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Abstract

Becoming members of social networking websites is now one of the most popular on-line activities. Although the number of users has been growing exponentially in social network sites (SNS), some SNSs are facing a financial crisis and might be shut down in the near future. Therefore, understand users' incentives to switch to another SNS has great influence on operators' business performance. The study extended "Push-Pull" migratory theory to explain the switching behaviors of users in SNS. Structural equation modeling (SEM) was applied to analyze data collected from 618 users by questionnaire survey. The result shows that pull effects have the greatest influence on users' switching behaviors, followed by push effects. As a result, the study suggests that operators should satisfy users' pursuit of freshness, and carefully examine whether their services could address users' needs of socializing and entertainment.

Keywords: Social Network sites, Migration, Service Switching, Post Adoption

1 INTRODUCTION

The development of social network sites (SNS) in recent years is a breakthrough Internet application that promotes interpersonal communication. Pew Research Center conducted a survey of American young adults regarding their Internet use and found that more than half of the respondents use SNSs (Lenhart et al., 2010). For example, Facebook has become one of the most popular means of communication in the world. To date, there are more than 400 million active users logging into facebook.com at any given moment, compared to 12 million users in 2007(Facebook.com, 2010).

Though the total number of SNSs has been growing rapidly in recent years, some SNSs have closed down or are facing financial problems due to intense competition. For instance, SixDegrees.com, launched in 1997, was recognized as the pioneering SNS but was closed in 2000 because it failed to sustain its business (Boyd and Ellison, 2007). Bebo, usually considered to have a younger user profile - principally, school-age children - has lost out: unique users dropped 24% year on year to 9 million in April 2009 (Arthur and Kiss, 2009). As the social networking stage is rife with heavy competition, it is important for service operators to retain their current customers as well as to attract new ones. Nevertheless, existing SNS studies have principally focused on the user's intention to participate (Park et al., 2009; Shin and Kim, 2008), the motivation for using SNS among late adolescents (Barker 2009). However, few studies have shed light on users' behavior toward SNS services. User turnover affects the success of an SNS and is therefore crucial in understanding the factors affecting users' behavior to switch SNS services. For SNS service providers, understanding the behavioral intention of SNS users can help them design features for a target groups of particular users and sustain their business.

The key objective of this study is to examine the factors that drive users to switch SNS services. Demographists proposed that people moving from a point of origin to a new destination can be considered as a type of switching behavior of residences. In this study, we propose a SNS switching model which is adapted from the real-world Push-Pull (PP) migratory model to demonstrate users' behavioral intention to switch SNS. The PP model has also been applied to service migration. Bansal et al. (2005) did the pioneering research claiming that customers who switch service providers could be compared to migrants because they move between physically separated, real-life service providers, which can be considered as belonging to "distinct worlds". These authors concluded that the PP model provided a unifying framework for positioning the factors found in the existing service literature, and suggested that with the model, researchers could better understand consumers' switching behavior.

2 THEORETICAL BACKGROUND

The current study considers the switching behavioral intentions of SNS users as a type of migration in the cyberspace. The PP model has become a paradigm for migratory studies (Moon 1995). This section introduces the basic concept of the PP model and explains how we applied it to the phenomenon of SNS switching.

2.1 Human migration and service migration

Migration was defined as "the movement of a migrant between two places for a certain period of time" (Boyle and Halfacree, 1998). Depending on the length of time involved, migration can be either temporary or permanent. Temporary migrants are people who leave their birthplace and work in other places for decades, but then return to their original place when they retire. Permanent migrants, on the other hand, are people who leave their original home forever (Cohen 1996). Similarly, in online service context, once an operator shuts down the service in the virtual world, or users are tired of the activity, they will not visit the activity anymore even if they still hold the accounts. This type of user behaves the same as permanent migrants do in the real world.

In addition, depending on their attributes, migrants can also be classified as voluntary migrants or refugees (Jackson 1986). Voluntary migrants are free to choose their destination and migratory process; although there may be factors in the migrant's own situation that constrain or facilitate the migration decision, there are no formal constraints. Conversely, refugees have no choice and must migrate due to outside constraints, such as natural disasters or wars, regardless of whether they want to migrate or not (Cohen 1996). In the same way, marketing professionals sometimes describe consumer switching behavior as voluntary or involuntary switching (Keaveney 1995). Voluntary switching occurs, for example, because of core service failures, employee responses to service failures, inconvenience, competition, ethic problems, or even pricing issues. Involuntary switching, however, is caused by a service provider closing or a customer moving, among other things.

2.2   The Push-Pull Migration Model

In 1885, Ravenstein published what he called his "Laws" of migration, in which he observed that human migration is influenced by push-pull effects (Lee 1966). To date, the push-pull model is still one of the most common models used to interpret human migration (Coen 1996). This model regards migration as the consequence of the interaction between the push effect at the original place and the pull effect at the destination. Push effects are the negative factors that compel people to leave their original place. For example, push effects include a lack of work opportunities, the difficulty of finding a spouse, bad climate. Pull effects, on the other hand, are the positive aspects of the destination that attract people to it. Better development and work opportunities, higher incomes, a comfortable climate are all examples of pull effects (Lee 1966).

The PP model has been applied to marketing disciplines. Bansal et al. (2005) maintained that the migratory model provided a unifying framework for positioning the predictors found in the existing service switching literature. They fit these predictors into the PP framework and found the model which operated as a useful framework to explain consumers' switching behavior. Consequently, they suggested that future researchers apply the model to better understand consumer switching behavior in other context.

2.3   Service Switching

Customer switching is one of the central concepts in relationship marketing field, and it refers to the people migration between service providers or firms. There are three major stream of research on understanding customers' switching behavioral intentions: 1. using process models for customer service switching (Roos 1999); 2. the heterogeneous characteristics between stayers and switchers (Keaveney and Parthasarathy, 2001); 3. the factors that drive customers to switch. The last stream has been attracting the most attention among researchers (Oliver and Swan, 1989; Keveney, 1995; Kim et al., 2006; Bansal et al., 2005). Prior research on customer switching covers various areas, such as traditional service. Keaveney (1995) has examined reasons for customer service switching by critical incidents method. Compared with relationship marketing in offline environment, research in online environment has just recently been attracting increasing attention. For instance, Kim et al. (2006) attempted to understand the association between customer satisfactions for email service switching. However, due to distinction between online and off-line contexts, online customer satisfaction was measured in multiple dimensions including: information quality, such as consistency, timeliness; system quality, such as feedback mechanism and system performance; and perceived service quality of information technology department.

In addition the elements of service satisfaction, customers' intention for service switching may also be influenced by psychological and non-psychological barriers. Such barriers may be largely associated with the availability of alternative attractiveness and perceived sunk costs. Several studies indicated that sunk costs would not only have direct influence on customers' service re-purchase but also moderate the dynamics between customers' satisfaction for a service and their re-purchase decision (Gwinner, 1998; Jones et al., 2002).

Few studies examined how user variables affected customers' intention to switch a paid service and their actual switching behaviors (Bansal et al. 2005). The SNS service offered by Internet providers is different from other paid services because, in most cases, SNS service offer with free. Operators do not generate revenue directly from SNS services but to expand network externality and to boost customer loyalty and sustainability, which in turn translate into larger viewer hits and generate revenue by other business activities such as advertisement. Besides, there are also elements that distinguish the SNS service from other online services, which may significantly affect customer satisfaction for an SNS service, including privacy policy, the way that the providers handle subscriber information, and personalization tools. With its uniqueness as a communication service, better understanding on the SNS service switching is necessary.

3 RESEARCH HYPOTHESES

Figure 1 shows the research model that the study adopts. Second-order factors include push and pull effects, and each is composed of different first-order factors. Push effects consists of four: low socializing (LSO), low entertainment levels (LEN), low website system quality (LSQ), and low satisfaction with customer service (LSA). Pull effects consists of three: alternative attractiveness (AA), peer influence (PI), and critical mass (CM). This section will explain our chose of these factors and their positions in the PP SNS switching model.
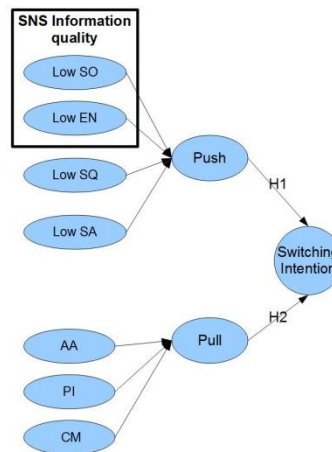
Place Figure 1 around here**

When adopting high-order research model, the relationship between the high-order constructs of the model and their dimensions has attracted great attention in recent years (Chin, 1998). This conceptualization of PP switching model as a composition of its parts requires a formative operationalization (Jarvis et al., 2003).

3.1 Push Effects

Due to the novelty nature of the SNS context, only a few prior studies have identified which predictors might be effective in predicting users' "defection", and thus we had no immediate "push" predictor to refer from previous research to explain the issue of why users leave SNS. Thus the study adopts the "push effects" from the migration theory. Push effects refer to factors that cause people's discontent towards the original residence. SNS could be seen as an information system that helps users to improve their social relationship. In analyzing users' satisfaction towards information system, Delone and McLean (2003) found that it is resulted from three antecedents: information quality, system quality and service quality. ◦ Based on this analog, this study suggests that SNSs that fail to satisfy users' expectation in these three aspects will push users away, a result that is similar to the situation in a migration context: people tend to leave their original residence when it fails to provide conditions that sustain their survival.

Information quality is assessed by evaluating the output quality of an information system. In other words, it means that the output of an information system has to be relevant and correct when it is delivered to the user. Accuracy, validity, integrity and relevance of the output should be guaranteed (Delone and McLean, 2003). People's main purposes for using SNSs are fulfilling their needs of networking and entertainment, as suggested by previous research (Barker et al., 2009; Part et al., 2009). Therefore when considering the information quality of a SNS, its ability to fulfill people's needs in these two aspects is indispensible. System quality, which refers to the evaluation of the system itself, is assessed based on its reliability, flexibility, and perceived ease of use (Delone and McLean, 2003). It is also users' evaluation of the SNS system, such as how successful the technology is. Service quality, as proposed by DeLone and McLean (2003), is composed of responsiveness, accessibility and thoughtfulness. The abovementioned ideas about information, system and service quality of SNSs will be discussed in a SNS context below.

Low information quality (low socializing and low enjoyment)

Low socializing Socializing is considered to be one of the most important concepts in SNS usage (Park et al. 2009). In Bakor's (2009) study, he indicated the four aspects of socializing: to get support from others, to meet interesting people, to converse with others, and to stay in touch with friends. Raacke and Bond-Raacke (2008) showed in their study that the majority of college students utilize the SNS for reasons such as making new friends and locating old friends. Base on such studies, the SNS must at least provide the function for users to keep and maintain their social ties. Users have better tendency to continue a specific SNS service that is able to maintain or enhance users' current social ties. Conversely, users tend to discontinue a SNS service that is not capable of satisfying their socializing urges.

Low entertainment In order to attract and retain users in a SNS for longer online and active duration, SNS operators offer many add-on applications. Many interesting add-on applications are provided by a SNS service, such as social games and psychological tests. The most attractive of all is the social game, for example, the "Farm Ville". Joining the Farm Ville, users can cultivate plants, keep animals or even steal crops from their friends' farms as an interesting interaction. The emerging social games created a new age in the SNS history; users now utilize the SNS platform for usual communication and for entertainment as well (Shin and Kim, 2008). Park et al. (2009) observed this phenomenon and indicated that entertainment was one of significant factors for users to participate in SNS. Hence, the factor of entertainment is considered to be a strong element for users to continue a specific SNS service.

Low website system quality

System quality refers to the accountability, flexibility and ease of use of the system. When it comes to system quality of websites used for e-commerce, access speed, load-balancing and security are valued the most by users(Liu & Arnett, 2000). System quality of SNSs, rooted in websites, is evaluated by its reaction speed: how fast the system could access photos or data, run additional applications, or maintain the flow of instant message. If the system failed to provide a smooth flow of information on these aspects, then users would consider leaving the system due to poor efficiency. Based on the observations above, we elaborated the following Hypothesis 1 below:

H1: The likelihood that a user will switch to another SNS is greater when the push effects of the current SNS are high.

3.2   Pull Effects

Alternative attractiveness

A destination that offers a better living quality than the origin is attractive to migrants (Lee 1966). This includes better opportunities for development, such as better jobs and higher income or good living

quality characterized by high-quality school districts. Therefore, if a destination provides migrants better living conditions than those provided by the origin, people will be attracted to relocate to the destination. The same point of view holds true for the results of studies on service switching. Another company that provides quality customer service can induce consumers to switch to the new provider (Keaveney, 1995; Jones et al., 2002; Bansal et al., 2005). SNS, which provide social services mediated by Internet technology, are also within the scope of the service industry. Therefore, the aforementioned strategies for improving service quality can also be applied to online services when enticing new customers to switch services. The core service of SNS lie in the socializing and entertainment it brings (Hsu and Lu, 2004). A new SNS that is more exciting than an existing SNS and provides better customer service will attract users to switch to it. Accordingly, this study presents the pull effects that create switching behavior in terms of alternative attractiveness.

Peer influence

Peer influence has been considered as a crucial predictor to affect behaviors adopting a new technology (Hung et al., 2003). Based on the statement of Boyd and Ellison (2007), "the symbiotic relationship between bands and fans" assisted Myspace to expand its customer base by attracting many users from Frindster.com which is was once its greatest direct competitor. Therefore, this research considers peer influence as a factor affecting an SNS user's switching intention. However, little study has paid attentions to users' peer influence regarding switching behavior between online services (Lui 2005). As most people use SNSs to maintain or search new relationships with friends, an alternative SNS seems more attractive because of their friends' preferences. The influence of peers can work through creating "opportunities for new activities, environment, or people" for an SNS user. When one receives invitations by a large number of friends, he/she would be likely to switch to the alternative new site.

Critical Mass

Information goods often have network externality. This means that the technology's value for a user increases as the number of people using this specific technology grows (Shapiro and Varian, 1999). Since a SNS can be classified as a pleasure-oriented information system, it thus can be considered to have network externality. Prior studies have shown that having a sufficient number of participants in a SNS positively influences the entertainment value perceived by the users (Lin and Lu, 2011). The more users that are interacting with other users in the same online service, the greater entertainment of the site they experience. Conversely, when users think that there are not enough other users in a site, they may consider switching to a new site. Hence, we hypothesized H2 as below:

H2: The likelihood that a user will switch to another SNS is greater when the pull effects of the alternative SNS are high.

4   RESEARCH METHOD

4.1   Instrument development

According to the hypotheses presented in last section, a survey instrument was developed based on prior relevant research. Questionnaire items were modified slightly from the prior studies to fit our specific research context. There are 7 constructs for a total of 24 items. All the questionnaire items are listed in Appendix A. Except for the two sections of the questionnaire used to collect users' experience and their demographic backgrounds, all items were measured using either 7-point Likert scale or 7-point semantic differential scales.

We considered the following four antecedents as push effects: low socializing, low entertainment, low system quality, and low satisfaction. The scale used for socializing (SO) was self-developed by referring to Park's (2009) study which considers users immersed in Facebook group usage. Entertainment (EN) was adopted from Ghani and Deshpande's enjoyment scale (1994). The critical mass (CM) was measured using the three-item scale proposed by Hsu and Lu (2004). To demonstrate

the negative forces of site migration, all scales were reverse coding to represent the push effects. The pull effects were measured with alternative attractiveness and peer influence. The alternative attractiveness (AA) was measured using the scale described by Bansal et al. (2005). Peer influence (PI) was adopted from Hung et al. (2004) scales with 4 items. The mooring effects included sunk costs, group cohesion, and need for variety. Finally, switching intentions (SI) as independent variable was measured using Ye's method (2007).

The questionnaire was first reviewed by two professors to validate the tool to fit the SNS switching context. Before starting the regular survey process, a pilot test was conducted. The subjects of the pilot test included faculty and staff members at a national university with a total of 23 respondents, who all had the experience of using SNS. The purpose of this pilot test is to verify that the instrument is well-formulated and to check verify whether the instrument script is clear, and that the collected data can be meaningfully analyzed.

4.2 Data Collection

We collected data via an empirical field survey with self-selected subjects. Researchers placed a message on Facebook.com recruiting volunteers who have had experience using SNSs to join this survey. A "snowball" sampling method was applied in this survey. Facebook was our primary focus for the study because it is one of the most popular SNSs in the world with a large subscriber base (Facebook.com, 2010). It is crucial to highlight that only users with at least one Facebook account were considered valid respondents for this study. A gift certificate with a value of US$3 was then sent to each respondent who filled out the questionnaire as an incentive to boost the response rate and to insure the quality of the data. The data was collected over a span of four months between February 2010 and May 2010.

4.3 Survey Respondents

The survey yielded 653 responses. After removing those with unanswered items, we ended up with 618 usable responses. Of the respondents, 352 (57%) were male and 266 (43%) were female. The majority of respondents were between 20 and 29 years old (73%), and 21% were 20 years old or less. Approximately 85 percent of the respondents were students, who spent US$4 dollars or less per month on SNS service. Finding of this sample are similar with the result of survey published by MIC, a dominating market information research center in Taiwan. The MIC survey described the mainstream online entertainment users in Taiwan as "Male, between the ages 20 and 29, generally a student" (MIC 2009).

5 RESULTS

A two-stage approach was used to test the model. First, test for Conbach' alpha, convergent, and discriminant validity were made to examine the reliability and construct validity of instrument. Second, the theoretical model was tested by using PLS, a latent structural equations modeling technique a component-based approach to estimation. This analytical tool was chosen because our research model is a second-order formative model (Chin, 1998, Fornell and Bookstein, 1982).

5.1 Measurement model

The study utilized SPSS to test the reliability of the questionnaire. The Cronbach's alpha of all concepts reached more than 0.7, conforming to the threshold value. As shown in Table 1, the lowest is that of need for variety (NV), 0.73, with that of others all arrived at more than 0.8, meaning that they all reached the high reliability standard (Nunnally and Berstein, 1994).

Table 1. Scale reliability

Concepts	Cronbach alpha	CR*
Switching intention	0.96	0.97
Socializing	0.87	0.90
Entertainment	0.86	0.91
System Quality	0.88	0.92
Service Satisfaction	0.89	0.86
Alternative attractiveness	0.91	0.87
Peer Influence	0.78	0.93
Critical mass	0.74	0.86

*: Composite Reliability

To verify the construct validity of the questionnaire, the study conducted convergent validity and discriminant validity tests. In the convergent validity test, we adopted the judging criteria proposed by Fornell and Larcker (1981): convergent validity is reached only if (1)the factor loading exceeds 0.7, and (2)the average variance extracted (AVE) exceeds 0.5. The factor loading of all items is shown in Table 2. Peer influence (PI) have one item with factor loading lower than 0.7 (PI=0.53), and thus deleted from the questionnaire. The AVE of all concepts is higher than 0.6 and exceeds the 0.5 threshold, confirming that the questionnaire claims construct validity.

Table 2. Factor loading of items

Concepts	items	Factor loading of each items	AVE
Switching intention	3	0.96; 0.97; 0.95	0.92
Socializing	6	0.74; 0.79; 0.79; 0.73; 0.80; 0.81	0.60
Entertainment	4	0.83; 0.92; 0.82; 0.81	0.72
System Quality	4	0.88; 0.92; 0.87; 0.89	0.71
Service Satisfaction	5	0.86; 0.88; 0.92; 0.87; 0.89	0.67
Alternative attractiveness	3	0.87; 0.81; 0.83	0.70
Peer Influence	4	0.53*; 0.82; 0.88; 0.86	0.62
Critical mass	3	0.86; 0.87; 0.90	

*item deleted due to factor loading < 0.7

In discriminant validity test, we first calculated the AVE with factor loading of the standardized path coefficient generated by Confirmatory Factor Analysis (CFA). If the square root of the AVE of the concept in question is higher than the correlation coefficient between the concept and other concepts, it means that variances are better explained with that concept and it has discriminant validity. The correlation matrix of all the concepts is shown in Table 3. The number in the parentheses on the diagonal is the square root of the AVE of each concept. From this table it is shown that the instrument has outstanding discriminant validity.

Table 3. Correlation Matrix

	SI	SO	EN	SQ	SA	AA	PI	CM
SI	(0.96)							
SO	0.247	(0.77)						
EN	0.232	0.364	(0.84)					

SQ	0.301	0.388	0.31	(0.85)				
SA	0.133	0.369	0.258	0.341	(0.82)			
AA	0.334	-0.187	-0.04	-0.009	-0.092	(0.83)		
PI	0.365	0.144	0.139	0.176	0.094	0.363	(0.84)	
CM	0.357	-0.177	0.124	-0.047	-0.194	0.358	0.276	(0.79)

5.2　Structural Model

The study confirms the model by using PLS software, a latent structural equations modeling technique (SEM) which is utilizes a component-base approach to estimation. The model used in this study is a second-order model, and pull effects and push effects are all second-order factors. It is hypothesized that these three factors will influence users' switching intentions.

The analysis strategy involved two-step process because the measure for push and pull effects consisted of second-order construct. First, the factor loading of these first-order variables and items are produced by CFA, so it can be used to obtain the factor score of each first-order variables (Agarwal and Karahanna, 2000). Second, the factor scores are taken as the observed score of second-order factors, so to simplify the second-order model into a first-order one. The analysis of how pull effects and push could affect switching intentions is repeated again with PLS to obtain the factor loading of each path, in order to verify the hypotheses.
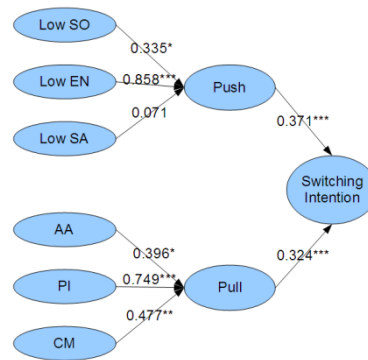

Figure 2 Results

The results of the data analysis and the hypotheses testing are presented in Figure 2. It can be seen that Hypotheses 1, 2 are all supported. Both pull and push effects showed a significant positive influence on switching intentions. Pull effects are the most influential than push. Among push factors, low socializing and low entertainment significantly formulate pushing. Among pull factors, alternative attractiveness, peer influence, and critical mass are significant, meaning all of them formulating the pulling.　The predictive validity was assessed by examining the R square and structural paths. The results suggest our research model explain a 50.2 percent variance, which is regarded as being very satisfactory.

6　CONCLUSION AND DISCUSSION

The study utilizes PP migration theory originated from demography research to investigate SNS users' switching behaviors. Empirical results show that pull effects demonstrated to be the most influential determinant in triggering switching behaviors, followed by push. The discovery sides with the view of Bansal et al. (2005) that PP theory, originally used in demographic migration research, could serve as the theory basis of switching behavior research, a field that is little explored.

Pull effects is the strongest in determining switching behaviors. This point is similar to that in demographic migration research, which the pulling of positive factors of the destination is more

influential than the pushing of negative factors in the original home to migrants (Kelley 1965, Gallaway and Vedder, 1971). And in the context when consumer decided to switch to a different service provider, pull effects also showed a greater influence when compared only to push effects (Bansal et al., 2005). The point reveals people's mindset of seeking newness. In this study, pull effects are formulated by the alternative attractiveness, peer influence, and critical mass.

The measure of "alternative attractiveness" is conducted by assuming a SNS that claims higher socializing, higher entertainment, higher customer satisfaction. These measures are originated from existing literature on service switching (Ping 1993). Based on these theories, it is suggested that operators could formulate stronger pull effects to attract users to leave their original SNS. Besides, research on demography can also provide insights in formulating pull effects. For example, migration research conducted in Australia showed that migrants would decide to move to Gold Coast even without visiting the place before, just because Gold Coast is "a fashionable place to live" (Walmsley et al., 1998). Therefore it is suggested that existing SNS operators can fulfill users' need for newness by providing new content and more functions. Namely, SNS operators can upgrade their contents, add new functions, publish new applications irregularly, and launch new social games to address people's needs of new experience, so to curtail their tendency to switch.

Push effects are the secondary force in triggering SNS switching behaviors. Based on theories of demographic migration in the real world, push effects are generated by negative factors that are detrimental to living, such as lacking of personal development opportunities, suffering oppression, or natural disasters. The study proposes that determinants of whether users will be "pushed" away from a SNS are socializing, customer service satisfaction, and entertainment. The measures are done by reverse coding. The finding shows that low entertainment and low socializing are influential to switching behaviors, meaning that whether users could be entertained by SNS social games or could keep in touch with friends through SNS is crucial in deciding users' retention. Therefore fulfilling the needs in entertaining and socializing becomes two important issues for SNS designers. Entertainment can be generated by interaction with other users in social games, between users and applications, and through communications. Low socializing has significant influence on SNS switching behaviors, which indirectly supports previous studies on SNS (Bakos, 2009; Park, 2009; Ross et al, 2009) that indicates that the main reason for people to use SNS is to keep in touch with existing friends and meet strangers. When this need is not fully addressed, naturally users would like to switch to another service provider.

From the perspective of demography, when some inhabitants in an area are moving out, naturally it triggers the tendency to leave from others. This is a mutual driving force. Similarly, in the virtual world, because of network externality, the more participants a SNS has, the more users it will be able to attract. On the contrary, when there are fewer participants, even the existing users would want to leave. So it is logical to assume that in a more popular SNS, users are more likely to find more long-lost friends and willing to stay, and in a SNS with decreasing number of participants, users are more likely to leave. This factor is also significant in influencing the switching behaviors. The decreasing number of participants does necessarily lead to the loss of users.

Nevertheless, switching in the virtual world can be a cut-off just like that in the real world. Refugees and migrant workers are evidence of people isolated from their places of origin (Liao 1995). Similarly, once an operator shuts down the SNS in the virtual world, or users are tired of the SNS, or they do not want to have anything to do with the SNS because of some unpleasant incidents, they will not visit the SNS anymore even if they still hold the accounts. This type of users behaves the same as permanent migrants do in the real world. But because the sense of time and spatial distance is compressed or not clearly perceived in the virtual world, the migration cost and efforts needed are less for users to move around (switch). However, due to the advancement in communication and transportation in recent years, migration in the real world nowadays requires less cost and risk comparing to a few decades ago (Liao, 1995). From the discussion above, it can be found that migration (switching) in either the real world or virtual world is conducted in a similar manner, yet differences remain. Future researchers can make in-depth investigations on them.

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Appendix A Survey Instrument

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