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Huey-Wen Chou

Department of Information Management, National Central University, Taiwan, hwc928@gmail.com

Kai-Chun Chang

Department of Information Management, National Central University, Taiwan

Yu-Hsun Lin

Department of Business Management, Ming Chi University of Technology, Taiwan

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Facebook and Google Usage in Taiwan's College Students

Huey-Wen Chou^{1*}, *Kai-Chun Chang*², *Yu-Hsun Lin*³

^{1,2}Department of Information Management, National Central University, Taiwan

³Department of Business Management, Ming Chi University of Technology, Taiwan

Abstract: This study proposes and tests a research model which was developed based on the uses-and-gratifications theory. The aim of this study was to investigate if selected factors have differential predicting power on the use of Facebook and Google service in Taiwan. This study employed seven constructs: purposive value, hedonic value, social identity, social support, interpersonal relationship, personality traits, and intimacy as the factors predicting Facebook and Google usage. An electronic survey technique was used to collect data from Internet. The results showed that hedonic value and social identity constructs can significantly predict Facebook usage and purposive value has significant predicting power on Google usage. The construct intimacy is the most significant factor for both Google and Facebook usages. Our findings make suggestions for social network sites (SNSs) providers that to differentiate their SNSs quality from others', both functional aspects and emotional factors need to be taken into consideration.

Keywords: social network sites (SNSs), uses-and-gratifications theory, intimacy, personality traits

1. INTRODUCTION

Most information systems (IS) are task-oriented and aim to provide users with useful information for better decision making (Kwon & Wen, 2010). The search engines, such as Google or Yahoo! are popular information retrieval tools for users to find the information they need (Rangaswamy, Giles, & Seres, 2009). Furthermore, Pew Internet report points out that the 88% of Internet users use a search engine to get specific information (Jones & Fox, 2009). Google search engine is the most often visited website in the world (Alexa, 2010) because their website services can help users to acquire information more efficiently. Google has put forward many services to satisfy users' needs; for instance, YouTube platform to share video, Picasa platform to share photo, and Scholar platform to share scholarly article.

In recent years, social networking sites (SNSs) has become a buzzword in the web-based business (Kwon & Wen, 2010). SNSs is virtual communities which allow people to connect and interact with each other on a particular subject or to just "hang out" together online (Murray & Waller, 2007; Kwon & Wen, 2010). According to ComScore (2007), several major SNSs such as MySpace, Facebook, Hi5 and Cyworld have experienced dramatic growth in 2007. And the number of online SNSs membership has also exploded at an exponential rate. According to the market research in U.S. (Hitwise, 2010), Facebook is the top-visited website for the first time and accounted for 8.93 percent of all U.S. visits between January and November 2010. Google.com ranked the second with 7.19 percent of visits, followed by Yahoo! Mail (3.52%), Yahoo! (3.30%) and YouTube (2.65%).

Users have various reasons for using Internet and SNSs. One of the theories to understanding motivation for using new media is the Uses-and-Gratifications (U&G) theory, which explains how people adopt and use communication media to fulfill their psychological needs and the gratifications they seek for. On the other hand, according to Correa, Hinsley, & de Zúñiga (2010), people who are more open to experiences tend to be drawn to SNSs, as are those with high levels of neuroticism. And individuals who are high in neuroticism will also prone to have greater usage of instant messages. This implies that personality traits may influence SNSs usage. This study aims to investigate whether persons of different personality traits will have different SNSs usage.

* Corresponding author. Email: hwc928@gmail.com (Huey-Wen Chou)

Facebook and Google service are different SNSs paradigm. This study proposed a research model which was based on U&G theory to investigate whether factors would have differential predicting power on Facebook usage and Google usage. This study chooses Facebook as the research target because it is one of the most popular SNSs among Taiwan Internet users. On the other hand, the reason why Google is chosen is because Google is very different from Facebook in terms of providing various popular functionalities such as search engine, blog, buzz, Gmail, music and video sharing. The goal of this study is to explore whether and how users have different motivation in using the most popular two SNSs: Facebook and Google.

2. LITERATURE REVIEW

2.1 U&G theory and Internet

The U&G theory originated in the 1940s as a traditional mass communication research which emphasizes the use of media to gratify users' needs, wants and motivations for using media (Palmgreen, Wenner, & Rosengren, 1985; Weibull, 1985). The theory posits that media consumption is purposive, and users would actively seek to fulfill their needs (Katz, Blumler, & Gurevitch, 1974). The primary objective of the U&G theory is to explain and understand the inherent which shape peoples' reason for using media. These psychological needs also motivate people to engage in certain media usage behaviors for gratifications (Rubin, 1994).

The U&G theory has been applied to different mass communication media such as newspapers, radio, television, cable television, VCR and the Internet. Nowadays the Internet has been integrated into the fabric of everyday life and the rapid growth of Internet has led to applications of the U&G theory to understand the motivations of Internet use (Ruggiero, 2000). Many researches (e.g., Ko, Cho, & Roberts, 2005; Papacharissi & Rubin, 2000; Rodgers & Sheldon, 2002; Roy, 2009; Ruggiero, 2000; Stafford, Stafford, & Schkade, 2004) have applied the U&G theory to Internet context and explain how the motives of Internet usage differ from those of traditional media usage. Ridings and Gefen (2004) indicated that people join in a virtual community primarily for seeking information, social support, friendship, and recreation. Song, Larose, Eastin, & Lin (2004) uncovered seven gratification factors specific to the Internet use. Cheung, Chiu, & Lee (2010) identified five factors for users' gratifications of Internet use: purposive value, self-discovery, maintaining interpersonal interconnectivity, social enhancement, and entertainment value. Based on the literature review, this study chose five constructs derived from U&G theory to predict user's SNSs usage: purposive value, hedonic value, social identity, social support, and interpersonal relationship. The purposive value is to collect information to solve problems and fulfill instrumental purpose. The hedonic value is to relax and get fun through interacting with others. Social identity is to obtain the recognition from groups where the user belongs to. Social support means to receive emotional support, assistance and encouragement. Interpersonal relationship is to establish and maintain contact with friends or others. Our research aims to investigate whether and how users have different motivation in using the most popular two SNSs: Facebook and Google.

2.2 Personality traits and Internet

The Big-Five personality factor model originated from Goldberg (1982) suggests that the majority of individual differences in personality can be classified into five broad domains. Extroversion involves attributes such as enjoying human interactions, talkativeness, assertiveness and enjoying risk-taking; neuroticism involves attributes such as shyness, guiltiness, being tense, and being moody (Tosun & Lajunen, 2010). Conscientious people tend to show self-discipline, act dutifully, and aim for achievement. Openness to experience people tend to experience considerably different ideas and are more likely to accept novel objects. People who scored high in agreeableness tend to be compassionate and cooperative rather than suspicious and antagonistic towards others.

Amichai-Hamburger, Wainapel, & Fox (2002) confirmed the link between personality and the Internet usage. Their study on individuals' online activities found those people who ranked high in extraversion and low in neuroticism were not as heavy Internet users as their more introverted, more neurotic counterparts (Amichai-Hamburger *et al.* 2002). Correa *et al.* (2010) hypothesized that the anonymity of the Internet would attract people who were less comfortable with themselves and who otherwise had trouble making connections with others. People with high neuroticism may express their emotion of isolation and loneliness through the Internet.

In the past, people used the Internet mostly in anonymous way (McKenna & Bargh, 2000). Using Google service does not require membership with true names, so users can use nick name to login in Google. However, the recent rising of SNSs such as Facebook makes users more likely to show their true identity in real world on the Internet (Jones & Fox, 2009). By using their true identity, users can expand social circle of life, maintaining relationship with people who they know and interacting with friends on the Internet. Due to the above differences, this study aims to discuss whether user's personality characteristics have different predicting power on their usage in Facebook and Google.

2.3 Intimacy and SNSs

The web-based services have attracted more and more consumers during last decade. People can use web services to collect information and complete daily/job tasks. Web services are also a source of entertainment. Web-based services have low entry barriers by its nature, if one service is created, then a number of comparable alternative web-based services follow, resulting in a high switching rate between those services by users (Vatanasombut, Igarria, Stylianou, & Rodgers, 2008). Therefore, many web-based companies are facing fierce competition. Researches on psychology have confirmed that familiarity and intimacy are emotions that develop cumulatively over time and are formed quite differently from short-term affective factors (Lee & Kwon, 2011; Bagarozzi, 1997). Lee & Kwon (2011) found that the familiarity and intimacy can affect consumers' continuance usage of the web-based services. This study defines intimacy as the emotion between the user and platform. This study proposes intimacy is one of the important factors that predict user to use Facebook and Google services.

3. RESEARCH METHODS

The research aims to find out what factors motivate users' usage on Facebook and Google. An electronic survey was delivered to those who use both Facebook and Google. In order to increase the respondent's rate, the researcher holds on 10 times of lucky draw opportunities to overall respondent, providing 100 NT dollars of convenience store coupon value for each draw. The questionnaire includes four parts. The first part is a check list asking whether user uses specific Facebook functions, such as browsing friend's walls, sharing video, blogs, and photos, playing games, using applications, and joining fan groups. The second part is a check list asking whether user uses specific Google functions. The third part of questionnaire measures respondent's personality traits (including extraversion, openness to experiences, neuroticism, agreeableness, and conscientiousness) and respective perceptions of purposive value, hedonic value, social identity, social support, and interpersonal relationships when using Google and Facebook functions. The last part is about respondent's demographic information, such as age, gender, education level, occupation, frequency and total time spent in Internet usage, Facebook usage, and Google usage per day.

A pilot study was done to help revise the questionnaire. A total of 341 usable responses out of 365 responses were returned during March 10 to March 31, 2011. The participants consisted of 173 (50.73%) male and 168 (49.27%) female respondents. The majority of respondents' age ranges 21 to 25 years old (63.34%). More than 57 percent of respondents have education level of college or beyond.

The measurements employed in this research were adapted from literature. Six items to measure purposive value were adapted from Dholakia, Bagozzi, & Pearo (2004). Five items to measure hedonic value were adapted from Dholakia *et al.* (2004), Cheung *et al.* (2010), and Kim, Sohn, & Choi (2011). Social identity was measured by five items adapting from Kwon & Wen (2010). Five items measuring social support was adapted from Kim *et al.* (2011). Five items adapting from Dholakia *et al.* (2004) and Kim *et al.* (2011) were employed to assess interpersonal relationship. Six items adapting from Lee & Kwon (2011) were employed to measure intimacy. Twenty-five items were employed to measure personality traits (Goldberg, 1982) with five items to assess extraversion, neuroticism, openness to experiences, agreeableness, and conscientiousness respectively. Two items measuring total time spent in Facebook and Google usage respectively were adapted from Kwon & Wen (2010). All items were assessed by a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

4. DATA ANALYSIS

This study conducted measurement model to assess the convergent validity, discriminate validity and construct reliability of instruments. Table 1 shows correlation matrix and descriptive statistics of studied variables for Facebook and Google (in parenthesis). The results show that the square roots of AVE of each construct are higher than the elements in the corresponding rows and column which confirms an adequate discriminant validity of all studied constructs (Chin, 1998). All but one cronbach's alpha coefficients are greater than 0.7 confirmed an acceptable reliability level of the scales employed in this study.

Table 1. Correlation matrix and descriptive statistics of studied variables

	1	2	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.PV	.84(.81)											
2.HV	.13(-.04)	.81(.84)										
3.SI	.55(.02)	.33(.59)	.8(.74)									
4.SS	.34(-.07)	.35(.6)	.5(.62)	.87(.84)								
5.IR	.42(-.09)	.39(.57)	.6(.64)	.5(.76)	.79(.83)							
6.I	.38(.5)	.45(.08)	.72(.3)	.55(.08)	.73(.18)	.77(.91)						
7.EX	.35(.04)	.18(.09)	.42(.16)	.21(.13)	.32(.11)	.36(.01)	.82(.93)					
8.NE	-.08(-.03)	-.01(-.16)	-.1(-.02)	-.09(-.03)	-.07(-.08)	-.05(-.01)	.17(.14)	.81(.78)				
9.OP	.24(.13)	.2(-.03)	.3(.09)	.22(.01)	.24(.02)	.29(.12)	.61(.46)	.05(.21)	.8(.76)			
1.AG	.14(.21)	.26(-.08)	.3(.04)	.27(-.06)	.23(-.03)	.25(.17)	.45(.36)	-.09(.09)	.46(.51)	.81(.77)		
11.CO	.15(-.07)	.11(.03)	.23(.23)	.17(.14)	.25(.09)	.25(-.03)	.26(.19)	.07(.22)	.31(.36)	.36(.33)	.78(.82)	
12.U	.25(.36)	.35(.15)	.47(.28)	.32(.13)	.44(.14)	.53(.55)	.18(.07)	-.05(.07)	.13(.09)	.12(.08)	.15(.05)	.84(.86)
Mean	3.19(4.05)	4.1(2.71)	3.67(2.97)	3.77(2.66)	3.82(2.76)	3.59(3.41)	3.31	2.72	3.55	4.01	3.62	3.17
Std	1.07(.98)	.91(.96)	.88(1.04)	.84(.98)	.88(1.0)	.87(1.08)	.9	.99	.89	.7	.86	1.32
α	.79(.73)	.82(.89)	.81(.79)	.84(.91)	.72(.85)	.86(.78)	.83	.74	.76	.82	.84	.58

Diagonal is square root of AVE. PV= Purposive value; HV= Hedonic value; SI= Social identity; SS= Social support; IR= Interpersonal relationships; I= Intimacy; EX= Extraversion; NE= Neuroticism; OP= Openness to experiences; AG= Agreeableness; CO= Conscientiousness; U= Usage.

This study examines whether the predicting power of purposive value, hedonic value, social identity, interpersonal relationship and intimacy on Facebook usage is different from those on Google usage. *t*-test was employed and significant differences (all *p*'s < .01) between Facebook usage and Google usage were found in all five constructs. Users had significantly higher purposive value scores when using Google than when using

Facebook. On the other hand, users scored significantly higher in hedonic value, social identity, social support, and interpersonal relationship when using Facebook than when using Google.

Figure 1 showed Facebook usage model and Google usage model (in parenthesis) with path coefficients. Hedonic value, social identity and intimacy can significantly predict Facebook usage but personality traits do not. On the other hand, Figure 2 showed Google usage model with path coefficients. Intimacy and purposive value significantly predict Google usage but personality traits do not. This study found that Facebook users are more motivated by emotive factors such as social identity and hedonic value whereas Google users are more motivated by purposive value.

Personality traits do not have significant effects on either Facebook or Google usage for entire sample. This finding contradicts with literature (Tosun & Lajunen, 2010). After a closer examination on Google usage by education level, significant negative predicting power in extraversion (path coefficient of -0.14 , $p < .05$) and significant positive predicting power (path coefficient of 0.2 , $p < .001$) of neuroticism was found in college students. That is, college students who are more extraverted would have significantly less Google usage than their less extraverted counterparts. College students who are high in neuroticism would have significantly greater Google usage than their less neurotic counterparts. In addition, this study found significant negative predicting power in extraversion (path coefficient of -0.18 , $p < .05$) for male students and significant positive predicting power in neuroticism (path coefficient of 0.11 , $p < .05$) for female students. That is, males who are more extraverted would have significantly less Google usage than their less extraverted counterparts. Females who are high in neuroticism would have greater Google usage than their less neurotic counterparts. These gender differences as well as education level differences in neuroticism-Google usage relationship partially confirm Correa *et al.*'s (2010) and Amichai-Hamburger *et al.*'s (2002) studies that suggest individual's neuroticism level is positively related to his(her) instant message usage. On the other hand, The significant relation between extroversion-Google usage for male students and for college students is also consistent with Amichai-Hamburger *et al.*'s (2002) study that more extraverted people would tend to have less instant message usage.

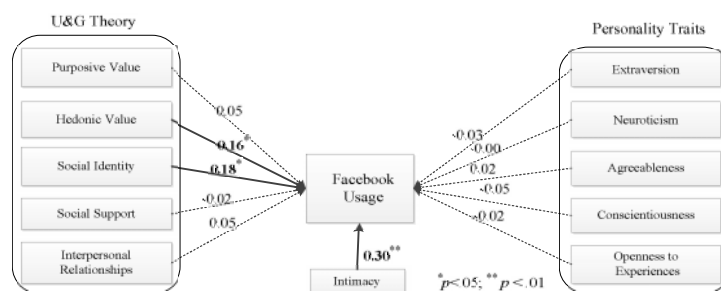


Figure 1. Research model results (Facebook)

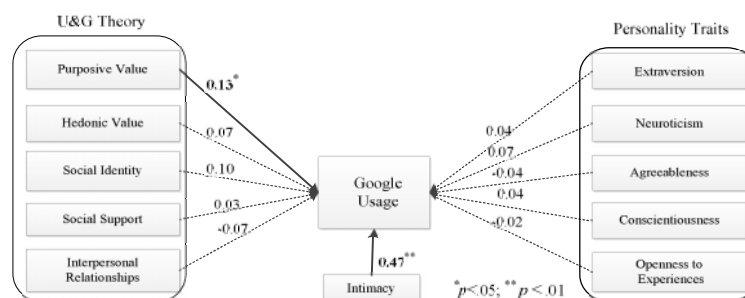


Figure 2. Research model results (Google)

Intimacy is in overall the most significant factor for both Facebook and Google usage (path coefficients of 0.3, $p < .05$ for the former and 0.47, $p < .05$ for the latter). Intimacy is established gradually over time and it is an important factor for SNSs usage. The result is consistent with the literature (Lee & Kwon, 2011) that client's affective state is crucial to the success of a web-based service. This study confirms that the reason for continuous SNSs usage is not only because the service is useful, but also because users have a sense of intimacy with the service. If users have strong intimacy with a specific web-service platform, it would be difficult for them to switch to other platforms even though new platforms emerge.

5. CONCLUSION AND IMPLICATION

5.1. Conclusion

This study examined seven constructs to understand the motivations behind the Facebook and Google usage. This study found that hedonic value and social identity constructs can significantly predict Facebook usage but not on Google usage. These results indicated that users' motivation on Facebook usage is more entertainment- and social-oriented such as pursuing pastimes, relaxations, and gaining social identity. Our study result is consistent with Kim, *et al.*'s (2011) finding that college students use SNSs for pleasures which is via exchanging information, music or video clips, and sharing experiences with their social ties. Facebook users tend to have stronger relationship-oriented motivation. They care about the hedonic value as well as gaining social identity of those social groups they belong to. The significant predicting power of social identity on Facebook usage indicates that individuals are eager to attain social recognition impact from peer community to where they belong. The result is consistent with previous study (Kwon & Wen, 2010) that social identity is an important social factor in SNSs use.

On the other hand, users' motivation on Google usage focuses on purposive value such as looking for information, acquiring news and generating new ideas. In other words, task-oriented factor such as purposive value can predict Google usage. Users of Google functions care more about how to acquire or share information in an effective and efficient way. They search for, collect, and share information to solve problems and make decisions. Google provides functional services, which help users to effectively and efficiently fulfill their needs.

This study did not find any significant predicting power of personality traits on Facebook or Google usage in the entire sample which is contradict with literature (Tosun & Lajunen, 2010). Nevertheless, after a closer examination on Google usage by education level, significant negative predicting power was found in extraversion and positive predicting power of neuroticism for college students. That is, comparing with master students, college students who are more extraverted would have significantly less Google usage and college students who scored high in neuroticism would have significantly more Google usage. In addition, significant negative predicting power was found in extraversion for male students and significant positive predicting power was found in neuroticism for female students. That is, male students who are more extraverted would have significantly less Google usage. Female students who scored high in neuroticism would have significantly more Google usage. The different SNSs usage patterns among users with different education level as well as between males and females found in this study are interesting and worth further investigation.

Intimacy is in overall the most significant factor for both Google and Facebook usage. Intimacy is established gradually over time and it is an important factor for SNSs platform usage. The result reconfirms with the literature (Lee & Kwon, 2011) that client's affective state is crucial to the success of a web-based service. If users have strong intimacy with a specific web-service platform, it would be difficult for them to switch to other platforms even though new platforms emerge. These findings can help website vendors to enhance and differentiate their website functions in the future. In order to gain sustainable advantage in SNSs management, both functional and emotional factors need to be taken into consideration.

5.2. Research limitation and implications

This study has the following limitations. First of all, Google and Facebook are quite different in many ways, such as membership system. Using Facebook requires users to obtain an account to participate in. But Google does not require users to login in. This difference may have affected the study results to some extent. Future researchers may choose other SNS platforms and replicate this study. Second, there may be some other factors relevant to user's SNSs usages that are left behind in this study. Future study may include other constructs in the present model and replicate the study. Third, the majority of the respondents of the present study are between 21 and 25 years old and most of them are college or graduate students. Future study may choose different target audience to make a cross-country, cross-occupation or cross-generation comparison. Furthermore, the study uses two items, frequency of usage and time of usage, to measure SNSs usage. Future study may include more diverse aspects to measure user's actual SNSs use behavior.

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