User Selections on Social Network Applications

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Abstract—MSN used to be the most popular application for communicating among social networks, but Facebook chat is now the most popular. Facebook and MSN have similar characteristics, including usefulness, ease-of-use, and a similar function, which is the exchanging of information with friends. Facebook outperforms MSN in both of these areas. However, the adoption of Facebook and abandonment of MSN have occurred for other reasons. Functions can be improved, but users' willingness to use does not just depend on functionality. Flow status has been established to be crucial to users' adoption of cyber applications and to affects users' adoption of software applications. If users experience flow in using software application, they will enjoy using it frequently, and even change their preferred application from an old to this new one. However, no investigation has examined choice behavior related to switching from Facebook to MSN based on a consideration of flow experiences and functions. This investigation discusses the flow experiences and functions of social-networking applications. Flow experience is found to affect perceived ease of use and perceived usefulness; perceived ease of use influences information ex-change with friends, and perceived usefulness; information exchange influences perceived usefulness, but information exchange has no effect on flow experience.

Keywords—Consumer behavior, social media, technology acceptance model.

I. INTRODUCTION

MICROSOFT announced that its most popular social-networking application. MSN Messenger (MSN), would cease to be available from 4th April, 2013, globally, while in China, it would become unavailable sooner in that year [9], [36], [37]. This news shocked its social-networking users, because MSN was, for most of them, the favorite application for communicating with friends [9]. However, as social networking has evolved, Facebook came to occupy a greater market than MSN [14], [34]. Re-stated, MSN lost popularity [32], [34], [37].

Facebook and MSN have broadly similar characteristics [26]. However, users chose Facebook and abandoned MSN for other reasons as well. The better characteristics will attract users, but maintaining that use the critical to users' changing their preferred application [42]. Restated, the so-called flow status of users of Facebook and MSN is important in identifying the cause of users' changing their preferred social-networking application. If users are in a flow state when they use a social-networking application, then the application will become their most used social-networking application [26], [32], [40]. In summary, discussions of the relationships between user flow experiences and social-networking characteristics are worthy of study in an attempt to understand

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changes in user behaviors with respect to the social-networking applications MSN and Facebook.

The rest of this paper is organized as follows. Section II reviews pertinent literature. Section III then details the research method and proposed questionnaire. Subsequently, Next, Section IV summarizes the analytical results. Conclusions are finally drawn in Section V, along with recommendations for future research.

II. REVIEWS

A. Social Network

A social network is a platform that allows all of its participants to communicate with each other through voice or text, and exchange information of interest with friends, co-workers, and family members. Examples include Microsoft MSN Messenger, Yahoo! Messenger, Skype, Twitter, and Facebook. MSN and Facebook are two of the most popular social-networking applications [5], [23], [24], [26].

A software application must be easy to use [2], [15], [25], [28] if it is to be widely adopted. An application that is easier to use is more acceptable to social-networking users [41]. The functions of the software must be easy to understand and to use [15]. Furthermore, the interface of a software application must be user-friendly to enable its use without difficulty [31], [38]. In summary, perceived ease of use affects the adoption of social networking applications by users. To elucidate differences between the perceived ease of use of MSN and that of Facebook, perceived ease of use must be defined in a way that allows them to be compared. In this investigation, the more perceived ease of use of operationally defined as Facebook is exceeding that of MSN in the perceived ease of use. Along with user behaviors that are related to the adoption of software applications, perceived useful-ness is also important in the adoption of favorite applications [25], [35]. Perceived ease of use influences perceived usefulness [42]. Users adopt a social-networking application because it can provide useful and interesting information. In a social network, the searching of information is a useful and necessary function, because it allows users to exchange interesting information with friends [12], [33]. The operational definition of the more perceived usefulness is such that Facebook is perceived to be more useful than MSN.

B. Information Exchange

The main reason for users' adoption of a social-networking application is to communicate and share interesting information with friends. If users can easily share information with friends using a software application, then they will tend to adopt it for social networking. Perceived ease of use influences information sharing between users and their friends [29]. If users can

exchange information with their friends using a social networking application, then they will feel that that application is useful [4]. Social-networking applications are popular usually if they allow users to communicate with friends for exchange interesting text, photographs, and video [21], [22]. Users attract the attention of friends by posting interesting text, photographs, and video [21], [22]. Users who can efficiently exchange information with their friends are more likely to experience a good relationship with those friends [11]. The operational definition of the more efficient information exchange is such that Facebook helps users to exchange information with their friends more efficiently than does MSN.

C. Flow Experiences

Csikszentmihalyi's proposed flow theory in 1990 [10]. Research shows that humans are grouping animals, meaning that everyone needs to communicate with other people to enjoy life). Csikszentmihalyi claimed that concentration, "being lost in time", enthusiasm, and excitation are associated with being in the flow state [35]. Users of a social network fall into flow state when they are communicating or sharing information with their friends [1], [3], [6]-[8]. This investigation seeks the factors that influence flow experience, which may be involved in switching from Facebook to MSN. The operational definition of the more flow experience is such that Facebook provides more flow experiences than MSN.

Users who can concentrate easily on social networking application are likely to feel that the application is easy to use and useful [20], [41]. In summary, flow experiences should positively influence perceived ease of use and perceived usefulness [33], [35]. Perceived ease of use positively affects perceived usefulness and information exchange [27], [30]. Information exchange positively affects usefulness and flow experience [42], [43]. Accordingly, this study tests the following hypotheses concerning relevant causal relationships.

H1. *For social-networking applications, information exchange positively affects perceived usefulness.*

H2. *For social-networking applications, information exchange positively affects flow experience.*

H3. *For social-networking applications, flow experience positively affects perceived ease of use.*

H4. *For social-networking applications, flow experience positively affects perceived usefulness.*

H5. *For social-networking applications, perceived ease of use positively affects perceived usefulness.*

H6. *For social-networking applications, flow experience positively affects perceived usefulness.*

III. METHODS

Based on the above descriptions of the evolvement of social network, experienced users of both MSN and Facebook are surveyed to obtain their views on perceived ease of use and perceived usefulness of these applications, and their experience of information exchange and flow when using them, with a view to identifying the factors that affected their decision to change their habitually used social-networking application. Confirmatory factor analysis was then performed in SPSS

AMOS version 18 to validate the aforementioned dimensions. The factors that were confirmed by this process were then used in subsequent analysis to determine identified correlations and validate the hypotheses.

The questionnaire comprises three parts and has been modified using pre-testing. The first part, dealing with perceived ease of use, includes 5 questionnaire items. The second part, dealing with perceived usefulness, comprises 3 questionnaire items. The third part, dealing with information exchange, comprises 3 questionnaire items. The fourth part, dealing with flow experience, comprises 4 questionnaire items. The questionnaire design used a 5-point Likert Scale to allow participants to indicate their answers to each item on a scale ranging from "strongly disagree" to "strongly agree".

A pretest was conducted to confirm verify the reliability and validity of the questionnaire using 200 samples. Principal component analysis (PCA) was performed. The analytical results demonstrate that the four constructs can be used in the confirmatory factor analysis. All question items are kept from PCA because the Chronbach's alpha is larger than 0.5 at the pretest [39].

IV. ANALYTICAL RESULTS

One-hundred and eighty-four males (46%) and 216 females (54%) responded to the questionnaire survey. Most of the respondents (145) were between 21 and 25 years old (36.25%) (Table VI). Of the 400 respondents, 182 (45.5%) worked in the service industry, 110 (27.5%) worked in manufacturing, 98 (24.5%) worked in the public sector, and ten (2.5%) worked in other sectors. Of the 400 respondents, 288 (72%) were unmarried and 340 (85%) had an educational attainment of at least junior college.

In this investigation, all constructs were natural reflective constructs [16]. Confirmatory factor analysis is performed using AMOS version 18.0. First-order confirmatory factor analysis (single first–order CFA, first-order CFA model without correlated factors, first-order CFA model with correlated factors) and second-order confirmatory factor analysis (CFA) are also for the four dimensions identified in Section 4.2 [3]. Analytical results indicate all question items are qualified. The first-order CFA model without correlated factors (model 2) and first-order CFA model with correlated factors (model 3) indicates that model 2 and model 3 are better than model 1. However, the model fit test of model 3 is still less acceptable than model 4 (Table I). The second-order CFA model (model 4) indicates that model 4 is better than model 2 and model 3. Model 4 is acceptable based on confirmatory factor analysis (Table I). Finally, the analytical results of Harman's single-factor test demonstrate that this study has no common-method bias. The test results show that perceived ease of use, perceived usefulness, information exchange, and flow experience is with 55.488% of the total variance which is smaller than the summation (67.843%) of the mean variance (19.255%) and two standard errors (24.294%) [13], [17]-[19]. The maximum variance of the four factor was 25.043%.

This section verifies the causal relationship among perceived ease of use, perceived usefulness, information exchange, and

flow experience using the structure equation model. The direct and positive effects of information exchange to perceived usefulness are statistically significant (0.385) (p<0.001) (H1 is thus supported). The direct and positive effects of information exchange on flow experience are insignificant (p >0.05) (H2 is thus unsupported). The direct and positive effects of flow experience to perceived ease of use are statistically significant (0.574) (p<0.001) (H3 is thus supported). The direct and positive effects of perceived ease of use to information exchange are statistically insignificant (0.935) (p <0.001) (H4 is unsupported). The direct and positive effects of perceived ease of use to perceived usefulness are statistically insignificant (0.519) (p<0.001) (H5 is thus supported). The direct and positive effects of flow experience to perceived ease of use are statistically insignificant (0.288) (p<0.001) (H6 is thus supported). The model thus has a good overall fit [19].

TABLE I
MODEL FIT SUMMARY OF CFA MODES

	Criteria	Model1	Model2	Model3	Model4
SRMR	< .05	0.778	0.234	0.0408**	0.0426**
RMSEA	< .08	0.137	0.139	0.069**	0.069**
GFI	> .80	0.670	0.709	0.864**	0.864**
AGFI	> .80	0.593	0.641	0.826**	0.827**
CFI	> .90	0.808	0.801	0.952**	0.952**
χ^2/df	< 3.00	4.721	4.861	1.955**	1.946**

Analytical results reveal that perceived ease of use influences a perceived usefulness. It directly affects users' habitually preferred social-networking applications (0.519) and indirectly affects them via information change (0.387), meaning that if an application enables users easily to communicate or share information with their friends, then those users will find the application to be useful and choose it as their preferred social-networking application. With respect to the comparison between Facebook and MSN, Facebook enables users communicate with their friends more efficiently than does MSN [18]. Analytical results also indicate that flow experience directly influences perceived ease of use (0.574) and perceived usefulness (0.288). It demonstrates that users change their social-networking application from MSN to Facebook because they enjoy a better flow experience using the latter application. The better flow experience enjoyed using Facebook results in greater perceived ease of use and usefulness and further affects the adoption of social-networking applications [32]. Furthermore, the flow experience indirectly influences perceived usefulness through perceived ease of use (0.038). Restated, a user's flow experience influences his/her perceived ease of use of a social-networking application and further affects the perceived usefulness of the application. Users easily enter a flow state when using Facebook, generating a positive feeling about its ease of use [37]. Analytical results also show that information exchange influences perceived usefulness (0.385). The exchange of more interesting information among users and friends results in the perception of greater usefulness of the social-networking application. Facebook's power is in its information exchange function. Users can share information

with their friends more efficiently on Facebook than on MSN [27]. They can comment on their friends' shared information and see comments in the context of their relationship on Facebook but not on MSN [27]. Finally, perceived ease of use directly influences information exchange (0.935). The preferred social-networking application allows easy exchange of information.

V. CONCLUSION

Social-networking applications are a new media that enable users to communicate with their friends. Users do not easily change their preferred software applications. However, Facebook, a relatively new social-networking application, has changed user behavior and even caused Microsoft to terminate the running of its famous social networking application, MSN Messenger, at the beginning of 2013. Users had abandoned MSN but embraced Facebook. This huge change is worthy of study to improve our understanding of users' attitudes related to the selection of their favorite social-networking application. This investigation thus discusses this interesting topic by analyzing users' perceived ease of use and perceived usefulness of such applications, along with their exchange of information and flow experience using the application.

This investigation elucidated the causal relationships among the aforementioned factors. The results of this study demonstrate that if the application can help users easily communicate or share information with their friends, then they will find that application useful and eventually adopt it as their habitually used social-networking application (Perceived ease of use directly influences perceived usefulness (0.519) and indirectly affects it through information exchange (0.387)). This investigation reveals that Facebook helps users communicate with their friends more efficiently than does MSN. This investigation found that flow experience positively affects perceived usefulness (0.288) and perceived ease of use (0.574). Restated, users changed their social-networking application from MSN to Facebook because they had a better flow experience using Facebook. Users easily enter a flow state when using Facebook, generating positive feelings about its usefulness. (The flow experience indirectly affects perceived usefulness through perceived ease of use (0.038).) Analytical results also reveal that the exchange of more interesting information among users and friends results in the perception of the greater usefulness of the adopted application. (Information exchange influences perceived usefulness (0.385).) Finally, the preferred social-networking application must allow easy information exchange. (Perceived ease of use directly influences information exchange (0.935).) Clearly, users believe that Facebook can help users easily share information.

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