 7, 20, 19, and 17; factor 3 loaded on item 25, 26, 21, 11, and 16; factor 4 loaded on item 2, 3, and 8; factor 5 loaded on item 6, 5, 13, and 12; while factor 6 loaded on item 1. On the other hand, items for relationship maintenance in Sheldon (2008b) loaded on the same factor except item 1; items 4, 9, 10, and 20 that were for entertainment dimension loaded on the same factor; and finally item 2, 3, and 8 that were for the dimension of passing time loaded on the same factor. Other than these, no pattern was identified. As a passing note, it should be stated that item 7 ("Have fun") loaded under entertainment dimension rather than coolness dimension. This could be considered a mistake on behalf of Sheldon (2008b). Another mistake is obvious in having identical items (item 14 and 23, which are "To feel less lonely") under two different dimensions (companionship dimension and virtual community dimension).

Reliability analyses were performed on the six dimensions of Internet Motives Scale. Cronbach's alpha was .80 for the six items of relationship maintenance, .66 for the four items of passing time, .81 for the five items of virtual community, .80 for the five items of entertainment, .67 for the three items of coolness, and .80 for the three items of companionship.

Pearson correlation analyses were carried out and all specific uses of Facebook were significantly correlated with each other, $p < .01$, except relationship maintenance and companionship, $p = .053$. Among all significant correlations between the uses, the highest correlation was found between virtual community and companionship, $r(103) = .701$, $p < .001$.

As for time spent on the Internet, time spent on Facebook, and time spent on specific uses of Facebook, all data were converted from hours to minutes. Average time was taken if participants reported a range of time, and the minimum or maximum time was taken if participants reported time in the "more than" or "less than" form. Analyses for these data only included participants who reported valid data. Missing or invalid data were excluded from analyses.

The time spent on all specific uses of Facebook were significantly correlated with each other, $p < .01$, except time spent on passing time and time spent on coolness, $p = .285$. The highest correlations were found between time spent on virtual community and time spent on relationship maintenance, $r(89) = .70$, $p < .001$, time spent on virtual community and time spent on entertainment, $r(89) = .707$, $p < .001$, as well as time spent on virtual community and time spent on companionship, $r(91) = .717$, $p < .001$.

There were no significant relationships found between time spent on the Internet and each of the six specific uses of Facebook, $p > .05$. There were also no significant relationships between time spent on the Internet and time spent on each of the specific uses of Facebook, $p > .05$, except time spent on the Internet and time spent on passing time, $r(89) = .463$, $p < .001$, as well as time spent on the Internet and time spent on companionship, $r(94) = .224$, $p = .03$.

No significant relationships were found between time spent on Facebook and each of the specific uses of Facebook, $p > .05$, except time spent on Facebook and passing time, $r(101) = .252$, $p = .011$. It was interesting to note that out of 103 participants, 77.67% ($n = 80$) reported total amount of time spent on all six specific uses of Facebook that was more than the time spent on Facebook.

The proportion of time spent on Facebook over that on the Internet was significantly correlated with each of the specific uses of Facebook, $p < .05$, except with relationship maintenance and with companionship, $p > .05$. The highest correlation was found between proportion of time spent on Facebook over that on the Internet and passing time, $r(99) = .343$, $p = .001$.

In this study, all data for Facebook account age were converted to months before analyses. A significant correlation was found between time spent on Facebook and Facebook account age, $r(99) = .357$, $p < .001$. However, there were no significant relationships between Facebook account age and each of the six specific uses of Facebook, $p > .05$. There were also no significant relationships between Facebook account age and time spent on each of the specific uses of Facebook, $p > .05$, except Facebook account age and time spent on passing time, $r(89) = .369$, $p < .001$.

Data of the number of Facebook friends were coded in three categories: low (0 to 299), moderate (300 to 599), and high (600 and above). The ranges in these categories were determined by frequency analysis, which showed the most common ranges of Facebook friends among the participants. The average number of Facebook friends among participants in this study was $M = 589.4$. A one-way analysis of variance was used to test for differences in Facebook account age among participants with a low, moderate, and high level of Facebook friends. However, no significant differences were found, $p = .109$.

2.3. Facebook Use and Big Five Factors

Pearson correlation analyses indicated that only extraversion was significantly correlated with each of the specific uses of Facebook, $p < .05$, except with companionship, $p = .299$. The highest

correlation was found between extraversion and coolness, $r(103) = .36, p < .001$. All of the remaining Big Five factors were not significantly correlated with each of the six specific uses of Facebook, $p > .05$.

Extraversion was also found to be significantly correlated with time spent on relationship maintenance, $r(95) = .227, p = .027$, time spent on virtual community, $r(91) = .222, p = .034$, and time spent on companionship $r(96) = .24, p = .019$. On the other hand, emotional stability was significantly correlated with time spent on relationship maintenance, $r(95) = .238, p = .02$. All other relationships between each of the Big Five factors and time spent on each of the specific uses of Facebook were not significant, $p > .05$.

No significant relationships were found between time spent on Facebook and each of the Big Five factors, $p > .05$. Furthermore, there were also no significant relationships found between proportion of time spent on Facebook over that on the Internet and each of the Big Five factors, $p > .05$.

A one-way analysis of variance was used to test for personality differences among participants with a low, moderate, and high level of Facebook friends. Only extraversion significantly differed across participants with different levels of Facebook friends, $F(2, 100) = 7.764, p = .001$. Tukey's HSD post-hoc test showed that participants with a low level of Facebook friends ($M = 3.50, SD = 1.49$) were found to be more introverted than those with a moderate ($M = 4.60, SD = 1.09$) and high ($M = 4.75, SD = 1.27$) level of Facebook friends. No significant differences were found for each of the other Big Five factors, $p > .05$.

Discussion

Data analyses showed that some hypotheses were supported while others were not. Results of this study supported hypothesis 1. Introverts were found to have a smaller number of Facebook friends than extroverts. In other words, extroverts had a larger number of Facebook friends. This supported the social enhancement hypothesis, which states that extroverts will be more benefited by using the Internet to reach more people and establish more contacts (Kraut et al., 2002). This finding was also consistent with Gosling et al. (2011), Orr et al. (2009), and Sheldon (2008b). In these studies, it was also found that introverts or those showing characteristics of an introvert had less Facebook friends. As a side note, the average number of Facebook friends in this study was 589.4. This was the highest compared to 224 in Orr et al.'s (2009) study and the range of 200 to 350 Facebook friends in Sheldon's (2008b) study.

Hypothesis 2 was not supported by the results of this study. Introverts and extroverts did not differ in terms of their time spent on Facebook. This was unexpected, given the social enhancement and social compensation hypotheses. In terms of extraversion in relation to time spent on Facebook, it is not yet conclusive in the literature. While Wilson et al. (2010) found that extroverts spent more time on social networking sites, Orr et al. (2009) found that shy individuals spent more time on Facebook. These were conflicting results, and the finding in this study indicating the lack of difference in time spent on Facebook between introverts and extroverts certainly did not shed light on this issue. Further investigations should be carried out in the future to determine the relationship between extraversion and time spent on Facebook or any other social networking site.

As an exploratory hypothesis, hypothesis 3 states that there was a relationship between personality and Facebook use. This hypothesis further broke into five sub-hypotheses. Hypothesis 3a was partially supported, as only extroverts were more likely to use Facebook for all uses except companionship. This was inconsistent with Sheldon's (2008b) study, which found that those afraid of face-to-face communication used Facebook to pass time. In the present study, it was extroverts who used Facebook to pass time more than introverts.

Hypothesis 3b was also only partially supported. Both extroverts and emotionally stable users spent more time on Facebook for relationship maintenance, while only extroverts spent more time for virtual community, and companionship. Other personality traits were not found to have any relationship with the time spent on any specific uses of Facebook. As this was an original contribution of this study, more studies in the future should examine the time spent on each use of Facebook in relation to personality in order to reach a reliable conclusion regarding their relationship.

Findings did not support hypothesis 3c and hypothesis 3d. All personality traits were not associated with time spent on Facebook and the proportion of time spent on Facebook over that on the Internet. This may be due to the heterogeneous nature of Facebook users. As Facebook becomes an international phenomenon, people of all kinds make use of Facebook for different purposes. Specific relationships between certain kinds of people and Facebook use are, therefore, no longer observable (Gezgin, 2012). However, even though this might have been the case in this study, there were a few other studies that found a relationship between certain personality traits and time spent on Facebook. As mentioned earlier, Orr et al. (2009) found that shy individuals spent more time on Facebook while Wilson et al. (2010) found that extroverts spent more time on social networking sites. Besides these findings, Wilson et al. (2010) also found that less conscientious individuals spent more time on social networking sites. This was supported by Gosling et al. (2011), having found that less conscientious people spent more time on Facebook. Thus, more research is necessary to uncover the relationship or non-relationship between personality and Facebook-related variables.

As a passing note, out of 103 participants, 77.67% reported total amount of time spent on all six specific uses of Facebook that was more than the time spent on Facebook. This showed that the assumption of serial processing was incorrect. People are multitasking all the time and they are not serving one Facebook use each time. Their usage pattern serves multiple uses at the same time. For instance, when they use Facebook for relationship maintenance, the purpose of passing time is also achieved. Therefore, more studies on Facebook following a parallel processing model are necessary in the future (Gezgin, 2012: 31).

As mentioned earlier, only introverts were found to have a smaller number of Facebook friends than extroverts. Users of other personality traits did not differ in their number of Facebook friends that they had. Therefore, hypothesis 3 was only partially supported.

Hypothesis 4, on the other hand, was also partially supported, as males were more likely to use Facebook for virtual community, entertainment, coolness, and companionship compared to females. This finding was partially inconsistent with Sheldon's (2008a) study. In Sheldon's (2008a) study, females used Facebook to maintain relationships, pass time, and seek entertainment more than males, while males used Facebook to develop new relationships with people (an example of virtual community) more than females.

As for hypothesis 5, surprisingly, it was not supported. Facebook account age was found to have no relationship with the number of Facebook friends among participants in this study. Studies related to Facebook use rarely examined the relationship between account age and number of Facebook friends. Joinson (2008) was the only study reviewed that examined their relationship. It was found that the longer an account was registered, the more Facebook friends it contained (Joinson, 2008). This was not consistent with the finding of the present study. A possible explanation might be that some users added a large amount of Facebook friends within a short period of time after registration while others took their time to build their networks. After all, "Facebook friends" were actually any kind of people and not necessarily "friends" (Bryant & Marmo, 2009; Nosko et al., 2010).

In the context of Facebook, the term "Facebook friend" does not carry the conventional meaning of "friend". On Facebook, a "friend" can be a real friend, an acquaintance, or even a person one does not know at all (Nosko et al., 2010). In fact, Bryant and Marmo (2009) had identified five types of relationships that Facebook "friends" could denote: close friends, casual friends, acquaintances, romantic partners, and outsiders. Close friends on Facebook are typically a user's actual close friends offline and only consist of a small amount of the total Facebook friends. Casual friends are a user's wider network of friends that the user has contact with offline. On the other hand, acquaintances, unlike casual friends, are people whom the user has only met a few times before, and acquaintances are extremely common on Facebook. Romantic partners are, as the name suggests, people whom Facebook users have a romantic relationship with. Finally, outsiders were usually "friends" added on a non-voluntary basis. They could be one's parents, relatives, cousins, teachers, or bosses (Bryant & Marmo, 2009).

In this study, it should be noted that specific uses of Facebook, as measured by the Internet Motives Scale, were mainly about diversion and social utility motivations of the U&G theory. None of the six specific uses of Facebook was related to personal identity and surveillance. In the future, scales to measure Facebook use should include all four types of motivations as suggested by the U&G theory, which were diversion, social utility, personal identity, and surveillance. A more detailed focus on self-reinforcement (personal identity) and personal news tracking (surveillance) would be instrumental to explore the uncharted waters in future studies.

Even though this study explored many aspects of Facebook use in relation to personality, it was not without limitations. First, only self-reported data for number of Facebook friends were obtained. The data may be subjective because participants' Facebook profiles were not checked and they were not observed when they were using Facebook. It is recommended that in future studies, participants' Facebook profiles be checked for number of Facebook friends and participants' use of Facebook be observed.

Second, the sample used in this study was of a limited size and only consisted of SEGi University College students. Thus, findings may not be able to be generalized to the whole of Malaysia. Therefore, a larger sample size and a more representative sample are recommended to be used in future studies.

Third, Chinese participants made up the large majority of the current sample while the amounts of participants of other ethnicities were small. Due to this, it is questionable to generalize the findings to Facebook users of all ethnicities in Malaysia. Researchers should ensure a balanced proportion of different ethnic groups in their samples in future studies.

This study examined the relationship between personality and Facebook use. Extraversion, out of all personality traits, had the most relationships with multiple aspects of Facebook use. Findings of this study supported the social enhancement hypothesis.

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