A Study on the Determinants of Continuance Intention in Mobile Internet Service: A Relationship Development Perspective

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Abstract

The mobile Internet (M-Internet) service is a form of subscription-based Information Systems (IS) services in which usage continuance is essential for the eventual success of the service providers. However, previous research on IS continuance has focused mainly on the technology user aspects despite the fact that the user plays a dual role of being a technology user and service consumer in many IS usage contexts. This study thus aims to examine IS continuance based on the theoretical foundation of dedication-based and constraint-based customer relationship development in the context of M-Internet service. Four customer relationship development factors (satisfaction, perceived value, familiarity, and switching costs) are identified and tested on how they affect continuance intention from a survey conducted on M-Internet service users. Then, the results of this study are discussed along with its limitations and implications.

Keywords : IS continuance, mobile Internet service, relationship development

1. Introduction

The emergence of the Internet and mobile technologies has generated new forms of Information and Communication Technology (ICT) which are used in non-organizational settings. An example is the mobile Internet (M-Internet) which facilitates the provision of a wide spectrum of services anytime and anywhere. M-Internet services can be classified into three categories: commerce (e.g., shopping and ticketing), communication (e.g., Yahoo! Chat and mobile e-mail), and contents (e.g., news and games). It is a typically new ICT service in which individuals bear the cost of adoption and usage.

According to a study on M-Internet service users, 72% of users in Japan reported that they had accessed the Internet on their cellular phones [4]. However, after their first M-Internet experiences, only a small portion of them continued to use the initially adopted M-Internet service. Majority ended up using only a small subset of the service, that is, they used it only for e-mail purposes and maybe one or two other services from the provider[4]. Consequently, the low continuance rate of using M-Internet service is of

concern because it directly impacts the performance of service providers. Research conducted across 14 industries shows that a 5% increase in customer retention could result in a net present value increase in profit ranging between 25% and 95% [34]. In particular, it has been estimated that it costs five times more to acquire a new customer than to retain an existing one [15]. There is thus an impelling motivation for M-Internet service providers to enhance the Information Systems (IS) continuance of their service users. In this study, service users play the dual role of technology user and service consumer, and are customers to the M-Internet service providers.

However, most previous research on IS continuance [6, 24, 39] has focused mainly on the technology user's aspects. They considered only the characteristics of focal technology (e.g., perceived usefulness) and the experience of technology users (e.g., user satisfaction) in examining IS continuance. Such lopsided technology user-oriented viewpoint on how service consumers decide to continue usage is inadequate for service providers to enhance the IS continuance of their customers. As the IS continuance of ICT service users means customer retention from the service provider perspective, we examine IS continuance from the customer relationship perspective in the context of M-Internet service.

With regard to customer retention through relationship development between ICT service users and service providers, Bendapudi and Berry[5] posited that the service user maintains relationship with a service provider either because of constraints (i.e., "have to" stay in the relationship) or because of dedication (i.e., "want to" stay in the relationship). While service users in constraint-based relationships preserve the relationships because of exit costs, users in dedication-based relationships desire continuance. Together, constraint-based relationship and dedication-based relationship bring about service users' IS continuance. However, most previous research on IS continuance[6, 24, 39] has focused solely on the dedication-based relationship aspect mainly from the technology user's perspective. For the IS continuance of ICT service users, service providers need to consider developing both dedication-based and constraint-based relationships development with their customers. However, little research has been conducted from a constraint-based perspective that centers on a lock-in effect from the service provider.

In keeping with this motivation, this study aims to examine the IS continuance of M-Internet service users from a customer relationship development perspective. Specifically, we seek to answer two research questions: (1) What are the dedication-based and constraint-based driving factors influencing the IS continuance intention of service users? (2) How do dedication-based and constraint-based factors lead to IS continuance intention? This study contributes to the IS continuance literature by explaining IS continuance from the viewpoint of ICT service users and not just technology users. This study also contributes by providing an understanding of how IS continuance can be built up in M-Internet service users through customer relationship development from both dedication-based and constraint-based perspectives. It also contributes to the M-Internet service industry in the marketing arena by offering practical suggestions for retaining their service users.

2. Conceptual Background

2.1 Previous research on IS continuance

The concept of IS continuance has been examined variedly as routinization and confirmation [23]. Despite the variation n, studies agree that continuance behavior assumes institutionalizing IS use as part of a normal ongoing activity. Hence, IS continuance behavior may be defined as the continued usage of IS by adopters, in which a continuance decision follows an initial acceptance decision.

<Table 1> summarizes the previous research on IS continuance, categorized chronologically to illustrate the conceptual development Briefly, this review shows how various factors mostly from the technology user-oriented perspective have been added to the literature on IS continuance.

<Table 1> Previous research on IS continuance

Research	Context	Antecedents
Karahanna et al. (1999)	Microsoft's Windows 3.1 software package	Attitude toward using the IS and perceived voluntariness
Bhattacherjee (2001a)	Online brokerage	Perceived usefulness, satisfaction, and the interaction between perceived usefulness and loyalty incentives
Bhattacherjee (2001b)	Online banking	Perceived usefulness and satisfaction
Hsu & Chiu (2004)	Web-based tax filing service	Internet self-efficacy and satisfaction
Tiwana & Bush (2005)	Expertise-sharing network systems	Satisfaction and irretrievable investments (reputation, relational capital, and personalization)
Kim & Malhotra (2005)	Personalized portal website of a university	Perceived usefulness, perceived ease of use, and past use
Roca et al. (2006)	E-learning service	Satisfaction
Thong et al. (2006)	M-Internet service	Perceived usefulness, perceived ease of use, satisfaction, and perceived enjoyment

As can be seen from the review, most previous studies on IS continuance have focused on the user-oriented factors from the technology perspective. The focus is on identifying factors (e.g., satisfaction, perceived usefulness, perceived ease of use, and past use) pertaining to a user's perception of the focal IS characteristics which will lead to continued usage decision. On the whole, the IS continuance literature is lopsided by taking only a user-oriented viewpoint with not much consideration from a customer-oriented viewpoint. Indeed, a few studies have considered customer-oriented factors from the relationship development perspective.

2.2 IS continuance from the relationship development perspective

In the context of M-Internet service usage, a relationship exists between the service user and the service provider. Service providers tend to develop a long-term relationship with their customers to retain them because long-term viability and the overall success of their service require IS continuance rather than one-time use. IS continuance of M-Internet service users could thus be considered as the result of relationship development effort.

Regarding relationship development, Bendapudi and Berry[5] suggested that customers are motivated to

maintain relationships with a service provider either because they genuinely want to or because they believe they do not have any other option. The former is referred to as dedication-based relationship and the latter as constraint-based relationship. While customers in constraint-based relationships preserve the relationships because they believe they have no other choice and cannot exit from the relationships due to economic, social, or psychological costs, customers in dedication-based relationships desire continuance. Both sets of motivations must be studied to develop a full understanding of how relationships between customers and service providers are developed.

Although a dedication-based relationship appears to be preferred over a constraint-based one, the latter is necessary as a complement to the relationship. This is because if the level of dedication is not strong, customers may still defect. Besides, it is virtually impossible to generate total satisfaction in all customers in terms of their devotion. Therefore, while dedication is generally preferred more than constraints, it is important that constraints exist to lock in customers who are only reasonably satisfied [5].

As for the development of the relationship, dedication-based relationship development refers to how a service provider can create or strengthen a customer's desire to continue the relationship. Meanwhile, constraint-based relationship development refers to how a service provider can build barriers to exit and increase switching costs for the customer in order to keep them. In short, dedication will determine the quality of the relationship (will it grow?), while constraints will determine the stability of the relationship (will it persist?) [5].

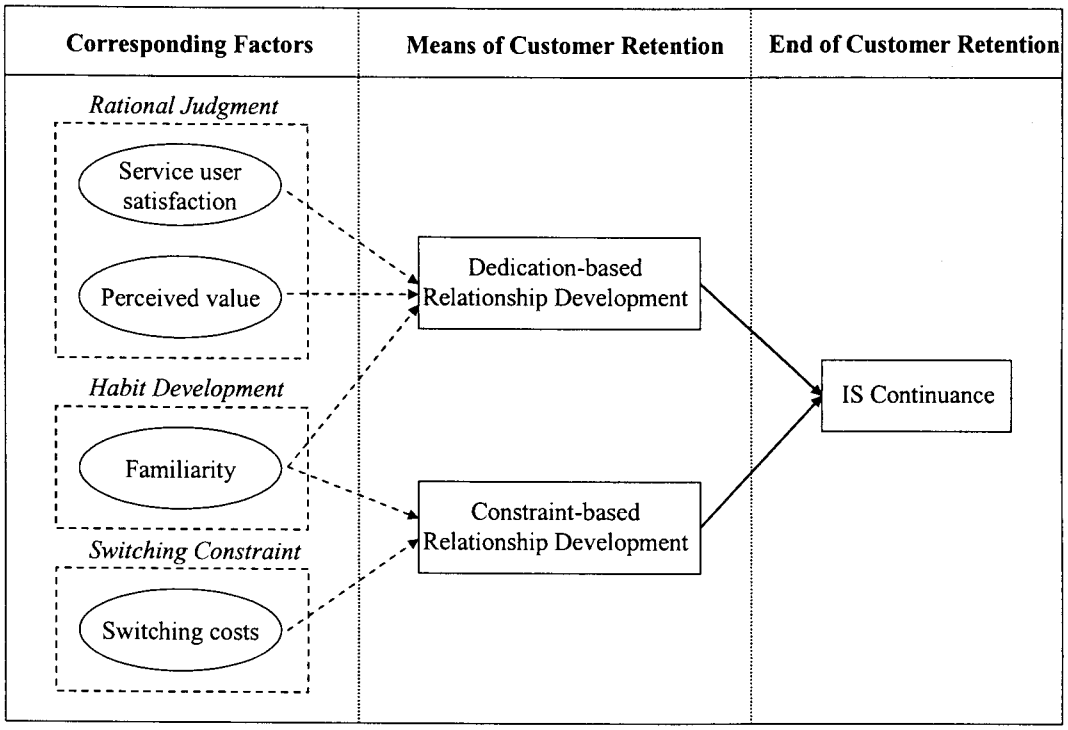
3. Theoretical Framework

Relationship development between service users and service providers would lead to IS continuance (i.e., customer retention). Both dedication-based and constraint-based relationships development are the means to ensure customer retention, while IS continuance is the end of customer retention from the customer relationship perspective as shown in [Figure 1]. We propose that the IS continuance of the service user is influenced by the development of the user's dedication to the relationship with the service provider and the development of switching constraints perceived by the user. Regarding the development of relationships with M-Internet service users, there could be several driving factors. This study categorized these factors into three groups such as rational judgment, habit development, and switching constraint.

Regarding rational judgment, it is assumed that people conduct their behavior based on rational reasoning [2]. Rational reasoning encompasses affective evaluation as well as cognitive evaluation [23]. Accordingly, this study identifies perceived value from the cognitive judgment perspective and service user satisfaction from the affective judgment perspective. This study defines service user satisfaction as a service user's affective judgment towards using the M-Internet service of the current service provider. Value has been conceptualized as an assessment of benefits against costs [45]. Following previous research, this study defines perceived value from a service user perspective as the net benefits (perceived benefits relative to perceived costs) of using the M-Internet service of the current service provider. Especially because M-Internet service users bear the cost of service usage, the cognitive judgment whether or not

the service is worth the money paid is important for the continuance decision making.

consumer's familiarity with the use of the M-Internet service will develop into a habitual behavior and will be committed with routinized usage. The user will also



[Figure 1] Conceptual framework of IS continuance

Regarding habit development, Triandis[41] defined habit as a repeated behavioral pattern that automatically occurs outside conscious awareness. Repeated behavior is necessary to establish habit, and when this behavior is repeatedly performed, it bypasses rational decision making and becomes habitual [1]. As a factor that belongs to habit development, this study identifies familiarity. Luhmann[26] explained that familiarity is an understanding, often based on previous transactions, experiences, and learning of what, why, where, and when others do what they do. Following Gefen[15], we define familiarity as the degree of knowledge and understanding of the relevant procedures, technology, and capabilities of the provider's M-Internet service. Over time, the service

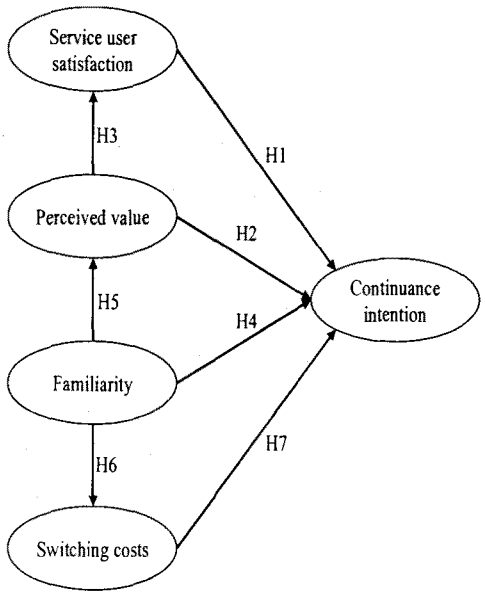
be discouraged to make any changes to the status quo due to the reluctance to exit from the existing comfort zone [36].

Regarding switching constraint development, switching constraints are the perceived economic and psychological costs associated with changing from one alternative to another [21]. Switching constraints are thus barriers that hold customers in a relationship with a service provider. This study identifies switching costs as a corresponding factor for switching constraint development. Following Burnham et al.[9], this study defines switching costs as the one-time costs that customers associate with the process of switching from one M-Internet service provider to another.

[Figure 1] shows the mapping of the identified factors to the relationship developments. We will discuss how the factors are matched to the two types of relationship development, and how they lead to IS continuance from a customer relationship perspective as we develop our research model in the following section.

4. Research Model and Hypotheses

Based on the conceptual framework, we develop a research model ([Figure 2]) with four factors identified as the antecedents of continuance intention. This study uses continuance intention because behavioral intention is the most proximal influence on behavior in mediating the effects of other determinants on behavior [2].



[Figure 2] Research model

From the affective rational judgment perspective, satisfaction resulting from the previous service usage experience would make a service user want to continue using the M-Internet service, which is a form of dedication-based relationship development. Service users would desire to continue using the M-Internet service and maintain the relationships with the service provider if their previous usage experiences have resulted in satisfactory outcomes. This reasoning is also supported by the regret avoidance theory[36]. The service user will try to minimize regrettable consequences by ensuring that the level of emotional utility (satisfaction) is maintained by continued use of the service. Hence, we hypothesize the following:

H1: Service user satisfaction with the current M-Internet service is positively related to continuance intention.

From the cognitive rational judgment perspective, a highly perceived value resulting from usage experience with the current M-Internet service would cause status quo bias in the customer [36], which is another form of dedication-based relationship development. This study conceptualizes value as an assessment of benefits against costs, which is involved in using the M-Internet service. Costs can be either monetary (perceived price) or non-monetary (time and effort), while benefits can be service quality and its usefulness [45]. Service users are expected to maximize their value or utility as part of rational decision making [45]. Thus, a customer would desire to continue using the M-Internet service and maintain a relationship with the service provider if the use of M-Internet service has resulted in high value. Hence, we hypothesize the following:

H2: Perceived value is positively related to continuance intention.

Previous research [29] has posited that customer value is a cognitive construct capturing benefit-sacrifice discrepancy, while customer satisfaction is primarily an affective and evaluative response. Service management literature also argues that customer satisfaction is the result of a customer's perception of the value received in a transaction or relationship [18]. Perceived value can thus result in an affective response and hence service user satisfaction [12]. In addition, the self regulatory processes in psychology [3] and the theory of emotion and adaptation[25] explain that cognitive judgment (i.e., perceived value) leads to affective judgment (service user satisfaction). Hence, we hypothesize the following:

H3: Perceived value with the current M-Internet service is positively related to service user satisfaction.

Also as a form of dedication-based relationship development, an M-Internet service provider could consider developing the habitual nature of behavior in its service users. If the transactional behavior with the current provider is repeated, the habitual nature of repeated behavior will be established [1]. A factor that corresponds to the habitual nature of IS usage behavior is familiarity. Through repeated experience with the M-Internet service, service users would gain high familiarity. In particular, familiarity encourages users to become comfortable of using M-Internet service with the provider because "familiarity breeds comfort" [30]. Service users would thus desire to continue using the M-Internet service, and maintain a relationship with the service provider if they perceive familiarity with the use of M-Internet service of the current service provider.

Fostering familiarity can also be considered as a way for constraint-based relationship development. Familiarity through repeated usage leads to the development of scripts (i.e., heuristic rules) in using M-Internet service with the current service provider [8]. Prominent cues (e.g., need to check bank account) in the context activate scripts (e.g., select mobile banking service, select a menu, and process it) automatically, which in turn guide further information processing and behavior [8]. In this way, the developed scripts from familiarity correspond to the habitual nature of IS usage behavior. The habitual nature would become the constraint for the users in discontinuing the use of M-Internet service or switching to a new service provider. Hence, we hypothesize the following:

H4: Familiarity with the current M-Internet service is positively related to continuance intention.

As service users become familiar with the relevant procedures and technology of M-Internet service of the focal provider, they are required to expend less time and effort to complete an M-Internet service because they already have sufficient knowledge on using it. Also, customers would seek for efficiency and try to minimize the basic consumption costs (i.e., money, time, and effort). Familiarity thus allows M-Internet service users to reduce consumption costs in terms of time and effort. For example, users with familiarity do not have to re-figure out how to search and browse for information, make payment and orders, and receive or send multimedia messages. Minimizing the time and effort spent on using the service would thus lower non-monetary costs (time and effort) and lead to an increase

in perceived value. Hence, we hypothesize the following:

H5: Familiarity with the current M-Internet service is positively related to perceived value.

For constraint-based relationship development, M-Internet service providers could consider creating switching costs as a constraint because such costs would inhibit users from switching to other alternatives [42]. Switching costs typically motivate customers to maintain a constraint-based relationship [5, 33]. Burnham et al.[9] posited that switching costs arise from a variety of factors and may be classified along three dimensions such as procedural switching costs (e.g., setup costs and learning costs), financial switching costs (e.g., monetary loss costs), and relational switching costs (e.g., psychological or emotional discomfort). Switching costs thus create constraints which prevent or discourage customers from switching from one service provider to another, or discontinuing the current M-Internet service usage, and getting customers locked in with the service provider. Hence, we hypothesize the following:

H6: Switching costs are positively related to continuance intention.

Switching costs come in various forms, ranging from explicit contractual provisions, actual effort involved in switching or learning to use an alternative service, or the psychological costs of switching from a familiar provider to one whose quality is unknown. As customers become familiar and comfortable with the M-Internet service of the current service provider, the psychological costs of switching to another service provider increase. In addition, familiarity accounts for sunk costs and resource investments because familiarity with the procedures and technology of the current M-Internet service results from past investments of time and effort in learning and using the service. Hence, we hypothesize the following:

H7: Familiarity with the current M-Internet service is positively related to switching costs.

5. Research Methodology

5.1 Instrument development

The survey questionnaire used in this study was developed by adopting existing validated scales for the M-Internet service context wherever possible. For perceived value, we adopted four items from the study of Srideshmukh et al[38]. Three items for familiarity were adopted from the work of Gefen [15], and one item was newly added. For satisfaction, we adopted items from the study of Spreng and MacKoy[37]. Three switching costs items were adopted from the work of Ping[31]. For continuance intention, we adopted items from Bhattacherjee's research [6, 7]. All items in the questionnaire were measured with a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). Three IS researchers reviewed the instrument for its face validity. Feedbacks on the questionnaire were gathered from 14 M-Internet service users with regard to any ambiguity of the questions, the length of the instrument, the format of the scales, and the information to be sought from respondents.

5.2 Data collection

We collected empirical data for this study via an Internet survey over two weeks. We posted messages advertising the survey at public forums. At the same time, e-mails were sent out via the university e-mailing list to all the undergraduates and graduates of a major university in Singapore. To improve the response rate, S$50 was offered to 20 respondents by lottery as an incentive. Potential respondents were reminded not to take the survey if they had no experience in using M-Internet service. They were also requested to enter their mobile phone numbers for accessing M-Internet service so that we could check if they really have M-Internet service usage experience. We also assured them of the confidentiality of their responses.

The final sample comprised 157 responses. However, three of them indicated that they had no prior experience of using M-Internet service; hence, were excluded from the final sample, leaving us with 154 usable responses (98.1%) for the data analysis. About two-thirds of the respondents were male. Majority of the respondents were between 20 and 29 years of age (73.4%) and were mostly undergraduates and professionals (making up a total of 76.6%). Majority have used M-Internet service for quite some time, with 80.5% of them having used M-Internet service for at least six months. Some respondents reported that they used M-Internet service on both PDAs and mobile phones, but majority accessed M-Internet service using solely their mobile phones (82.5%).

6. Data Analysis and Results

We chose partial least squares (PLS) structural equation analysis to assess the measurement and structural models[10].

6.1 Measurement model testing

We tested the reliability and validity of the measurement instrument. A common method used for testing reliability is Cronbach's alpha assessment, and the generally accepted lower limit for Cronbach's alpha is 0.70 [17]. Convergent validity is assessed using three other criteria. First, standardized path loadings should be statistically significant and larger than 0.7. Second, composite reliabilities (CR) should be larger than 0.7 [28]. Third, average variance extracted (AVE) for each factor should exceed 0.50 [14]. As shown in <Table 2>, the Cronbach's alphas for all constructs exceeded 0.80 in our study and are thus deemed to be reliable. Next, the standardized path loadings for all our questions were statistically significant and larger than 0.70. Also, the composite reliabilities for all constructs exceeded 0.70, and the AVE for all constructs exceeded 0.5. Hence, convergent validity was established.

We assessed discriminant validity by comparing the square root of the AVE for each construct with the correlations between that construct and other constructs [14]. As shown in <Table 3>, all diagonal values were consistently greater than the off-diagonal correlations in the corresponding rows and columns, demonstrating discriminant validity.

<Table 2> Reliability and convergent validity tests

Item	Loading	AVE	CR	alpha
FAM1	0.87	0.830	0.951	0.931
FAM2	0.91			
FAM3	0.91			
FAM4	0.97			
SAT1	0.80	0.832	0.952	0.930
SAT2	0.95			
SAT3	0.94			
SAT4	0.95			
SWC1	0.84	0.709	0.907	0.860
SWC2	0.90			

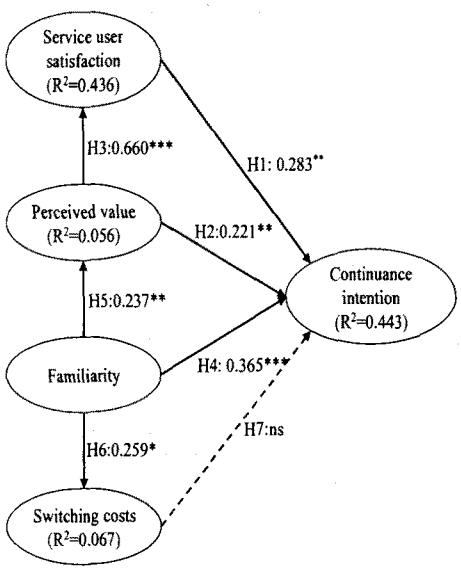
SWC3	0.83			
SWC4	0.79			
VAL1	0.97	0.836	0.953	0.933
VAL2	0.97			
VAL3	0.96			
VAL4	0.84			
INT1	0.87	0.880	0.967	0.952
INT2	0.89			
INT3	0.91			
INT4	0.87			

<Table 3> Descriptive statistics and correlations

Var	Mean	S.D.	SAT	VAL	FAM	SWC	INT
SAT	4.71	1.16	**0.91**				
VAL	4.30	1.25	0.66	**0.91**			
FAM	5.15	1.21	0.31	0.24	**0.91**		
SWC	4.25	1.45	0.02	0.17	0.25	**0.84**	
INT	5.43	1.29	0.54	0.50	0.48	0.02	**0.94**

6.2 Hypotheses testing

We tested the hypotheses using PLS Graph 2.91, and applied the bootstrapping re-sampling technique to calculate the corresponding t-values for each path in order to assess the significance of the path estimates. The path coefficients and significances are reported in [Figure 3]. Service user satisfaction, perceived value, and familiarity were found to be significant to continuance intention, explaining 44.3% of the variance. However, switching costs were found to be insignificant. Perceived value was found to be significant to satisfaction, explaining 43.6% of the variance. In addition, familiarity was found to be significant to perceived value and switching costs, explaining 5.6% and 6.7% of the variance, respectively. Hence, six hypotheses (H1, H2, H3, H4, H5, and H6) were supported, while one hypothesis (H7) was not (refer to [Figure 3]).



[Figure 3] Path coefficients of structural model

7. Discussion and Implications

7.1 Discussion of findings

There are several salient findings in this study. The first finding is that satisfaction as affective rational judgment has a significant effect on the IS continuance intention of M-Internet service users. Here, M-Internet service users play the dual role of a technology user and a service consumer. Previous research has identified technology user satisfaction as a key determinant of IS continuance intention of technology users [6, 7] and customer satisfaction as a key determinant of customer[32]. Thus, the finding is consistent with previous research by indicating the core role of affective rational judgment and satisfaction in leading to IS continuance intention (i.e., customer retention).

The second finding is that perceived value as cognitive rational judgment has a significant effect on the continuance intention of M-Internet service users

both directly and indirectly through its effect on service user satisfaction. Regarding the direct effect, we first need to discuss the characteristics of new ICT. Most adopters and users of traditional technologies are employees in an organizational setting; thus, they use the technology for work purposes, and the cost of mandatory adoption and usage is borne by the organization. In contrast, most ICT users adopt and use the new ICT and its services for personal purposes; thus, the cost of voluntary adoption and usage is borne by the individuals. In particular, one of the major issues in adopting and using M-Internet service is monetary cost, such as usage fee. For this reason, the utility of M-Internet service (e.g., whether or not it is worth its usage fee) is an important issue in deciding IS continuance. As there are different types of consumption costs, such as monetary cost (fee) and non-monetary cost (time and effort), the value of M-Internet service is salient to M-Internet service users in deciding on IS continuance directly. Regarding the indirect effect, this study shows that perceived value has a significant effect on service user satisfaction. This finding parallels prior research [12].

The third finding is that familiarity as a factor belonging to habit development has a significant effect on the continuance intention of M-Internet service users both directly and indirectly through its effect on perceived value. Regarding the direct effect, M-Internet service users become familiar with the use of M-Internet service through repeated usage. If people use M-Internet service repeatedly and frequently, the habitual nature of repeated behavior would then be established [1]. As the level of familiarity increases through repeated usage, the habitual nature of the behavior would be reinforced. The habitual nature of familiarity thus leads to IS continuance of M-Internet service users. Regarding the indirect effect, this study shows that familiarity has a significant effect on perceived value. It explains that M-Internet service users perceive less (non-monetary) costs as they become familiar with the use of the service. Thus, they perceive higher value based on the assessment of net benefits (perceived benefits relative to perceived costs).

However, this study shows that switching costs have insignificant effect on the continuance intention of M-Internet service users. This could be due to the characteristics of the M-Internet service market. Switching costs take the role of switching barriers that hold customers in a relationship with a current service provider[5]. Switching costs would be effective as barriers only when service users attempt to switch away from the current service provider to a new provider in a mature market (e.g., from bank A to bank B). However, the M-Internet service market is still in the immature stage. There are relatively few adopters and few service providers. Users' main concern could be to continue or discontinue using M-Internet service, rather than to switch or not to switch to a new service provider. This implies that switching costs may have a limitation in capturing IS discontinuance costs which could be a barrier in IS discontinuance in the context of M-Internet service.

7.2 Limitations and future research direction

Despite the findings we have made, the current study also has limitations. First, the data used were collected from M-Internet service users in Singapore. Clearly, a replication of this research among subjects from different social, economic, and cultural

environments is necessary to identify any difference that may exist. Second, demographic-wise, both experienced and new users of M-Internet with varying levels of M-Internet experience were allowed to take part in the study. This raises the possibility of inconsistency in the data since the variance of experience is quite large (standard deviation for the duration of usage experience with M-Internet in months = 14.5). This could be due to new and better services which are continuously being introduced into the market. Third, we examined switching costs as a corresponding factor to constraint-based relationship development. However, as we discussed in the previous section, it has a limitation in developing barriers in IS discontinuance. Thus, future studies should consider other constraint-based relationship development factors such as IS discontinuance costs (e.g., early termination charge).

7.3 Implications

This study offers several implications for theory and practice. From the theoretical perspective, this study examined IS continuance from the customer perspective and not from the technology user perspective. M-Internet service users are not only technology users but also service consumers (i.e., customers). However, most previous studies on IS continuance [6, 7, 24, 39] have focused on technology user aspects. Such lopsided technology user-oriented viewpoint is not enough to explain how people decide on the IS continuance of M-Internet service. Hence, the salient implication of this study is the explanation of IS continuance of new ICT, M-Internet service, from the customer perspective.

This study has another key theoretical implication in examining IS continuance from the customer relationship development perspective. As a way of enhancing the IS continuance of M-Internet service users, M-Internet service providers could attempt to retain their service users. Previous marketing research identified the relationship development between the service provider and service users as a core approach for customer retention[5]. There are two types of customer relationship development; dedication-based relationship development and constraint-based relationship development[5]. However, most previous research on IS continuance [6, 7, 24, 39] has focused solely on the dedication-based relationship aspect mainly from the technology user perspective. Hence, another implication of this study is the development and testing of an IS continuance model by extending the previous dedication-based relationship development with the constraint-based relationship development of service users.

Furthermore, this study identifies three significant antecedents (service user satisfaction, perceived value, and familiarity) of the IS continuance of M-Internet service. While user satisfaction has been identified as an antecedent of IS continuance before [6, 7], this study explains the difference between the technology user and the service user, and tested service user satisfaction as an affective rational judgment. Perceived value as cognitive rational judgment has never been operationalized and tested in a nomological network before. Also, familiarity as a factor belonging to habit development has never been tested before in the context of IS continuance. Both service user satisfaction and perceived value correspond to the development of dedication-based relationship, leading

to IS continuance. Familiarity corresponds to the development of dedication-based relationship and constraint-based relationship, which then leads to IS continuance. The study thus contributes towards a richer understanding of these constructs in the context of IS continuance.

From the practical perspective, these results offer suggestions to M-Internet service providers on how to retain their service users by enhancing IS continuance. First, M-Internet service providers should be aware of the critical effect of perceived value on IS continuance intention. For evaluating perceived value, service users tend to estimate whether or not the monetary and non-monetary costs for M-Internet service use exceed the benefits associated with the use of such service. To increase the perceived value, the advantages of M-Internet service should be emphasized from the viewpoint of service users (i.e., adding useful services and publicizing the benefits). M-Internet service providers could consider enhancing the quality of contents and downloads (e.g., text and picture messaging, animations, games, ring tones, and so on) in terms of the graphics and audio performances, and ensuring the availability of a wide range of service selections for service quality excellence. M-Internet service providers should also pay attention to monetary and non-monetary costs. Particularly, they can consider reducing the non-monetary costs required for service consumers by designing the M-Internet service to be user friendly and easy to use.

Second, M-Internet service providers should aim to improve service user satisfaction. Thus, they should enhance service users' emotional experience in addition to improving cognitive instrumental consumption experience. Hudlicka[20] noted that information technology systems can behave in a way that appears to reflect a particular affective state, which may induce affective reactions in the human user. As feelings are significant in predicting satisfaction [44], service providers should offer services and interfaces that enhance feelings of pleasure and enjoyment. M-Internet service providers could also consider improving customers' quality of usage experience by offering both online (help links for relevant information) and offline customer support for service users, and immediately resolving issues such as broken download connections and the like.

Third, M-Internet service providers should understand that familiarity has an effect on IS continuance. They could consider means that would shorten the learning curves and allow customers to learn the procedures and technologies for using their services efficiently. Accordingly, to increase familiarity, M-Internet service providers can design their portals to be as user friendly as possible by using simple hierarchies for navigation (reduce the number of keystrokes expected from a user). For example, text inputs can be replaced with other types of interaction method (e.g., designated buttons and list selection). A well functioning user interface will increase its appeal to a user who will repeatedly use the service and may form a habit.

8. Conclusion

As individuals adopt the use of M-Internet services for personal purposes in non-organizational settings, M-Internet service users assume the dual role of technology user and service consumer. For explaining the IS continuance of M-Internet service, a single-sided view of technology users is not enough.

While most technology user-oriented previous studies on IS continuance has considered only the characteristics of focal technology and the experience of the technology user, this study has examined the IS continuance of M-Internet service users from the customer relationship development perspective. This research is thus one of the few studies that attempted to explain the IS continuance of new ICT users from the customer perspective with empirical validation.

Going beyond what has been accomplished by previous research, this study develops a conceptual framework and its corresponding research model for IS continuance based on the two types of customer relationship development: dedication-based relationship development and constraint-based relationship development. In addition, this study highlights the significance of service user satisfaction and perceived value as rational judgment factors leading to IS continuance through dedication-based relationship development. Furthermore, the study emphasizes the role of familiarity as a factor belonging to habit development leading to IS continuance through dedication-based relationship development and constraint-based relationship development. Overall, the findings offer M-Internet service providers with suggestions for increasing the IS continuance of their service users, which will in turn help them retain their customers.

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