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ORIGINAL ARTICLE

Factors affecting the adoption of social network sites: examining four adopter categories of Singapore's working adults

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Adapted from Chang et al.'s (2006) models, this study examines factors that influence adoption and non-adoption of social network sites (SNS) in adopters (Continuers, Discontinuers) and non-adopters (Potentials, Resistors). Chi-square and *t*-test were used to analyze the survey data of Singapore's working adults and Internet users ($N = 222$). The findings reveal innovation characteristics (relative advantage, compatibility, complexity) and perceived popularity differ significantly in three pairs of adopter categories. Results show Continuers and Potentials are concerned more about image than Discontinuers and Resistors, while technology cluster differs between adopter vs. non-adopter and Continuers vs. Discontinuers. Moreover, the study suggests younger people tend to adopt SNSs, females continue to use SNSs more, and potential SNS users are more innovative. Lastly, a regression model to forecast the adoption of SNSs is proposed in which age, compatibility, technology cluster, and perceived popularity are predictors.

Keywords: computer-mediated communication; ICT; survey; Singapore; Internet

Introduction

Social network sites (SNS) have dramatically taken off globally since 2006 and empower hundreds of millions of users to share content among online communities and create a social Internet. Universal McCann's global analysis of social media usage (2009) showed that nearly two-thirds of all active Internet users have spent time managing a social networking profile, and 71.1% have visited friends' social network pages. According to the 2008 comScore survey about the global usage of SNSs, while the growth in new users in North America has started to level off, it is burgeoning in other regions. Many top SNSs, such as Facebook and MySpace, made efforts to become more culturally relevant in markets outside the US and thus demonstrated rapid growth in their global user bases (comScore, 2008). They showed high interest in Asia where the SNS phenomenon is flourishing.

In recent years, there has been a salient growing trend of adults adopting SNSs. Social networking is no longer just for children or teenagers. The 2010 Forrester Research report revealed that nearly 60% of adults maintain their SNS profiles and a third of them posted information on SNSs at least once a week (Safran, 2010). Also,

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the 2009 Nielsen report observed the increase of adult SNS users and attributed it to Facebook's increasing number of 35–49-year-old users (Nielsen Wire, 2009).

More and more adults use SNSs in the work domain. Posting personal career information on SNSs such as LinkedIn not only allows working adults to establish relationships with peers and professional contacts but also attract potential employers (Silverthorne, 2009). A UK study showed that employees spent 30 minutes to three working hours a day visiting these sites (Kelleher, 2009), which raised the concern of the counterproductive effect of using SNSs in workplaces. As existing studies were primarily related to how youths used SNSs for identity production, image management, and socialization (Boyd, 2006, 2007, 2008; Lenhart & Madden, 2007) and how SNSs facilitate college students to form and maintain social capital (Ellison, Steinfield, & Lampe, 2007), little research has been done on the adoption and use of SNSs beyond youths and students. The adoption and non-adoption of SNS among working adults will yield meaningful results.

From the literature on SNSs and diffusion and innovation theory (Rogers, 2003), adopters' characteristics (Hargittai, 2007), perceived characteristics of innovation (Moore & Benbasat, 1991), technology cluster (Kang, 2002; Vishwanath & Chen, 2006), and perceived popularity of innovation (Katz & Shapiro, 1986; Lou, Luo, & Strong, 2000; Markus, 1987; Slyke, Ilie, Lou, & Stafford, 2007) are identified as the key constructs that may affect the adoption of SNSs. As previous diffusion studies conceptualized adoption as either a dichotomy (between adoption and rejection) or a linear continuum (from Innovators to Early Adopters, Early Majority, Later Majority and Laggards) (Zhu & He, 2002). Chang, Lee, and Kim (2006) revised adopter categories (Rogers, 2003; Zhu & He, 2002) and further divided adopters as 'Continuers' and 'Discontinuers' and non-adopters as 'Potentials' and 'Resistors'. This study aims to investigate the differences in relation to 'adopters' characteristics', 'perceived characteristics of innovation', 'technology cluster', and 'perceived popularity' among the four SNS adopter categories of Singapore's working adults.

Thus, the research questions are as follows:

RQ1: What are the differences between adopters and non-adopters of SNSs?

RQ2: Among adopters, what are the differences between Continuers and Discontinuers of SNSs?

RQ3: Among non-adopters, what are the differences between Potentials and Resistors of SNSs?

By examining Discontinuers and Resistors, the study fills the gaps in previous diffusion studies where little attention has been paid to the discontinuance and rejection of an innovation. Its study of SNS adoption by working adults, a departure from most studies on how youth uses SNSs, explores the adoption decisions of a different population. Finally, it develops a regression model to further forecast the adoption of SNSs.

Diffusion of social network sites

Social network sites are web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of

connections and those made by others within the system (Boyd, 2007; Boyd & Ellison, 2007; Ellison et al., 2007). Their distinctive characteristics include 'profiles, public testimonials or comments, and publicly articulated, traversable lists of friends' (Boyd, 2008, p. 120). SNS users can leave messages and comments, share photos, music, or videos, and write blogs as well as make connections to friends or like-minded strangers. Regarding SNSs as one of the impactful social media, this study examines four key constructs (adopters' characteristics, perceived characteristics of innovation, technology cluster, and perceived popularity) that may affect its use and non-use.

Adopters' characteristics

Demographics

Early adopters of an innovation were found to be younger and more well-educated (Lenhart, 2009; Rogers, 2003), especially the diffusion of SNSs starting from the youth. Although previous studies suggested that males tended to adopt innovation earlier (Lenhart & Madden, 2007; Rogers, 2003; Vishwanath & Goldhaber, 2003), Hargittai's (2007) survey specifically investigated the adoption and non-adoption of SNSs among university students and found female students used SNSs slightly more than male students, which may be a result of women's relationship-centric nature. A new Twitter research also showed female users outnumbered males (Piskorski & Heil, 2009).

Based on findings of previous studies, this study proposes the hypotheses H1a, H1b, and H1c.

H1a: SNSs adopters are likely to be younger than non-adopters.

H1b: SNSs adopters are likely to have higher educational qualifications than non-adopters.

H1c: Females are more likely to adopt SNSs than males.

Innovativeness

Innovativeness is defined as an individual's tendency to seek novelty and to be receptive to new ideas (Li, 2004; Midgley & Graham, 1978; Rogers, 2003). This study looks at inherent innovativeness of individuals rather than actualized innovativeness (Midgley & Graham, 1978) as circumstances may intervene to prevent an individual from actualizing his innovativeness through the action of adopting an innovation. Studies have found innovativeness to be an important predictor of adoption of new technologies (Chan-Olmsted & Chang, 2006; Kang, 2002). Hence, this study proposes that:

H2: SNSs adopters are likely to be more innovative than non-adopters.

Perceived characteristics of innovation

Whether an innovation is adopted and the rate of its adoption are affected by its perceived characteristics (Rogers, 2003): (1) relative advantage, whether it is perceived to be better than existing similar products; (2) compatibility, whether it is perceived as being consistent with existing values, past experiences, and norms of

people in the social system; (3) complexity, whether it is perceived as relatively difficult to understand and use; (4) trialability, whether it can be experimented with on a limited basis; and (5) observability, whether the results of usage is visible to others. Past diffusion studies showed that people were more likely to adopt an innovation if it offered relative advantages, appeared simple to use and compatible with adopters' existing values and experiences, allowed trial use and experimentation, and demonstrated evident benefits to adopters.

Moore and Benbasat (1991) also identified other characteristics that positively influence the adoption of an information technology innovation: result demonstrability, visibility, and image. Moore and Benbasat (1991) found Rogers' observability contained two concepts: the ability to communicate the results of using an innovation to others (result demonstrability) and the actual visibility of the innovation seen by others (visibility). When SNS users view others' profiles and communicate with friends about the 'results' of usage, it can be considered as result demonstrability. However, as the use of SNSs is not meant for observation, visibility is not applicable in this study. For SNSs, image may be an important influence in the decision to adopt it. Image is the 'degree to which use of an innovation is perceived to enhance one's image or status in one's social system' (Moore & Benbasat, 1991, p. 195). People may join SNSs to be regarded as 'cool' or 'collect' friends on their SNS profile to make themselves look popular (Boyd, 2006, 2008).

Thus, the following hypotheses are proposed:

- H3a: Adoption of SNSs is positively related to perceived relative advantage.
- H3b: Adoption of SNSs is positively related to perceived compatibility.
- H3c: Adoption of SNSs is negatively related to perceived complexity.
- H3d: Adoption of SNSs is positively related to perceived trialability.
- H3e: Adoption of SNSs is positively related to perceived results demonstrability.
- H3f: Adoption of SNSs is positively related to image.

Technology cluster

A technology cluster is made up of 'one or more distinguishable elements of technology that are perceived as being closely interrelated' (Rogers, 2003, p. 14). People's experiences with a technology influence their perceptions of similar technologies and hence their intention to adopt the technology (Rogers, 2003). For instance, Kang (2002) found that cable TV subscribers were likely to adopt digital cable. SNSs provide a centralized location in which users have access to synchronous and asynchronous communication features and entertainment activities, tools for blogging, and allow them to share music and videos and put up their creative work, all linked to their individual profiles which can be customized and updated regularly (Lenhart & Madden, 2007). Internet technologies and web services belonging to the same cluster as SNSs are the applications for online socialization such as emails, blogs, instant messaging, media sharing sites (e.g., Flickr, YouTube), online forums, and microblogging services (e.g., Twitter).

Some believed adopting an innovation may trigger an individual's adoption of other similar technologies (Rogers, 2003). LaRose and Atkin (1992) investigated the use of 18 communication technologies and found that people were likely to use information technologies that function in similar ways or draw on similar behavioral patterns. However, Vishwanath and Chen (2006) further examined the differences in

the conceptualization of technology clusters between adopters and non-adopters. They concluded that adopters tended to relate to technologies based on the interdependence of functionalities and infrastructure, and would adopt a technology if it was necessary or complementary to the ownership of related technologies. In contrast, they found non-adopters related to technologies based on functional merits and adopted less functionally similar technologies. Thus, this study hypothesizes that:

H4: SNS adopters are likely to use more technologies that are functionally similar to SNSs than non-adopters.

Perceived popularity

Perceived popularity is a concept associated with perceived critical mass that reaches 'the point at which enough individuals in a system have adopted an innovation' (Rogers, 2003, p. 343) to cause a self-sustaining rate of adoption. When applied to interactive media, an individual adopter benefits from the use only if people he/she communicates with are also using it (Markus, 1987; Rogers, 2003). According to Zhou (2008), perceived popularity would exert a greater impact on more influential media such as the Internet because of a certain degree of interdependence among the adoption decisions of the members of a system (Rogers, 2003; Zhou, 2008). Besides, perceived popularity of an innovation among social contacts influences not only the adoption but also its discontinuance (Rogers, 2003). When users discontinue using an interactive medium, the benefits of adoption to other users will decrease, due to the interconnectivity (Markus, 1987). Slyke et al. (2007) found perceived critical mass affected the decision to adopt instant messaging greatly. According to Zywicka and Danowski's research (2008) on the popularity of Facebook, while some people interpret popularity to mean 'widely liked', or accepted by one's peer group members (Bukoski & Hoza, 1989), others see it as being 'socially dominant' (Parkhurst & Hopmeyer, 1998). Similarly, Kwon and Chon (2009) found that younger people tended to be more influenced by perceived popularity to adopt the innovation.

Hence, this study hypothesizes that:

H5: SNSs adopters are more likely than non-adopters to perceive that SNS use is popular among their social contacts.

Adopter categories

Zhu and He (2002) in their study on the adoption of the Internet in China revised Rogers' adopter categories (Innovators, Early Adopters, Early Majority, Later Majority, and Laggards) to four dynamic categories of Continuous Adopters, Discontinued Adopters, Potential Adopters, and Continuous Non-adopters. They argued that such categorization reflected the dynamic flow between adoption and rejection and people's temporary use or non-use of an innovation. Later, studying the adoption of online games, Chang, Lee, and Kim (2006) built upon Zhu and He's (2002) categorization and labeled the adopters as 'Continuers', 'Discontinuers', 'Potentials', and 'Resistors', respectively. Adopters consist of Continuers who have continued to play online games and Discontinuers who adopted the playing of online games but have since stopped. Non-adopters of online games include Potentials who

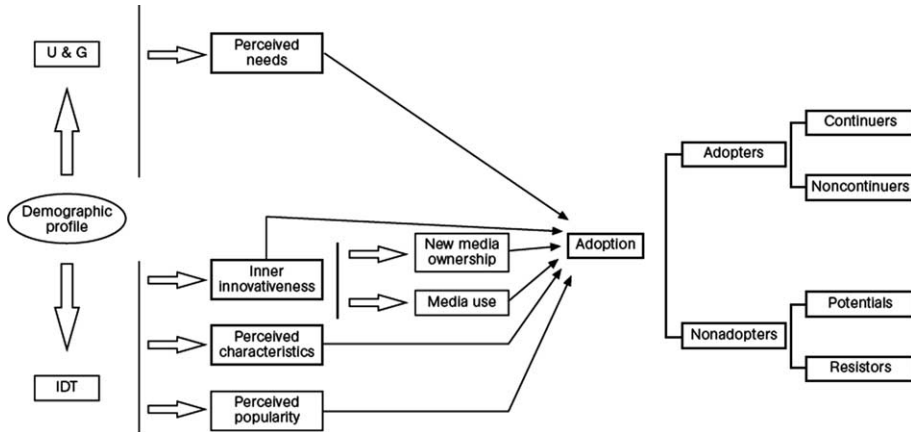


Figure 1. An integrated model of online game adoption (Chang et al., 2006, p. 298).

have never used them before but have expressed intent to try them in the near future and Resisters who are reluctant to play online games. This study used Chang, Lee, and Kim's (2006) categorization of adopters and non-adopters because it is suitable for examining the dynamic flow of SNS adoption.

Research framework

To study the adoption and non-adoption of SNSs across four user categories, this research adapted Chang, Lee, and Kim's (2006) model that integrated theories of diffusion of innovation, uses, and gratification and identified seven independent constructs (i.e., perceived characteristics and perceived popularity) that might directly or indirectly affect college students' adoption of online games (Figure 1). Based on the typology developed in previous studies (Chang et al., 2006), adopters consist of Continuers and Discontinuers while non-adopters consist of Potentials (people who have never used a technology before but have expressed intent to try an innovation in future) and Resisters (people who are reluctant to adopt an innovation). The definitions of the four adopter categories are as follows:

- (1) *Adopters* – individuals who use SNSs and continue using them;
- (2) *Discontinuers* – individuals who had used SNSs but stopped;
- (3) *Potentials* – individuals who have not used but are likely to use SNSs within a year; and
- (4) *Resisters* – individuals who have not used and are not likely to use SNSs any time soon.

This research aims to investigate the differences in the independent variables between adopters and non-adopters and among the four adopter categories with respect to the adoption or non-adoption of SNSs. Figure 2 shows the four groups of independent variables that might affect the adoption of SNSs. They include (1) adopters' characteristics (i.e., age, educational level, gender and innovativeness); (2)

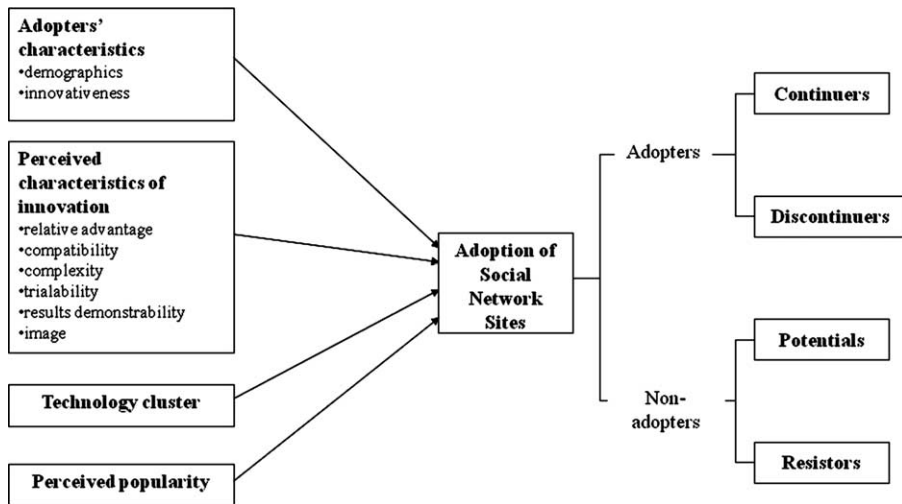


Figure 2. Research framework for adopting social network sites among four adopter categories.

perceived characteristics of SNSs (i.e., relative advantage, compatibility, complexity, trialability, results demonstrability and image); (3) technology cluster; and (4) perceived popularity. Technology cluster is the only new variable added into this framework that is not included by Chang, Lee, and Kim (2006). The findings will further examine and compare the sub-categories of adopters and non-adopters.

Method

This research focuses on studying the adoption of SNSs among working adults and Internet users in Singapore. Singapore is an ideal context for the SNS study because of its high enterprise and home Internet penetration rates (67% and 71%, respectively) (Infocomm Development Authority of Singapore, 2008). The most common activities among Singapore's Internet users were communicating and socializing, including sending and receiving emails, chatting, social networking, and blogging.

Survey data collection

From 18 January to 14 February 2008, data were first collected using a self-administered web-based survey questionnaire disseminated via emails within two organizations: a department in a government organization and a social club. The reasons for choosing these samples are to balance different kinds of social groups (formal/informal). The two organizations had 210 members in total with a good mix in gender, age, and educational levels. There were 46% male and 54% female; most (56%) were 30 years old or younger and slightly more than half (55%) had at least a university degree. With the varied backgrounds of the sample population, there is a high possibility of a mix of adopters and non-adopters of SNSs.

The link to the web-based survey questionnaire was disseminated to all the members of the two groups and a reminder email was sent to the respondents after two weeks to encourage more responses. At the end of the four-week data collection period, 136 responses were collected, of which 78 were Continuers, 11 were Discontinuers, 15 were Potentials, and 30 were Resistors. Because this survey ended up having a much higher respondent rate in the 'Continuer' category, in order to have meaningful comparisons, another data collection was needed to obtain enough respondents in the remaining three adopter categories.

From 16 to 26 February 2008, a pen-and-paper survey was conducted within the Central Business District in Singapore to complement the web-based survey, as the number of responses for three adopter categories (Discontinuers, Potentials, and Resistors) was less than 30 after taking into account invalid responses and failed to constitute a representative sample for analysis. The questionnaires used in the pen-and-paper survey were identical to those used in the web survey. The criteria for selecting suitable respondents (i.e., working adults and Internet users) also remained the same. In addition to the survey modes (online vs. pen-and-paper), conditions were strictly controlled so as not to influence the results of data collection. Even though it is harder to find suitable respondents for the pen-and-paper survey (not everyone is a working adult and Internet user), the data collection modes should not affect the validity of the results.

At the end of the survey period, a total of 104 survey questionnaires were collected from the convenient sampling of the street survey. The respondents comprised 41 Continuers, 25 Discontinuers, 17 Potentials, and 21 Resistors. In total, 238 respondents who met the criteria of working adults and Internet users were collected from the two surveys, of which 222 were usable.

Measures of key variables

Demographics

Demographic measures include gender, age, educational level and monthly income level. This study referred to other similar surveys to shape the categories of the three demographics measures in order to better reflect working adults' real situation in Singapore. The age groups were divided into 'Below 21', '21–30', '31–40', '41–50', and 'Above 50' and reasonably covered the age range of Singapore's working adults. As for educational levels, the categories were formed using Singapore's formal school system and important entrance exams, including 'Primary school/PSLE and below', 'Secondary school/"O" levels or equivalent', 'Junior college/"A" levels or equivalent', 'Vocational training/ITE', 'Polytechnic/Diploma', and 'University/Degree and above'. The monthly income categories encompassed 'Below SG\$1000', 'SG\$1000–SG\$2999', 'SG\$3000–SG\$4999', 'SG\$5000–SG\$6999', 'SG\$7000–SG\$9999', and 'SG\$10,000 and above'.

Adopter categories

Based on Chang, Kim, and Lee's (2006) model, respondents were asked a series of questions to determine their adopter categories (Continuer, Discontinuer, Potential, and Resistor).

Independent variables

The independent variables (i.e., innovativeness, relative advantage, compatibility, complexity, trialability, results demonstrability and perceived popularity) were measured on a five-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. The questionnaire has a multiple-choice question about the Internet technologies and web services used by the respondents, including emails, blogs, instant messaging, media sharing sites (e.g., Flickr, YouTube), online forums and microblogging services (e.g., Twitter).

The scales used to measure the factors were based on those established previously where available. Some of the scales required adaptation to make them relevant to SNSs while some were newly developed. Table 1 shows the source of the scales used to measure the variables.

Scale reliability

Cronbach's alpha was used to measure the reliability of the scales used for measuring the factors in the research framework (Table 2). Most of the scales generated alpha coefficients that were above or close to the cut-off of 0.7. However, the scale for results demonstrability yielded a low alpha coefficient of 0.092. The low alpha coefficient of below three items to test 'result demonstrability' indicated their lacking of internal consistency:

- (1) 'It is easy to communicate to others the consequences of using social network sites'.
- (2) 'It is obvious to me whether using social network sites is beneficial or not'.
- (3) 'It is difficult to explain why using social network sites may or may not be beneficial'.

Hence, they were dropped from further analysis.

Data analysis method

Chi-square and *t*-test were used to verify the differences between adopters and non-adopters of SNSs. Chi-square tests that test relationships between two nominal variables were used to see if there were age, educational and gender differences between (1) adopters and non-adopters, (2) Continuers and Discontinuers, and (3) Potentials and Resisters. Besides, independent samples *t*-tests are used to test for differences in means between two subgroups. Independent sample *t*-tests were used to test for differences between (1) adopters and non-adopters, (2) Continuers and Discontinuers, and (3) Potentials and Resisters in terms of the other factors in the research framework, namely innovativeness, relative advantage, compatibility, complexity, trialability, image, technology cluster, and perceived popularity. Finally, regression analysis was used to realize which critical factors discussed above would impact the level of SNS adoption, and this study employed all impact factors as an independent variable and 'Level of Adoption' as a dependent variable to execute. Regression analysis was also used to further examine the impact levels between each independent variable and dependent variable and establish a model to predict the levels of SNS adoption.

Table 1. Measurement scales for independent variables.

Variable	Measurement
Innovativeness (Lin, 1998)	I like to learn about new ideas. I like to explore new technology for communication. I like to keep up with new technologies. I am willing to take risk.
Relative advantage (Davis, 1989)	Using a social network site allows me to stay in touch with the people I know more easily. Using a social network site is useful for staying in touch with the people I know. Using a social network site allows me to get to know people in my social circle better. Using a social network site allows me to expand my social circle further.
Compatibility (Moore & Benbasat, 1991; Slyke et al., 2007)	Using a social network site is convenient for me because I am online most of the time. Using a social network site fits well with my communication style. Using a social network site suits me because I mostly communicate with the people I know online.
Complexity (Davis, 1989; Moore & Benbasat, 1991)	Social network sites are difficult to use. Learning to use social network sites would be easy for me. It would be easy for me to become skillful at using social network sites. Using social network sites would be a frustrating experience for me.
Trialability (Rogers, 2003)	I know that I can browse the profiles of users of social network sites to see how a social network site works before I decide whether to join it. I know that I can take a site tour to see how social network site works before I decide whether to join it.
Result demonstrability (Moore & Benbasat, 1991)	It is easy to communicate to others the consequences of using social network sites. It is obvious to me whether using social network sites is beneficial or not. It is difficult to explain why using social network sites may or may not be beneficial.
Image	Using social network sites will make me more popular among people who know me. Using social network sites will make me seem sociable among people who know me.
Perceived popularity (Slyke et al., 2007)	Many people I communicate with use social network sites. The people I communicate with will continue to use social network sites in the future. Of the people I communicate with regularly, many of them use social network sites.

Table 2. Analysis of scale reliability.

Variable	No. of items	Cronbach's alpha, α
Innovativeness	2	0.778
Relative advantage	4	0.832
Compatibility	3	0.766
Complexity	4	0.654
Trialability	2	0.619
Results demonstrability*	3	0.092
Image	2	0.689
Perceived popularity	3	0.832

Note: Variable dropped from further analysis.

Findings

Descriptive statistics

In the final sample, 65.3% of the respondents were SNS adopters while non-adopters made up 34.7%; 113 respondents were Continuers (50.9%), 32 were Discontinuers (14.4%), 30 were Potentials (13.5%), and 47 were Resistors (21.2%). A total of 46.4% of the respondents were male and 53.6% were female; 48.2% of the respondents were between 21 and 30 years old; 55.4% of them had at least a university degree. Their monthly income ranged from \$3000–\$4999 (36%) or \$1000–\$2999 (35%); 47.1% respondents had more than 10 years of Internet experience and 51.4% spent more than 10 hours on the Internet weekly.

Next are the demographic descriptions of the sample related to four adopter categories. Females made up the majority of Continuers (61%). Continuers (66%) and Discontinuers (63%) mainly fell under the 30-years-old-and-below age group and more than half of them had a university degree or above. Most Continuers and Discontinuers had more than 10 years of Internet experience (48% and 47%, respectively) and spent more than 10 hours on the Internet weekly (62% and 63%, respectively). Most of the Continuers (46%) spent 1–5 hours per week using SNSs and 39% use two SNSs. Friendster and Facebook were the most popular SNSs among the Continuers in this study.

As for non-adopters, most Potentials were female (57%) while Resistors were mostly male (57%). Half of the Potentials were 31–40 years old while most Resistors (45%) were over 40 years old. Most of them had at least a university degree and earned \$3000–\$4999 monthly. Half of the Potentials had 5 to 10 years of Internet experience and 43% spent 5 to 10 hours on the Internet weekly. Most Resistors had more than 10 years of Internet experience (52%) and spent 1 to 5 hours on the Internet weekly (38%).

Differences between adopters and non-adopters

RQ1 explored the differences between adopters and non-adopters of SNSs through testing a series of hypotheses (H1–H5). As for adopters' characteristics, the Chi-square test results showed that adopters and non-adopters significantly differed in terms of age ($\chi^2 = 81.618$, $df = 2$, $p < .001$) and adopters were likely to be younger than non-adopters. There was no significant difference in terms of the educational

level ($\chi^2 = 0.832$, $df = 2$, $p > .05$), gender ($\chi^2 = 1.461$, $df = 1$, $p > .05$), and innovativeness of the respondents ($t = 1.723$, $df = 220$, $p > .05$). Hence, H1a was supported while H1b, H1c, and H2 were rejected.

Table 3 shows that in terms of perceived characteristics, adopters were more likely to agree that SNSs had a relative advantage ($t = 3.897$, $df = 220$, $p < .01$), were compatible ($t = 4.762$, $df = 220$, $p < .01$), and were not complex to use ($t = -5.062$, $df = 220$, $p < .01$). These findings were consistent with innovation literature where adopters generally require an innovation to have relative advantages, be compatible with past experience, and not complex in usage (Rogers, 2003). There was no difference in the trialability of SNSs and the image associated with its use. It is probably because both adopters and non-adopters were aware that they could browse profiles on SNSs and have a free site tour due to the popularity and prevalence of SNSs. Besides, the purposes of joining SNSs are quite self-explanatory to both adopters and non-adopters, i.e., to improve image, enlarge online social circle, and become popular among friends. So, image was found not to be significantly different between adopters and non-adopters. As Continuers and Potentials were more likely to perceive SNSs as an enhancer for image compared to Discontinuers and Resisters, the effect of image could be cancelled out. Hence, H3a, H3b, and H3c were supported while H3d and H3f were rejected.

Table 3. Differences between adopters and non-adopters.

Variable	<i>N</i>	Mean	<i>t</i>	<i>p</i>
Innovativeness	145	3.79	1.723	.086
Adopter	77	3.61		
Non-adopter				
Relative advantage	145	3.71	3.897*	.000
Adopter	77	3.31		
Non-adopter				
Compatibility	145	3.36	4.762*	.000
Adopter	77	2.86		
Non-adopter				
Complexity	145	2.28	-5.062*	.000
Adopter	77	2.63		
Non-adopter				
Trialability	145	3.46	-1.405	.162
Adopter	77	3.59		
Non-adopter				
Image	145	2.90	1.069	.286
Adopter	77	2.78		
Non-adopter				
Technology cluster	145	3.24	8.121*	.000
Adopter	77	2.00		
Non-adopter				
Perceived popularity	145	3.74	7.066*	.000
Adopter	77	3.05		
Non-adopter				

Note: * $p < .001$.

Adopters were more likely to use more technologies that were similar to SNSs ($t = 8.121$, $df = 220$, $p < .01$) and perceived SNSs as a popular medium among people around them ($t = 7.066$, $df = 220$, $p < .01$) (see Table 3). Thus, H4 and H5 were supported. The result that SNS adopters used more technologies that are functionally similar to SNSs than non-adopters is consistent with previous studies (Kang, 2002; Rogers, 2003). As for perceived popularity, people were more likely to adopt SNSs when they perceived that their social contacts were also using them.

Differences between Continuers and Discontinuers

RQ2 focused on adopters to find out how Continuers were different from Discontinuers in their decisions to continue or discontinue their use of SNSs through a series of hypotheses (H1–H5). The results showed gender was the only demographic factor that affected the decision of whether to continue using SNSs or not ($\chi^2 = 4.239$, $df = 1$, $p < .05$). SNS Continuers were more likely to be female, which echoed the results of previous studies that women were more likely to use SNSs than men (Hargittai, 2007; Lenhart & Madden, 2007). Besides, women were found to use the Internet to communicate more, while men use the Internet to primarily seek information and recreation (Fallows, 2005). As SNSs are mainly a communication tool for socialization, this could explain why more females than males remained loyal users of SNSs. Besides, Continuers and Discontinuers did not differ in other adopters' characteristics: age ($\chi^2 = 1.516$, $df = 2$, $p > .05$), educational level ($\chi^2 = 0.472$, $df = 2$, $p > .05$) and innovativeness (see Table 4).

In terms of perceived characteristics, Continuers were more likely to agree that SNSs had a relative advantage ($t = 4.670$, $df = 41.542$, $p < .01$), were compatible ($t = 5.757$, $df = 143$, $p < .01$), were not complex in usage ($t = -4.207$, $df = 143$, $p < .01$) and enhanced their image ($t = 3.195$, $df = 143$, $p < .01$) (see Table 4). As Dwyer (2007) commented, 'impression management seems to be the main point of social network(ing) sites'. The reasons why Continuers viewed SNSs as a way to express themselves and project image could be that SNSs' features allowed them to manage their public selves and disclose personal information at different levels to chosen groups.

Discontinuers and Continuers were more likely to use more technologies similar to SNSs ($t = 3.496$, $df = 143$, $p < .01$) and to perceive that SNSs were popular among the people around them ($t = 2.968$, $df = 39.814$, $p < .01$) (see Table 4). Adopters would be encouraged to continue using an innovation of an interactive nature when their social contacts are also using it (Markus, 1987).

Differences between Potentials and Resistors

RQ3 focused on non-adopters to find out how different Potentials were from Resistors in determining whether they might use SNSs in future through testing a series of hypotheses (H1–H5). There were no significant differences in terms of age ($\chi^2 = 2.537$, $df = 2$, $p > .05$), educational level ($\chi^2 = 1.591$, $df = 2$, $p > .05$) and gender (Chi-square = 0.227, $df = 1$, $p > .05$). However, Potentials were more likely to be more innovative than Resistors ($t = 2.357$, $df = 75$, $p < .05$) (see Table 5). Lin (1998) cited evidence from innovation research 'where the better educated and younger, yet less affluent individuals often are not identified as innovators, due to

Table 4. Differences between continuers and discontinuers.

Variable	<i>N</i>	Mean	<i>t</i>	<i>p</i>
Innovativeness	113	3.84	1.654	.100
Continuer	32	3.61		
Discontinuer				
Relative advantage	113	3.86	4.670**	.000
Continuer	32	3.15		
Discontinuer				
Compatibility	113	3.52	5.757**	.000
Continuer	32	2.77		
Discontinuer				
Complexity	113	2.19	-4.207**	.000
Continuer	32	2.60		
Discontinuer				
Trialability	113	3.45	-0.121	.904
Continuer	32	3.47		
Discontinuer				
Image	113	3.00	3.195*	.002
Continuer	32	2.52		
Discontinuer				
Technology cluster	113	3.41	3.496**	.001
Continuer	32	2.66		
Discontinuer				
Perceived popularity	113	3.84	2.968*	.005
Continuer	32	3.38		
Discontinuer				

Note: * $p < .01$; ** $p < .001$.

their lack of actual adoption activity'. This could imply that Potentials could inherently be adventurous in trying out new things, but they temporarily put off trying out SNSs due to various reasons.

Table 5 shows that in terms of perceived characteristics, Potentials were more likely to agree that SNSs had a relative advantage ($t = 2.357$, $df = 75$, $p < .05$), would be compatible ($t = 5.696$, $df = 75$, $p < .01$), would not be complex in usage ($t = -2.842$, $df = 75$, $p < .01$) and would enhance their image ($t = 2.595$, $df = 75$, $p < .05$). Compared with the most common reason from the open-ended question, Potentials cited for being likely to use SNSs in future was that they wanted to use SNSs to keep in touch with their friends (a relative advantage).

There was no difference in the perceived trialability of SNSs. There was no significant difference in terms of technology cluster between Potentials and Resisters, which means both non-adopter groups were less interested in using interdependent and functionally replaceable technologies. However, similar to the findings for RQ1 and RQ2, Potentials were found to be more likely to perceive SNSs as being popular among their social contacts than Resisters ($t = 2.476$, $df = 75$, $p < .05$). Perceived SNSs' popularity is a recurring concept that showed how the importance of creating a perception of widespread SNS use could help accelerate the adoption.

By analyzing the open-ended answers, 21 (or 70%) out of 30 Potentials were likely to adopt SNSs in future for 'keeping in touch with friends', 'expanding social circle',

Table 5. Differences between potentials and resisters.

Variable	<i>N</i>	Mean	<i>t</i>	<i>p</i>
Innovativeness	30	3.87	2.357*	.021
Potential	47	3.45		
Resistor				
Relative advantage	30	3.82	5.696***	.000
Potential	47	2.98		
Resistor				
Compatibility	30	3.33	4.844***	.000
Potential	47	2.55		
Resistor				
Complexity	30	2.46	-2.842**	.006
Potential	47	2.74		
Resistor				
Trialability	30	3.68	1.034	.304
Potential	47	3.53		
Resistor				
Image	30	3.05	2.595*	.011
Potential	47	2.61		
Resistor				
Technology cluster	30	2.17	1.141	.257
Potential	47	1.89		
Resistor				
Perceived popularity	30	3.30	2.476*	.016
Potential	47	2.89		
Resistor				

Note: * $p < .05$; ** $p < .01$; *** $p < .001$.

and to 'keep up with new technology'. The first two reasons are identical to those of the Continuers. However, Potentials showed willingness to keep up with new technology which implies their innovativeness. Thirty-four (72%) of the 47 Resisters who gave their reasons for not intending to use SNSs included 'lack of time', 'preference for other forms of communication', and 'no interest in SNSs'. Similar to Discontinuers, the Resisters regarded time as an important factor for the non-adoption of SNSs.

Regression result

To better understand the impact of critical factors on the adoption of SNSs, this study used stepwise regression that treated the factors affecting adults' adoption of SNSs in the workplace as independent variables and their adoption as the dependent variable to construct a predictive model. After using both the 'forward method' and the 'backward method' for the trial run, the explanation level of the 'stepwise regression' was found to be stronger and the meaning of its results was more suitable for the research purposes than the other two methods (forward method, backward method). As such, the Stepwise Regression Procedure (criteria: probability-of-F-to-enter $\leq .050$, probability-of-F-to-remove $\geq .100$) was used in the regression model that established an equation to predict the adoption level of SNS. The results showed

five independent variables should be included: age, compatibility, technology cluster, trialability, and perceived popularity of innovation. Because case numbers 106 and 159 have overly high standardized Residual (−3.551 and −3.034) in Casewise Diagnostics, these items were deleted.

According to the results, Model 5 is the fittest model for this study. R2 (multiple determination coefficient) is the index of Goodness of Fit. Because Model 5's R2 = 0.590, it can explain the highest percentage of adoption level of SNSs (59%). As its P values of all variables are significant, the Model 5 is accepted. Furthermore, Model 1 shows the 'age' variable has a 35.2% prediction rate to the adoption level of SNS. Model 2 shows 'age' and 'compatibility' can explain 49% SNS adoption probability. By calculating different values between Model 1 and Model 2, this study estimates 'compatibility' has a 13.8% prediction rate. Then, Model 3 (age, compatibility, and technology cluster) represents a 56.4% prediction rate and 'technology cluster' can explain 7.4% SNS adoption probability. Finally, Model 4 has a 57.3% prediction rate, and 'trialability' can explain 0.9% SNS adoption probability. From the results of regression, age, compatibility, and technology cluster also were found to have a huge impact on the level of adoption. Their prediction rates to the adoption level of SNSs are 35.2%, 13.8%, and 7.4%, respectively. Comparatively, the explanation rates of trialability and perceived popularity of innovation are only 0.9% and 0.7%.

According to the result of coefficients (Table 6), the regression equation can be written as

$$Y = -1.042 + 0.523 X1 + 0.464 X2 + 0.267 X3 + (-0.217) X4 + 0.204 X5$$

(P=0.000) (P=0.000) (P=0.000) (P=0.010) (P=0.024)
 F test Sig. = 0.000 Durbin-Watson = 1.633
 R2 = 0.590 Std. Error of the Estimate = 0.78715
 X1 = age X2 = compatibility X3 = technology cluster X4 = trialability
 X5 = perceived popularity of innovation Y = level of adoption

It also can be displayed as

$$\text{Level of adoption} = -1.042 + 0.523 \text{ age} + 0.464 \text{ compatibility} + 0.267 \text{ technology cluster} + (-0.217) \text{ trialability} + 0.204 \text{ perceived popularity of innovation}$$

Table 6. Coefficients.

Variables	Coefficients			
	B	Std. error	T	Sig.
(Constant)	−1.042	.415	−2.511	.013*
Age	.523	.070	7.439	.000*
Compatibility	.464	.082	5.670	.000*
Technology cluster	.267	.049	5.391	.000*
Trialability	−.217	.083	−2.615	.010*
Perceived popularity of innovation	.204	.090	2.271	.024*

Note: *p ≤ 0.05.

The equation shows through the results of regression that age, compatibility, and technology cluster have huge impact on the level of adoption. They can predict the adoption of SNSs better than trialability and perceived popularity. Furthermore, the equation also could be an efficient instrument to estimate the level of adoption of SNSs via the result of just a few factors.

Discussion

Consistent with past diffusion studies, this research found three characteristics of innovation (relative advantage, compatibility, and complexity) to be influential in individuals' adoption decisions regardless of their adopter categories (Continuers, Discontinuers, Potentials, and Resistors). They are critical factors to be applied in future diffusion studies of similar Internet communication technologies. The regression analysis shows compatibility has great prediction power as to the adoption of SNSs across the four adopter categories. Thus, the use of SNSs should be compatible to the existing use of other technologies (technology cluster) and personal lifestyle (time and socialization).

Image was found as an important consideration in the adoption of SNSs. According to Dwyer (2007, p. 5), 'impression management seems to be the main point of social network sites'. Computer-mediated communication (CMC) enables users to have an active engagement of self-presentation strategies (Walther & Burgoon, 1992) and have more controllable self-presentation than offline activities (Burgoon & Walther, 1990). The Internet provides individuals freedom to skillfully managing their online profiles and personal messages in order to create their desired digital identities (Papacharissi, 2002; Schau & Gilly, 2003). SNSs are ideal platforms for users to manage and distribute desirable personal images among their virtual social groups. The use of SNSs is an opportunity for impression management for its users so they can show who they really are or how they want others to view them (Dwyer, 2007) through their creations. The impact of image on the adoption of SNSs showed significant differences in the comparisons of Continuer vis-à-vis Discontinuer and Potentials vis-à-vis Resistors. It implies the image factor stimulates the continuous usage and potential take-up of SNSs. Thus, the features of SNSs that allow their users to manage personal profiles are critical to retain SNS users and stimulate future diffusion.

From the findings, perception popularity of SNSs is another crucial factor in the decision to adopt or not adopt SNSs. Diffusion of SNSs, an interactive and social medium, has been mostly triggered by sending email invitations by SNS users to their friends to join (Boyd, 2008). Email invitations can be seen as a personal endorsement of a particular SNS and create perceived popularity to the receiver. This study showed adopters used SNSs because their social contacts were using them, while Discontinuers quit because their friends were not on SNSs. The results demonstrate 'reciprocal interdependence' (Markus, 1987; Rogers, 2003), the distinctive characteristic of interactive technologies. When the number of users increases, SNSs become more valuable to both adopters and non-adopters and thus stimulate adoption and continuous use. Thus, perceived popularity of SNSs can be applied to effective marketing strategies to push the diffusion of SNSs to reach critical mass.

Our findings corroborate Vishwanath and Chen's (2006) argument about the differences of technological adoption among adopters and non-adopters, and examine the similar technology in use among the four adopter categories. The results show technology cluster is a factor that distinguishes SNS adopters from non-adopters as well as Continuers from Discontinuers. Compared with non-adopters, adopters were more likely to use similar technologies, such as blogs, instant messaging, and media-sharing sites. These allow users to express themselves, share thoughts or personal records, or communicate with friends or strangers virtually. The study also reveals that SNS Continuers use similar technologies to enhance their virtual image, self-expression, and relationship maintenance. Adding new features like blogs and photo/video sharing are likely to make SNSs more appealing to adopters and thereby retain their use.

As for adopters' characteristics, they varied in effects on SNS adoption decisions. Among adopters, age was found to be a significant factor such that younger people tend to try out novelties like SNSs. After adoption, gender became a critical factor for continuous usage of SNSs. Males were found to be more likely than females to stop using SNSs as they preferred information seeking or entertaining online activities. Interestingly, while adopters were not necessarily more innovative than non-adopters, potential adopters, possibly late majority or laggards, were found to be more innovative than those with no intention to use SNSs.

The study on the adoption of SNSs among Singapore's working adults not only examined the factors that affected the adoption decisions concerning SNSs but also stretched SNS research into different age groups. That is how we found 'age' as the most important predictor for the adoption of SNSs. The chi-square results show age is a determining factor that distinguishes the adopters and non-adopters of SNSs; in the regression analysis, age was found as the highest in the prediction rate of adopting SNSs. The findings echoed the results of previous diffusion studies where early adopters of an innovation had been found to be younger (Leung & Wei, 1999; Rogers, 2003).

Conclusion

In summary, this study examined how adopters' characteristics, innovation characteristics, technology cluster, and perceived popularity affect the adoption decisions among four categories of adopters (Continuers, Discontinuers, Potentials, Resisters) (Table 7). Survey results revealed that adopters, Continuers, and Potentials perceived SNSs as popular among their social contacts and thus adopt, keep using, and may consider adopting SNSs. Three perceived characteristics of SNSs (relative advantage, compatibility, less complexity) were found to have positive impact on the adoption, retention, and stimulating the future use of SNSs. Adopters, especially those who continue using SNSs, tended to use more technologies similar to SNSs. Finally, adopter characteristics varied in their influence on different types of adoption decisions. Age was a significant factor in the adoption decision of SNSs, while gender and innovativeness were differentiating factors in continued use and potential adoption, respectively. The result of regression analysis also showed age was the most important factor in predicting the adoption level of SNSs.

There are also some interesting findings from the qualitative responses to open-ended questions. Continuers and Potentials tended to perceive SNSs positively. Apart

Table 7. Summary results of variables affecting four adopter groups.

Adopter category	Variables (significant difference)
Adopter vs. Non-adopter	Age Characteristics of innovation <ul style="list-style-type: none"> ● Relative advantage ● Compatibility ● Complexity Technology cluster Perceived popularity
Continuer vs. Discontinuer	Gender Characteristics of innovation <ul style="list-style-type: none"> ● Relative advantage ● Compatibility ● Complexity Image Technology cluster Perceived popularity
Potential vs. Resistor	Innovativeness Characteristics of innovation <ul style="list-style-type: none"> ● Relative advantage ● Compatibility ● Complexity Image Perceived popularity

from the advantages of using SNSs, both categories often cited the use of SNSs by their social contacts as motivations for them to keep using or to try out SNSs in future. This shows the importance of perceived popularity on the diffusion of SNSs, which is also reflected in the quantitative analysis of results between 'Adopter vs. Non-adopter', 'Continuer vs. Discontinuer', and 'Potential vs. Resistor'. Moreover, Discontinuers and Potentials tend to hold negative views towards SNSs. Both of them regarded time as the most important factor related to the non-adoption of SNSs, which is worth investigating in future study of non-adoption of SNSs or similar social media.

This study contributes to provide a comprehensive examination for factors affecting SNS adoption decisions and the constructs and framework can be applied to future studies on use and non-use of other Internet communication technologies. It overcomes the pro-innovation bias by looking at both adopters and non-adopters of SNSs and enhances the understanding of the differences among adopters (Continuers, Discontinuers) and non-adopters (Potentials, Resistors). By examining Discontinuers and Resistors, the study fills the gaps in previous diffusion studies where little attention had been paid to the discontinuance and rejection of an innovation. Additionally, it examines the adoption of SNSs by working adults, a departure from most studies on how young people adopt or use SNSs, and thus explores a different population's SNS adoption decisions. More importantly, this study creates a regression equation to predict the adoption level of SNSs via five variables (age, compatibility, technology cluster, trialability, and perceived popularity

of innovation), which can be applied in further studies on practices of adopting new media or emerging information communication technology.

As for limitations, this survey study has a small sample size for the categories of Discontinuers, Potentials, and Resistors, which restricts the generalization of its results. In addition to the weakness of online surveys and convenience sampling, the use of a pen-and-paper survey to supplement the insufficient responses of the web survey may also affect the validity to some extent. With respect to future research, as global SNSs must conquer local cultural barriers (comScore, 2007), one interesting area to explore is to find out whether people in different countries vary in their adoption and non-adoption decisions of SNSs. Another possible study is to take personalities or lifestyles of the SNS adopters and non-adopters into account when studying their adoption decisions and behaviors. Lastly, a longitudinal study that tracks the adoption of SNSs over a period of time can better uncover the dynamic flow between adoption and rejection (Zhe & He, 2002) and will provide insights into why adopters stop using SNSs or why non-adopters adopt SNSs.

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References

- Boyd, D. (2006). Friends, friendsters, and top 8: Writing community into being on social network sites. *First Monday*, 11(12). Retrieved from http://firstmonday.org/issues/issue11_12/boyd/index.html
- Boyd, D. (2007). Social network sites: Public, private, or what?. *Knowledge Tree*, 13. Retrieved from <http://kt.flexiblelearning.net.au/tkt2007/edition-13/social-network-sites-public-private-or-what/>
- Boyd, D. (2008). Why youth (heart) social network sites: The role of networked publics in teenage social life. In David Buckingham (Ed.), *Youth, identity, and digital media* (pp. 119–142). Cambridge: MIT Press.
- Boyd, D.M., & Ellison, N.B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), article 11. Retrieved from <http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html>
- Bukowski, W.M. & Hoza, B. (1989). Popularity and friendship: Issues in theory, measurement and outcome. In T.J. Berndt & G.W. Ladd (Eds.), *Peer relationships in child development* (pp. 15–45). New York: John Wiley & Sons, Inc.
- Burgoon, J.K., & Walther, J.B. (1990). Nonverbal expectancies and the evaluative consequences of violations. *Human Communication Research*, 17, 232–265.

- Chang, B., Lee, A., & Kim, B. (2006). Exploring factors affecting the adoption and continuance of online games among college students in South Korea. *New Media and Society*, 8(2), 295–319.
- Chan-Olmsted, S.M. & Chang, B. (2006). Audience knowledge, perceptions and factors affecting the adoption of terrestrial digital television. *New Media and Society*, 8(5), 773–800.
- comScore. (2007, July 5). Facebook sees flood of new traffic from teenagers and adults. Retrieved from <http://www.comscore.com/press/release.asp?press=1519>
- comScore. (2008, August 12). Social networking explodes worldwide as sites increase their focus on cultural relevance. Retrieved from http://www.comscore.com/Press_Events/Press_Releases/2008/08/Social_Networking_World_Wide
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- Dwyer, C. (2007). Digital relationships in the ‘MySpace’ generation: Results from a qualitative study. *Proceedings of the 40th Hawaii International Conference on Systems Sciences*. Los Alamitos, CA: IEEE Press.
- Ellison, N.B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook ‘friends’: Exploring the relationship between college students’ use of online social networks and social capital. *Journal of Computer-Mediated Communication*, 12(4), article 1. Retrieved from <http://jcmc.indiana.edu/vol12/issue4/ellison.html>
- Fallows, D. (2005). How women and men use the Internet. *Pew Internet and American Life Project*. Retrieved from http://www.pewInternet.org/pdfs/PIP_Women_and_Men_online.pdf
- Hargittai, E. (2007). Whose space? Differences among users and non-users of social network sites. *Journal of Computer-Mediated Communication*, 13(1), article 14. Retrieved from <http://jcmc.indiana.edu/vol13/issue1/hargittai.html>
- Infocomm Development Authority of Singapore. (2008). *Annual infocomm usage by enterprises survey for 2007 – Key findings*. Retrieved from http://www.ida.gov.sg/doc/Publications/Publications_Level2/20061205092557/ASIBizUsageS2007.pdf
- Kang, M.H. (2002). Digital cable: Exploring factors associated with early adoption. *Journal of Media Economics*, 14(3), 193–207.
- Katz L.M. & Shapiro, C. (1986). Technology adoption in the presence of network externalities. *The Journal of Political Economy*, 94(4), 822–841.
- Kelleher, D. (2009, February 23). *Social networking at work: Fear not Facebook, MySpace?* Retrieved from <http://www.itworld.com/Internet/63062/social-networking-work-fear-not-facebook-myspace>
- Kwon, K.H., & Chon, S.B. (2009). Social influences on terrestrial and satellite mobile-TV adoption in Korea: Affiliation, positive self-image, and perceived popularity. *International Journal on Media Management*, 11(2), 49–60.
- LaRose, R., & Atkin, D. (1992). Audiotext and the re-invention of the telephone as a mass medium. *Journalism Quarterly*, 69, 413–421.
- Lenhart A. (2009, January 14). *Adults and social network websites*. Pew Internet and American Life Project. Retrieved March 10, 2010, from <http://www.pewInternet.org/Reports/2009/Adults-and-Social-Network-Websites.aspx>
- Lenhart, A., & Madden, M. (2007). Teens, privacy and online social networks. *Pew Internet and American Life Project*. Retrieved from <http://www.pewInternet.org/Reports/2007/Teens-Privacy-and-Online-Social-Networks.aspx>
- Leung, L., & Wei, R. (1999). Who are the mobile phone have-nots? Influences and consequences. *New Media and Society*, 1(2), 209–226.
- Li, S.S. (2004). Examining the factors that influence the intentions to adopt internet shopping and cable television shopping in Taiwan. *New Media and Society*, 6(2), 173–193.
- Lin, C.A. (1998). Exploring personal computer adopter dynamics. *Journal of Broadcasting and Electronic Media*, 42(1), 95–112. Retrieved from EBSCO host Communication and Mass Media Complete database.
- Lou, H., Luo, W., & Strong, D. (2000). Perceived critical mass effect on groupware acceptance. *European Journal of Information Systems*, 9, 91–103.
- Markus, M.L. (1987). Toward a ‘critical mass’ theory of interactive media: Universal access, interdependence and diffusion. *Communication Research*, 14, 491–511.

- Mayfield, A. (2007). What is social media? Retrieved from http://www.icrossing.co.uk/fileadmin/uploads/eBooks/What_is_social_media_FINAL_V1.3.pdf
- Midgley, D. & Graham, R.D. (1978). Innovativeness: The concept and its measurement. *Journal of Consumer Research*, 4, 229–242.
- Moore, G.C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2(3), 192–222.
- Nielsen Wire. (2009, March 9). Social networking's new global footprint. Retrieved from <http://blog.nielsen.com/nielsenwire/nielsen-news/social-networking-new-global-footprint/>
- Papacharissi, Z. (2002). The self online: The utility of personal home pages. *Journal of Broadcasting and Electronic Media*, 46(3), 346–368.
- Parkhurst, J.T. & Hopmeyer, A. (1998). Sociometric popularity and peer-perceived popularity: Two distinct dimensions of peer status. *The Journal of Early Adolescence*, 18(2), 125–144.
- Piskorski, M., & Heil, B. (2009, June 1). New Twitter research: Men follow men and nobody tweets. Retrieved from http://blogs.hbr.org/cs/2009/06/new_twitter_research_men_follo.html
- Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- Safran, S. (2010, January 20). Adult social media use hits new highs. Retrieved from <http://www.lostremote.com/2010/01/20/adult-social-media-use-hits-new-highs/>
- Schau, H.J., & Gilly, M.C. (2003). We are what we post? Self-presentation in personal web space. *Journal of Consumer Research*, 30(3), 385–404.
- Silverthorne, S. (2009, September 14). Understanding users of social networks. Retrieved from <http://hbswk.hbs.edu/item/6156.html>
- Slyke, C.V., Ilic, V., Lou, H., & Stafford, T. (2007). Perceived critical mass and the adoption of a communication technology. *European Journal of Information Systems*, 16, 270–283.
- Universal McCann. (2009). Power to the people: Social media tracker. Retrieved from <http://universalmccann.bitecp.com/wave4/Wave4.pdf>
- Vishwanath, A., & Chen, H. (2006). Technology clusters: Using multidimensional scaling to evaluate and structure technology clusters. *Journal of the American Society for Information Science and Technology*, 57(11), 1451–1460.
- Vishwanath, A., & Goldhaber, G.M. (2003). An examination of the factors contributing to adoption decisions among late-diffused products. *New Media and Society*, 5(4), 547–572.
- Walther, J.B., & Burgoon, J.K. (1992). Relational communication in computer mediated interaction. *Human Communication Research*, 19(1), 50–88.
- Zhou, Y. (2008). Voluntary adopters versus forced adopters: Integrating the diffusion of innovation theory and the technology acceptance model to study intra-organizational adoption. *New Media and Society*, 10(3), 465–496.
- Zhu, J.J.H., & He, Z. (2002). Perceived characteristics, perceived needs and perceived popularity: Adoption and use of the Internet in China. *Communication Research*, 29(4), 466–495.
- Zywica, J., & Danowski, J. (2008). The faces of Facebookers: Investigating social enhancement and social compensation hypotheses; predicting Facebook and offline popularity from sociability ad self-esteem, and mapping the meanings of popularity with semantic networks. *Journal of Computer-Mediated Communication*, 14(1), 1–34.