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DETERMINANTS OF PERCEIVED FLOW, SYSTEM QUALITY, INFORMATION QUALITY AND TRUST ON MOBILE SOCIAL NETWORKING SERVICE (SNS) USERS' LOYALTY

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ABSTRACT

This research aims to examine the determinants of perceived enjoyment, control and attention focus as aspects of the software interaction concept of flow, system quality, information quality and trust on mobile social networking service (SNS) users' loyalty. 200 student subjects of a Malaysian university to answer survey questions on their currently chosen mobile social network system. The correlations between perceptual variables on mobile SNS were then analyzed and various causal relations deduced. Research findings indicate both perceived information quality and perceived system quality are determinant to perceived flow and perceived users' trust, which further determine mobile SNS users' loyalty. Perceived user trust affects perceived flow, and both factors determine user loyalty. Perceived flow is regarded as the strongest determinant of users' loyalty. The paper rounds off with conclusions and an agenda for future research in this area.

KEYWORDS: Education, information technology adoption, social science, loyalty, social networking sites, trust

INTRODUCTION

Social networking sites is a cyber environment that allows the individual to construct his/her profile, sharing text, images, and photos, and to link other members of the site by applications and groups provided on the Internet (Boyd & Ellison, 2008). The sites enable users to create a profile and connect their profile to others for the purpose of forming a personal network. They articulate or play with notions of identity and belonging. Users now can access to their favorite social networking sites via mobile phones due to the successful convergence of Internet and mobile phones in the past decade. Zhong, Hardin and Sun (2011) stated that the advent of social network sites is rapidly changing human interaction, that millions of people worldwide are living much of their lives on social networking sites such as Facebook, MySpace, Twitter and LinkedIn. Mobile-device-based social networking services (SNS) have become popular technology mediated communication modalities. Counts and Fisher (2010) stated that the advantages and promises of these services stem from the integration of the social connections brought about by social networking services and the communication channel and portability of the mobile device.

According to Social Computing Magazine (2011), in March 2011, a Japan mobile service provider known as Softbank Mobile issued a press release announcing that the carrier's official Yahoo! mobile

portal has added a mobile social networking category to the top level menu. The four sites included are MySpace Mobile, Mixi Mobile, GREE and Avex. Excite Japan, an Internet information portal site and one of the "dotcom" portals similar to Yahoo!, Lycos and Netscape, announced the UK release of its ad-funded mobile social networking sites, Mobikade. The huge success of ad-funded mobile SNS in Japan itself shows the significant growth of mobile SNS.

The number of Facebook users continues increasing globally and is quickly becoming one of the most popular tools for social communication and entertainment. Facebook has more than 500 million worldwide active users (Facebook, 2010). Users spend over 700 billion minutes per month on Facebook. More than 30 billion pieces of content (web links, news stories, blog posts, notes, photo albums, etc.) are shared each month. There are over 900 million objects that people interact with (pages, groups, events and community pages). Facebook introduced features such as wall, pokes, status, photos, news feed, tag, market place, instant messaging and video. This study is helpful to mobile SNS providers as it discusses the effect of flow experience on users' loyalty towards their platform. If the mobile SNS provider wishes to retain and increase their customers, special attention will need to be paid towards the information and system quality provided. Apart from that, the variety of SNS management team such as Facebook and Twitter will benefit from this study as well because they are capable of altering and providing the perceived enjoyment to their users. Hence, this research aims to examine the determinants of perceived enjoyment, control and attention focus as aspects of the software interaction concept of flow, system quality, information quality and trust on mobile SNS users' loyalty.

This paper is structured as follows: Section 2 presents the model employed in this study, focusing on the rationale of the constructs used and deriving testable hypotheses. Section 3 describes the research methodology. The next section presents the results and discussions sections. The paper rounds off with conclusions and an agenda for future research in this area.

PERCEIVED INFORMATION QUALITY AND PERCEIVED USER TRUST

Perceived information quality is a pervasive social concept and a key antecedent of information systems success (DeLone & McLean, 1992). Information content includes the amount of information, variety of information, and content quality. Findings indicate that users care about information quality, content richness and navigation (Ilsever, Cyr, & Parent, 2007). Fung and Lee (1999) and Keen, Balance, Chan and Schrump (2000) proposed that information quality should be an important trust building mechanism. In a similar way, people trust a speaker who gives truthful or credible information (Giffin, 1967). Continuous exchanges of information, access to and understanding of information are necessary conditions for establishing a learning process. Similarly, reliability, relevance and personalisation of exchanges encourage the creation of a trust-based relationship (Yvette & Karine, 2001). Accordingly, it is proposed that:

H1. Perceived information quality of mobile SNS is a determinant of perceived user trust.

PERCEIVED INFORMATION QUALITY AND PERCEIVED FLOW

Online flow experience includes three dimensions: perceived enjoyment, perceived control and attention focus (Koufaris, 2002; Zhou and Lu (2011). Perceived enjoyment is the pleasure from people when they are using mobile SNS when surfing the Internet to acquire information or entertaining themselves. Macan, Shahani, Dipboye, and Phillips (1990) define perceived control as the ability to manage activity and time. If the users have a high self-efficacy towards mobile SNS, this means that they have a high perceived control. Users are used to multiple-object-tracking task (Pylyshyn & Storm, 1988). Attention focus is the ability to give attention demand towards a subject from the distracters (Intriligator & Cavanagh, 2001). It shows how users are able to conduct multiple tasks while focusing on mobile SNS to acquire the flow of experience. Previous researchers have found the effects of information quality on flow experience. McQuillan and Conde (1996) stated in a research on flow experiences in reading, there seems to be indications, that the state, in which information acquisition generally occurs, would be some level of flow. Apart from that, Chau, Au and Tam (2000) noted that the modes of information presented on the Internet have a significant impact on the user experience. Users will most likely form negative perceptions about the information quality of mobile SNS platform if the mobile service provider cannot provide accurate, comprehensive and timely information to its users. Hence, the following hypothesis is proposed:

H2. Perceived information quality of mobile SNS is a determinant of perceived flow.

PERCEIVED SYSTEM QUALITY AND PERCEIVED USER TRUST

System quality attributes are relevant to the concept of trust because recent research suggests that technical aspects of IT artifacts affect users' willingness to trust (Gefen, Pavlou, Benbasat, McKnight, Steward, & Straub, 2006). McKnight, Choudhury, and Kacmar (2002) asserted site quality to be a stronger predictor of trusting beliefs as supported by Vance, Christophe, and Straub (2008) who found that system quality such as navigational structure and visual appeal influences user trust in mobile commerce technologies. Without efficient system quality, provision of quality services is difficult which in turn diminishes flow experiences (Aladwani & Palvia, 2002). Therefore, it is hypothesized:

H3. Perceived system quality of mobile SNS is a determinant of perceived user trust.

PERCEIVED SYSTEM QUALITY AND PERCEIVED FLOW

Perceived system quality requirements were often closely related to service quality and ease of use (Nelson & Todd, 2005). Armstrong and Hagel (1996) suggested that the lack of physical content requires compensation with "heavy reliance on technology" and "system quality". System quality is important (Hsu & Lu, 2004) and refers to the presence of a fast, reliable connection for navigation. Others refer to quality of system as "attributive service satisfaction", indicating that a customer's engagement with a website is a cumulative satisfaction that encompasses site service quality and user engagement (Chiou, 2005). Garrett (2003) stated that user experience is mostly generated through the interplay of interactions between the system and the user, such as design factors like user interface, the navigation structure, the

time that the system requires to process a request, and the relevance of results, the study showed that user experience relates to the accomplishment of user tasks in a more efficient or effective way. Deighton and Grayson (1995) asserted flow generated during specific tasks at a website creates memorable experiences that are believed to strengthen relationships. The optimal experience significantly influences the user's intention to revisit a website. Therefore, if a mobile SNS platform has one of the factors listed, it will affect the user's experience which includes enjoyment and attention focus. Thus, the following hypothesis is proposed:

H4. Perceived system quality of mobile SNS is a determinant of perceived flow.

PERCEIVED USER TRUST AND PERCEIVED FLOW

Based on Wang, Wang, Lin, and Tang (2003), perceived credibility or trust is defined as the extent to which a person believes that using mobile service will be free of security and privacy threats. Trust will reduce perceived uncertainty and risks, thus reduce the effort spend on monitoring the mobile service provider, subsequently enhancing users' perceived control (Pavlou, Liang, & Xue, 2007) and improving their experience. Doney and Cannon (1997) viewed trust as a set of specific beliefs dealing primarily with the integrity, benevolence and ability of another party, in this case the mobile service providers, further affecting their experiences. If users trust mobile service providers, they expect positive future experiences (Kim, Shin, & Lee, 2009). The effect of trust on flow experience has been supported by Wu and Chang (2005) that trust affects the online travel community users' flow experience. Accordingly, it is proposed that:

H5. Perceived user trust is a determinant of perceived flow.

PERCEIVED USER TRUST AND LOYALTY

Trust can significantly affect users' loyalty towards mobile SNS. Supporting this hypothesis is Corbitt, Thanasankit and Yi (2003) which suggested a strong positive effect on trust on loyalty to online firms. Trust has been shown to be a key determinant of loyalty in offline and online environments (Berry & Parasuraman, 1991). Lin and Wang (2006) examined determinants of customer loyalty in mobile contexts and found m-loyalty to be influenced by trust. This shows that trust is one of the key factors when it comes to mobile success in commerce, as when customers register with a Mobile SNS, they are giving away private information or personal data. Supporting this hypothesis in a differing study is where website trust was found to be significantly related to properties of the website, while satisfaction was significantly related to navigation functionality, and both trust and satisfaction positively influenced e-loyalty (Cyr, Head & Ivanoc, 2006). Hence, it is hypothesized that:

H6. Perceived user trust is a determinant of loyalty.

PERCEIVED FLOW AND LOYALTY

Zhou and Lu (2011) stated that flow experience positively affects users' continuance intention. Because a user finds the flow experience in using a certain mobile SNS to be satisfying, the user will

most likely continue the usage which thus promotes loyalty. Deng, Turner, Gehling and Prince (2010) noted that a users' satisfaction further determines their continuance usage of mobile Internet services. Similarly, Hausman and Siekpe (2009) found that flow affects online consumers' purchase and return intention in a different study. Understanding the influence of flow on the trusting belief-loyalty relationship can therefore ensure positive loyalty outcomes (Gupta & Kabadayi, 2010). Therefore, it is proposed that:

H7. Perceived flow is a determinant of loyalty.

METHODOLOGY

A survey comprising a total of 200 questionnaires was conducted at the Universiti Malaysia Sabah Labuan International Campus from January 26 to January 28 of 2011. They were university students randomly intercepted in the university campus who have at least a social networking site account such as Facebook, MySpace, Twitter or LinkedIn and have experience browse it via mobile phone. This activity is popular among the youth today. Only respondents that possessed this requirement were permitted to fill out the questionnaires. The questionnaires were in the form of hardcopies and distributed by hand. The questionnaires were developed to consist of three parts, which are Part A – Demographic Profile, Part B – Mobile Social Networking Services (SNS) Experiences and Part C – Effect of Flow Experience on Mobile SNS Users' Loyalty. Part A questioned on respondent's gender, age, education level and monthly income or allowance. Part B presented questions on the amount of time mobile SNS used in a week, experience of mobile SNS usage, and the most frequently visited mobile SNS. The questions in Part C associated with the perceptual variables on mobile SNS which aimed to measure their perceived enjoyment, control and attention focus, as aspects of the software interaction concept of flow. Users were also asked to rate the system quality and information quality, as well as rate their trust and loyalty. All measurement items were adapted from the research literature previously discussed (see Table 1) and were measured on a seven-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (7).

Table 1 : Measurement of variables

Variables	Author
Perceived Information Quality	DeLone & McLean (1992)
Perceived System Quality	Nelson & Todd (2005); Armstrong & Hagel (1996); Chiou (2005)
Perceived Enjoyment	Davis, Bagozzi, & Warshaw (1992); Koufaris (2002)
Perceived Control	Macan, Shahani, Dipboye, & Phillips (1990)
Attention Focus	Intriligator & Cavanagh (2001); Pylyshyn & Storm (1988)
Perceived User Trust	Berry & Parasuraman (1991)
Loyalty	Lin & Wang (2006); Cyr, Head & Ivanoc (2006)

The correlations between these user perceptual variables were then analyzed and various causal relations deduced using multiple regression analysis method via Statistical Package for Social Sciences (SPSS) computer program version 17. It is a flexible method of data analysis whenever a dependent or criterion variable is to be examined in relationship to several independent or predictor variables (Berger, 2003).

DATA ANALYSIS

Table 2 depicts the socio-demographic profile of 200 respondents with 49% males, and 51% females. The largest age group are from 21 to 25 years, comprising 84% of the entire sample. 160 respondents earn a monthly allowance of lesser than RM 300 and only 20 respondents earn RM 501 and above a month. In terms mobile SNS experiences, 62.5% of the sample group uses mobile SNS between 1 to 5 times in a week. 36 respondents uses mobile SNS more than 15 times a week. 97 respondents have only begun using mobile SNS for a period of 0 to 2 months, while 55 respondents have the experience above 6 months. Only 2 respondents frequently visit MySpace via mobile, and on the extreme side, 147 respondents visit Facebook most frequently. That is equal to 73.5% of the entire sample.

Table 2 : Socio-demographic profile of respondents

Components	Criteria	Frequency	Percentage
Gender	Male	98	49.0
	Female	102	51.0
Age	< 20	26	13.0
	21 – 25	168	84.0
	26 – 30	4	2.0
	> 31	2	1.0
Monthly Allowance	< RM 300	160	80.0
	RM 301 - RM 400	13	6.5
	RM 401 - RM 500	7	3.5
	> RM 501	20	10.0
Amount of time mobile SNS used in a week	1 to 5 times	125	62.5
	6 to 10 times	32	16.0
	11 to 15 times	7	3.5
	> 15 times	36	18.0
Experience of mobile SNS usage	0 to 2 months	97	48.5
	2 to 4 months	34	17.0
	4 to 6 months	14	7.0
	> 6 months	55	27.5
Most frequently visited mobile SNS	Facebook	147	73.5
	MySpace	2	1.0
	Twitter	5	2.5
	MSN	9	4.5
	Yahoo Messenger	10	5.0
	Others	27	13.5

RELIABILITY ANALYSIS

The Cronbach's Alpha value was used to test the reliability of the items measuring each variable. It is a reliability measure coefficient that reflects how well items in a set are positively correlated to one

another. Results enumerate that the Cronbach's alpha value of all variables are greater than 0.6 (Table 3). Thus, all variables are reliable and have high internal consistency. None of the items were deleted in this test, as the reliability was high.

Table 3 : Summary of reliability analysis

Variables	Number of items	Cronbach's Alpha
Perceived Information Quality	4	0.962
Perceived System Quality	4	0.824
Perceived Enjoyment	4	0.903
Perceived Control	3	0.843
Attention Focus	4	0.947
Perceived User Trust	3	0.865
Loyalty	3	0.853

CORRELATION ANALYSIS

The interrelationships between the seven variable measurements were examined through correlation analyses (see Table 4). Correlation values at +0.01 and above are significant but show little association while values above +0.7 to +1.0 show strong positive association (Simon, 2008). All of the Pearson's correlations between the variables are positively significant at 0.01 level and finds that all of them correlate. This is hardly surprising, as all are perceptions from the same minds. There is considerable psychology evidence that when people make a choice, they adapt their cognitive structures to support it. Hence it is not surprising that every perception correlates significantly at 0.01 with every other one. One suspect that any perceptions measured would do the same. Next, the perceived enjoyment had the highest mean of 4.608 whereas the loyalty had the highest standard deviation of 1.459. The skewness of all the items ranges from -0.182 to -0.591 below ±2.0. Similarly, the values for kurtosis ranges from 0.023 to 0.846 well below the threshold of ±10. Both the skewness and kurtosis are low for the most part, indicating that the scores approximate a "normal distribution" or "bell-shaped curve".

Table 4 : Correlations analysis between variables

	1	2	3	4	5	6	7
(1) Perceived Information Quality	1						
(2) Perceived System Quality	.756(**)	1					
(3) Perceived Enjoyment	.564(**)	.750(**)	1				
(4) Perceived Control	.456(**)	.460(**)	.453(**)	1			
(5) Attention Focus	.522(**)	.557(**)	.608(**)	.605(**)	1		
(6) Perceived User Trust	.625(**)	.608(**)	.643(**)	.554(**)	.618(**)	1	
(7) Loyalty	.628(**)	.705(**)	.801(**)	.501(**)	.619(**)	.662(**)	1
Mean	4.465	4.580	4.608	4.027	4.195	4.287	4.430
Std. Deviation	1.250	1.175	1.382	1.141	1.262	1.147	1.459
Skewness	-0.483	-0.591	-0.339	-0.312	-0.182	-0.219	-0.463
Kurtosis	0.357	0.761	0.023	0.646	0.029	0.846	0.047

** Correlation is significant at the 0.01 level (2-tailed).

FACTOR ANALYSIS

Factor analysis using varimax rotation was performed to measure construct of perceived flow which combined three dimensions: perceived enjoyment, perceived control and attention focus. Previous research has found significant correlations among these dimensions (Huang, 2006; Koufaris, 2002). This shows that they are interchangeable and will covary with each other. They are driven by the same underlying construct as it has the same determinants and consequences. In fact, previous research has also used these dimensions as reflective indicators of flow (Siekpe, 2005; Wang, Baker, Wagner, & Wakefield, 2007). Thus, it is appropriate to integrate these dimensions into a reflective factor known as perceived flow. Table 5 exemplifies that item loadings ranging from 0.848 to 0.685 with item 'I felt that using this mobile SNS is interesting' has a relatively highest loading on perceived flow with Kaiser-Meyer-Olkin Measure of Sampling Adequacy value of 0.896. Results have suppressed small coefficients of absolute value below 0.50 where item 'when using this mobile SNS, I felt confused' was deleted as it does not load heavily to the factor.

Table 5 : Factor analysis

Items	Perceived Flow
I felt that using this mobile SNS is interesting	0.848
I felt that using this mobile SNS is enjoyable	0.841
I felt that using this mobile SNS is exciting	0.822
When using this mobile SNS, I was intensely absorbed in the activity	0.815
I felt that using this mobile SNS is fun	0.810
When using this mobile SNS, I concentrated fully on the activity	0.782
When using this mobile SNS, my intention was focused in the activity	0.781
When using this mobile SNS, I felt calm	0.721
When using this mobile SNS, I was deeply engrossed in the activity	0.719
When using this mobile SNS, I felt in control	0.685
Total Variance Explained	6.275
Percentage of Variance Explained	57.043
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.896

MULTIPLE REGRESSION ANALYSIS

To further testing the proposed hypotheses, multiple regression analysis was performed. The level of significance (α) was set at 0.05. As evident in Table 6, perceived information quality ($\beta_1 = 0.223$, $p<0.05$) and perceived system quality ($\beta_3 = 0.536$, $p<0.05$) are determinant of perceived users trust, supporting all the hypotheses.

Table 6 : Influence of perceived information quality and perceived system quality on perceived user trust

Variables	*b*	SE*b*	β	T-value
Perceived Information Quality	0.260	0.088	0.223*	2.950
Perceived System Quality	0.665	0.094	0.536*	7.092

Notes: *$p<0.05$; $R^2 = 0.518$; *b* = unstandardised beta; SE*b* = standard error beta;
β = standardised beta

Table 7 depicts that perceived flow is a determinant of perceived information quality and perceived system quality of mobile SNS ($\beta_2 = 0.170$, $\beta_4 = 0.593$, $p<0.05$). Thus, the hypotheses are supported and 53.3 percent of variance in perceived flow is explained by the perceived information quality and perceived system quality.

Table 7 : Influence of perceived information quality and perceived system quality on perceived flow

Variables	*b*	SE*b*	β	T-value
Perceived Information Quality	0.146	0.064	0.170*	2.287
Perceived System Quality	0.542	0.068	0.593*	7.976

Notes: *p<0.05; R^2 = 0.533; *b* = unstandardised beta; SE*b* = standard error beta;

β = standardised beta

Results in Table 8 indicate that there is a correlation between perceived user trust and perceived flow, (β_5 = 0.725, p<0.05). Thus, the hypothesis is supported and 52.5 percent of variance in perceived flow is explained by the perceived user trust.

Table 8 : Influence of perceived user trust on perceived flow

Variables	*b*	SE*b*	β	T-value
Perceived User Trust	0.6.79	0.046	0.725*	14.805

Notes: *p<0.05; R^2 = 0.525; *b* = unstandardised beta; SE*b* = standard error beta;

β = standardised beta

Users' loyalty is a determinant of both perceived trust (β_6 = 0.198, p<0.05) and perceived flow (β_7 = 0.641, p<0.05). As a result, both hypotheses are thus supported and 63.3 percent of the variance in loyalty is explained by these antecedents (Table 9).

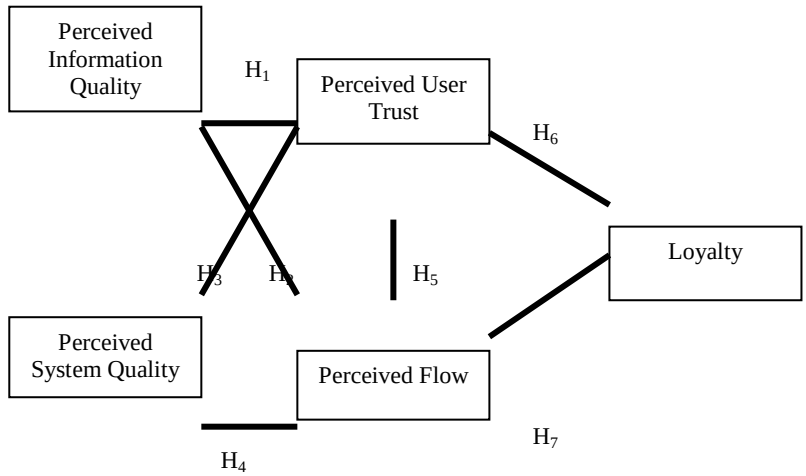
Table 9 : Influence of perceived user trust and perceived flow on loyalty

Variables	*b*	SE*b*	β	T-value
Perceived User Trust	0.252	0.080	0.198*	3.161
Perceived Flow	0.870	0.085	0.641*	10.231

Notes: *p<0.05; R^2 = 0.633; *b* = unstandardised beta; SE*b* = standard error beta;

β = standardised beta

Figure 1 illustrates a visual representation of the full model and the causal relationships tested. It depicts that all proposed hypotheses are supported and significant at the 0.05 level.



Note: ▬ Denotes relationship is significant at the 0.01 level

Figure 1 : Theoretical framework with causal relationships

DISCUSSIONS

Wong and Hsu (2008) mentioned that the quality of the information posted on the company website or mobile portal has a direct impact on potential customers' perception of its products and services. In another study of mobile banking, Luo, Li, Zhang, and Shim (2010) mentioned that potential users who have insufficient information may vary in their readiness to trust wireless banking facilities in the open airwaves. Thus, if the information quality of mobile SNS are perceived as good, a user will have higher trust in the mobile SNS platform. When the individual feels a system is useful, he or she thinks positively about it (Davis, 1989). Likewise, Sledgianowski and Kulviwat (2009) found that user's thinking as to the usefulness of a system has great influence and is positively related to adoption of information technology. Therefore, it can be said that a mobile SNS platform that has good system quality will generate higher user trust.

Jung, Perez-Mira and Wiley-Patton (2009) who stated that content is a significant determinant of mobile TV user's flow experience. Apart from that, Pilke (2004) found that informative and pleasant visualization was quite frequently mentioned in by participants as an element that facilitates flow. Thus, if the information provided via the mobile SNS are accurate and of high quality, users will have a better perceived flow. Zhou, Li and Liu (2010) noted that mobile SNS platforms that are unreliable and have slow responses or where services are abruptly interrupted will seriously affect users' experience including enjoyment, attention focus and control which are the three reflective dimensions of flow. Pilke (2004) found that visually pleasant user interface is seen as more potentially flow inducing than other variables. In another study, Hoffman and Novak (1997) supports that the goal of user interaction design

in a commercial website is to facilitate flow experience. Hence, a mobile SNS designed to provide high system quality can exert a determinant on a users' perceived flow.

On a trusted site, because users assume the authenticity of the online service, they will not waste time and cognitive effort and thus experience higher ease of use (Shin, 2010). Derived from this supporting statement is a user will thus increase their perceived control which is a positive perceived flow factor. This finding also supports previous research on trust, as users reported that being confident was important and stressed the value of being able to explore new things in online environments (Hassanein & Head, 2007). Thus, if users trust the mobile SNS provider, they are more likely to have a better perceived flow compared to those in doubt.

Doney and Cannon (1997) suggested that trust has been brought forward as a development for long-term customer relationships. Correspondingly, Gupta and Kabadayi (2010) suggested that trust beliefs affect users' loyalty towards websites. Thus, it can be said that a high perceived user trust on a certain mobile SNS platform will ensure customer loyalty. Compared to the effect of perceived user trust, perceived flow has a larger effect, indicating perceived flow as the strongest determinant of users' loyalty. Parallel to this finding is by Palka, Pousttchi and Wiedemann (2009), stated that providing users with a good experience will promote their continuance usage and generate positive word-of-mouth. Kim and Son (2009) revealed the significant effect of net benefits, including perceived usefulness and satisfaction, on user loyalty towards online services. Also consistent to Zhou et al. (2010), improving user experience is one of the main ways to enhance his/her loyalty towards mobile SNS. Consequently, if a user finds that the perceived flow that can be derived from a mobile SNS provider to be above satisfactory, there are high possibilities that the user will stay loyal.

CONCLUSIONS

As mobile services continue to grow rapidly, mobile SNS are widely adopted by users as social networking because it is an activity that is part of most people's everyday lives, as users create and maintain various social ties. This research examines the determinants of perceived enjoyment, control and attention focus as aspects of the software interaction concept of flow, system quality, information quality and trust on mobile SNS users' loyalty. Results confirmed that both perceived information quality and perceived system quality are determinant of perceived user trust and perceived flow, which further determine users' loyalty towards mobile SNS. Indeed, perceived flow has a larger correlation on user's loyalty, indicating perceived flow as the strongest determinant of users' loyalty on mobile SNS. Mobile SNS providers need to consider user perceived flow to enhance users' loyalty. Thus, mobile SNS providers should implement steps to increase the perceived information quality and perceived system quality in order to build and enhance users' trust level and further provide users with a compelling experience. They may need to emphasize loyalty programme in an attempt to retain customers in the competitive telecommunication market.

This research seeks to provide important theoretical and practical contributions. On the theoretical side, most existing studies only addressed the concern of user acceptance of online social networking

sites utilizing theory of technology acceptance model. This study adopts a comprehensive approach to explain determinants of aspects of the software interaction concept of flow, system quality, information quality and trust on mobile SNS users' loyalty. In addition, the research model providing support to an integration of cross-disciplinary studies in virtual community research. On the practical side, the results of this study provide mobile SNS providers some tangible recommendations for helping enhance their SNS users' loyalty thereafter could bring continued profitability and business success. It is also important to make efforts by policy makers to outline strategies through its white papers to encourage usage of social networking sites as avenue to strengthen business activities more competitively by emphasizing on those substantial determining factors on mobile SNS users' loyalty.

The limitation of this study lies within the target sample and the geographical location. This research was conducted in Universiti Malaysia Sabah, Labuan Federal Territory, where most of the samples are university students in the very same university introduces a big bias. Accordingly, the results are leaning more towards students and not the general public or adults, as different working professionals demographic would use mobile SNS differently. Therefore, it is recommended that a wider and more dispersed scope of samples should be taken by considering other social groups. The population that is enquired to answer the questionnaires should be much more diverse and go beyond Malaysia such as other Asian countries, Europe and USA to improve the generalizability of findings. Apart from that, a longitudinal research could be conducted to provide more insights into factors affecting usage behavior.

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