CONSUMERS' POST-ADOPTION OF M-SERVICES: INTEREST IN FUTURE M-SERVICES BASED ON CONSUMER EVALUATIONS OF CURRENT M-SERVICES

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ABSTRACT

While consumers' adoption of new technology has received substantial interest from researchers, the mechanism of consumers' post-adoption evaluation derived from continued use of m-services and its impact on their interest in upcoming m-services are yet to be explored. Drawing on the appraisal → emotional response → coping framework, this study investigates 1) how utilitarian and hedonic values derived from consumers' basic and innovative benefits of m-services influence their post-adoption satisfaction with current m-services and 2) the impact of post-adoption satisfaction on interest in future m-services in the context of young consumers' mobile phone use. The results support all the hypothesized relationships except for the relationship between innovative benefit and utilitarian value. Theoretical and marketing implications are provided.

Keywords: M-services, benefit, value, satisfaction, interest in future m-services

1. Introduction

"As more phones and other small-form handheld devices get smarter, so does the potential for people to use them more often, and for many varied and different purposes" [Burger 2007]. With the growing development of Information Technology (IT) and the wireless telecommunication network, mobile services (m-services) have been expanding rapidly and have been emerging as important tools for consumers to use in their daily lives. For example, the wireless communication industry is reported to have over 5 billion mobile subscribers in 2011 [Budde et al. 2010] and to expect over $1 trillion in global mobile revenues by 2012 [Leggatt 2010]. While the m-service market is growing worldwide, m-service businesses in developed countries are finding it difficult to make a profit for such reasons as the current economic challenges and the growing intensity of competition in terms of price and new service development [Research and Markets 2010]. In fact, the market is already saturated in that the number of mobile phone subscriptions in developed countries, including the United States, exceeds the total number of consumers [Leggatt 2010]. Because of this, marketers' and researchers' attention is now turning to the question of *how consumers' evaluation of and satisfaction with the m-services they currently use influence their interest in new m-services*. M-services in this study refer to a set of transactions, with or without a monetary charge, offered through a mobile phone [Ko et al. 2009]. Examples of m-services include receiving/sending e-mails, short/multimedia message services, downloading music, searching web information, receiving weather/news, playing games, trading stock, shopping, banking, GPS (global positioning service), as well as phone service [Clarke 2001; Huh & Kim

2008; Kleijnen et al. 2007; Shintaro 2005].

Despite the importance of m-service business, research on consumers' m-services use (e.g., m-services, m-commerce) is still at an initial stage, mainly addressing mobile technology adoption by new consumers. To investigate consumers' adoption of mobile technology, studies were mostly built on the Technology Acceptance Model [Davis 1989] and have examined such contexts as m-shopping [Ko et al. 2009], m-banking [Lee et al. 2003], and m-services [Bauer et al. 2005; Constantiou & Mahnke 2010; Pagani 2004]. These studies have revealed adoption determinants such as usefulness, ease of use, enjoyment, instant connectivity, time convenience, user control, cognitive effort, time consciousness, and value of m-services [Hong & Tam 2006; Kleijnen et al. 2007; Ko et al. 2009]. With these in mind, it is timely to move research attention to gaining an understanding of customers' post-adoption use of m-services following their initial adoption.

According to Karahanna, Straub, and Chervany [1999], the decision to adopt a new information technology differs from the post-adoption decision, which is the decision to continue using the adopted information technology [Karahanna et al. 1999]. Each decision entails different predictors that, while the initial adoption decision is mainly induced by social pressure on the person together with his/her attitude toward the adoption behavior, the decision to continue using the adopted information technology is solely derived from the person's evaluation of the performance of the information technology previously adopted [Karahanna et al. 1999]. The term "consumers' current use of m-service" in this study represents their post-adoption experience with m-services after their initial adoption decision.

Different retail/service channels possess their own unique characteristics [Levy & Weitz 2008]. M-services, thus, may convey distinctive features which differentiate them from traditional and Internet channel services. For instance, compared to other knowledge, mobilized knowledge through m-services provides a great deal of benefits as it allows users more "freedom" [Keen et al. 2001] in conjunction with time, location, and personalization [Clarke 2001]. Mobile communication services together with traditional servicescape (e.g., physical shopping malls) help define a consumers' overall retail experience [Houliez 2010]. Based on these, we have developed two research questions: *1) which factors play an important role in consumers' evaluation of their current use of m-services, and 2) what are the consequences of such evaluation?*

As determinants of consumers' evaluation of their current use of m-services, this study considers three factors: perceived benefits from, perceived values of, and satisfaction with current m-services. An outcome variable is consumers' interest in upcoming retail-related m-services (e.g., receiving weekly ads, coupons, and news from retailers). The main purpose of this study is to enhance the understanding of consumers' evaluation of and reaction to current m-services. More specifically, this study explores 1) the perceived benefits – perceived value – satisfaction relationships within the context of young consumers' current usage of m-services and 2) the influence of post-adoption evaluation (satisfaction with current m-services) on consumers' interest in upcoming m-services. Gaining a comprehensive understanding of the drivers that induce consumers to use m-commerce and m-services applications will help retailers and m-services providers to develop effective strategies that meet consumers' needs for m-services.

2. Literature review

2.1. Conceptual framework

This study draws on the appraisal → emotional response → coping framework [Bagozzi 1992; Lazarus 1991] to develop a model of consumers' current use of m-services. The framework suggests that cognitive appraisal precedes and determines one's emotional response, which in turn predicts one's coping response. Appraisal refers to one's cognitive judgment of what an event/an encounter means with respect to one's well-being [Lazarus 1991]. Emotions, as the outcome of appraisal, in turn motivate one to take necessary future actions (coping strategies). For example, when anger arises from negative appraisal, it motivates one to remove the cause of the harm [Ellsworth & Smith 1988; Izard 1977]. To date, this framework has been successfully adopted to gain an understanding of various types of consumer behaviors including complaining [Stephens & Gwinner 1998] and positive/negative word of mouth [Nyer 1997], coping strategies after stressful experiences [Yi & Baumgartner 2004], and antecedents and outcomes of consumer satisfaction [e.g., Anderson & Sullivan 1993; Cronin et al. 2000].

2.2. Perceived benefits of m-services

Consumers' perceived benefit represents consumers' perceived "gain" derived from using specific functions (attributes) of m-services. This benefit differs from consumers' perceived value, which concerns overall holistic evaluation of what is received based on what is given for consuming the m-services [Zeithaml 1988].

Various attributes of products/services [Cohen 1979] provide consumers with different benefits. M-services are considered convergent services that perform by adding a new functionality (wireless network-enabled services) to an existing original functionality (calling) [Gill 2008]. Therefore, the convergent nature of m-services is likely to lead consumers to experience multiple benefits from using various functions/features available through their mobile

phones. For example, in a study of m-commerce, Anckar and D'Incau [2002] suggested eight features of mobile services (time-critical, spontaneous, entertainment, efficiency, mobility-related, cost saving, convenience, and familiarity features) which determine two groups of m-commerce value, including mobile value and wireless value. The wireless represents the cordless characteristic of a mobile device such as being able to be away from a power source and other devices in order to function, whereas mobility refers to the "on-the-move" characteristic of the mobile device. With respect to specific features relating to perceived value, the mobile value is mainly predicted by the benefits of mobility-related, spontaneous, and time-critical features, while wireless value comes from the perceived benefits of wireless convenience, cost saving, and familiarity [Anckar & D'Incau 2002].

Later, Huh and Kim [2008] conceptualized m-service benefits into two groups: basic benefits and innovative benefits. This study adopts this classification. Basic benefits represent consumers' perception of positive experiences with their use of fundamental functions available with the mobility of mobile phones (e.g., communication via talking and/or texting). We call such benefits basic ones because mobility is what fundamentally distinguishes m-services available through mobile phones from traditional phone service as well as services via other electronic devices (e.g., desktop). For example, flexibility with location and time can be considered a basic benefit because it mainly originates from the "take-it-with-you" feature of mobile phones. On the other hand, innovative benefits concerns consumers' perception of positive experiences with their use of new and advanced functions working with the wireless functions of mobile phones (e.g., video, Internet, games, lifestyle applications, music players, and alternate forms of communication such as messenger and Nextel walkies) [Anckar et al. 2003; Clarke 2001; Huh & Kim 2008]. We termed these benefits as innovative ones because the advanced features have been comparatively recently introduced to mobile phones and often require extra cost, considerable skills, and special application installation on m-phones in order to properly operate them. Yet, it is worth noting that the current conceptualization of basic/innovative benefits is subject to change as new types of m-services continuously emerge, thereby making benefits delivered through m-services more complicated and multi-faceted.

2.3. M-services consumption value

Traditionally, consumer value has been viewed as a utility-based concept, as shown in a definition by Zeithaml [1988]: "consumers' overall assessment of the utility of a product based on perceptions of what is received and what is given" (p.14). This utility-based approach tends to better explain goal-directed consumption occasions, in which a product's tangible quality and performance closely determine consumers' value perception. However, such utility-oriented conceptualization overly accentuates consumers' cognitive ability to evaluate the trade-off between gains and costs [Zeithaml 1988] and tends to ignore other potential values such as experiential/hedonic and symbolic/expressive values [Hirschman & Holbrook 1982; Mano & Oliver 1993; Zeithaml 1988]. Much research has emphasized the importance of contemplating different aspects of consumption value [e.g., Babin et al. 1994; Crowley et al. 1992; Voss et al. 2003].

Somewhat surprisingly, however, much m-services research has treated value as a uni-dimensional construct (i.e., utilitarian value) without taking other value aspects into consideration [e.g., Kleijnen et al. 2007; Ko et al. 2009]. This study focuses on two types of values, namely, utilitarian and hedonic values of m-services. Utilitarian value is defined as the consumers' overall assessment of whether the outcome of the m-services use is successful in terms of completing their tasks and goals [Mathwick & Rigdo 2004; Nysveen et al. 2005], while hedonic value refers to the consumers' overall evaluation of whether the outcome of the m-services use is emotionally and psychologically worthwhile on its own [Fischer & Arnold 1990; Mathwick & Rigdon 2004].

The relationship between consumers' benefit perception and their perceived value has been well established by researchers [Kim et al. 2007; Park 2006; Young & Feigin 1975; Zeithaml 1988], and there is little, if any, disagreement that the consumers' perceived benefit is a source of consumer value. In a study of m-commerce, Kim et al. [2007] suggested that both cognitive benefit (manifested in perceived usefulness) and affective benefit (manifested in perceived enjoyment) influence consumers perceived value. Park [2006] also demonstrated that different benefits are distinctively associated with utilitarian or hedonic value perception in the context of consumers' mobile internet use. That is, convenience and information quality contribute to hedonic value while connection stability is positively associated with utilitarian value. Since m-services afford consumers various benefits from basic to innovative ones, different benefits of m-services will be differentially related to consumers' hedonic and utilitarian values.

H1a. Perceived basic benefit is positively related to perceived utilitarian value of current m-services.

H1b. Perceived innovative benefit is positively related to perceived utilitarian value of current m-services.

H2a. Perceived basic benefit is positively related to perceived hedonic value of current m-services.

H2b. Perceived innovative benefit is positively related to perceived hedonic value of current m-services.

2.4. Satisfaction with current m-services

According to Bagozzi's appraisal → emotional response → coping framework [1992], a consumer's appraisal of current use of m-services prompts his/her affective response, which predicts his/her post-adoption behaviors in coping strategies. This study examines consumers' satisfaction with current m-services and their interest in future m-services as the affective outcome and the subsequent coping response to the m-services use, respectively.

Satisfaction has been a long-standing interest in both research and practice because of its salient role in consumers' post-consumption behaviors, such as loyalty [Oliver 1999; Roig et al. 2009], positive word-of-mouth [Zeithaml et al. 1996], long-term profitability [Bernhardt et al. 2000], and future behavioral intention [Anderson & Sullivan 1993; Wu et al. 2008]. Satisfaction indicates consumers' overall emotional response derived from the evaluation of the current use of m-services [Woodruff 1997]. This study specifically focuses on consumers' overall satisfaction with the m-services in current use rather than the evaluation of a particular type of m-service (e.g., phone calling, texting, and internet connection) or of a focal service provider (e.g., AT&T, Verizon, or T-mobile).

Consumers experience satisfaction when their desire is fulfilled [Bagozzi 1992]. One's desire can be fulfilled by experiencing an event that is useful to achieving one's goal and/or experiencing a pleasant and enjoyable event [Bagozzi 1992]. In order for consumers to be satisfied, m-services should fulfill consumers' consumption goal (e.g., GPS should provide a clear direction to a destination) and do it in a pleasant manner as well (e.g., it should provide the direction without frequent disconnections). Similarly, empirical studies have found that both utilitarian and hedonic values influence customer satisfaction [Babin et al. 1994; Crowley et al. 1992; Jones et al. 2006]. Therefore, consumers' positive assessment of goal-directed performance (utilitarian value) and the pleasantness (hedonic value) derived from their experiences with current m-services are expected to elicit satisfaction with the m-services.

H3a. Utilitarian value is positively related to satisfaction with current m-services.

H3b. Hedonic value is positively related to satisfaction with current m-services.

2.5. Outcome of the current use of m-services: Interest in future m-services

Interest in future m-services represents consumers' favorable attention to and willingness to acquire advanced upcoming mobile-mediated activities that they have not yet experienced [Shih & Venkatesh 2004]. Interest in future m-services results from the level of consumers' satisfaction with their current m-services experiences and captures the idea of reinforcement and enhancement of the current m-services adoption [Shih & Venkatesh 2004]. This study focuses on consumers' interest in future m-services that retailers deliver via mobile devices (e.g., receiving coupons and weekly ads.).

One's satisfaction motivates a person to have a favorable reaction to the object (coping response) in order to retain and enhance the current level of satisfaction [Bagozzi 1992]. Research on satisfaction has demonstrated positive consequences of satisfaction such as repurchase intention [Anderson & Sullivan 1993], behavioral intention [Cronin et al. 2000; Gotlieb et al. 1994], intention to purchase a next generation product [Huh & Kim 2008], and loyalty [Yang & Peterson 2004]. Demonstrating the relationship between consumers' post-adoption usage of their current mobile phones and intention to purchase next generation products, Huh and Kim [2008] argued that information on consumers' continued usage explains their future adoption of next technology better than information on their initial adoption behavior does. Their finding implies that consumers' positive experience with their current mobile phone fosters their adoption of similar but more advanced forms of technological interfaces. In fact, satisfied consumers tend to be less resistant to, and perceive less risk from new technology [Shih & Venkatesh 2004; Venkatesh et al. 2003].

Applying this logic to the context of m-services consumption, this study suggests that consumers' post-adoption evaluation of their current use of m-services will predict their interest in next generation m-services. It is, thus, predicted that when consumers find the performance and their experiences with existing m-services to be satisfactory, they are more likely to be open to upcoming m-services.

H4. Consumers' satisfaction with current m-services is positively related to consumers' interest in future m-services.

Figure 1 presents the hypothesized relationships among research variables.

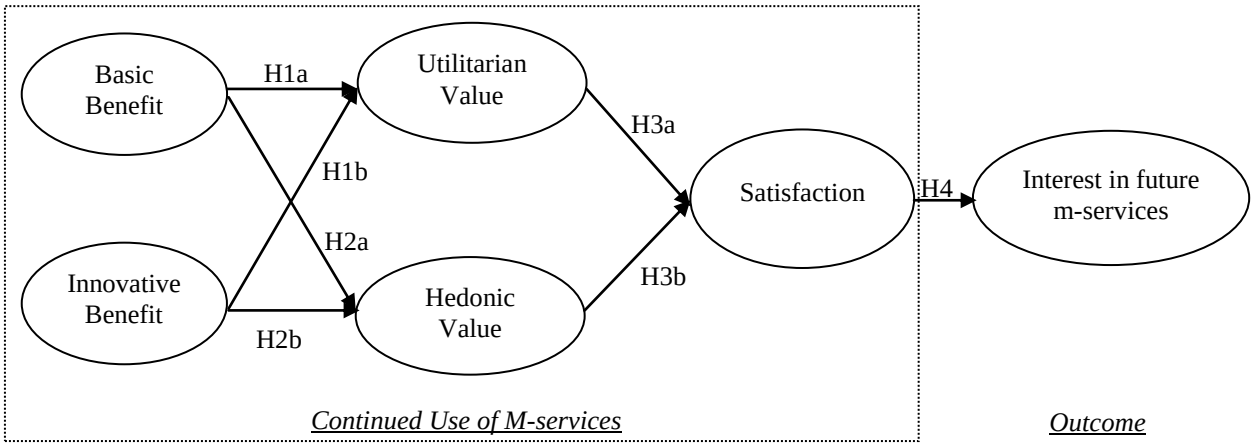

Figure 1: Research Model

3. Method

3.1. Data collection

A web-based survey approach was employed to test the hypotheses, and the sample comprised college students. Given that young adults from 18 to 29 are the most active users of various types of m-services [Smith 2010] a college student sample was considered a good fit for the current study. Participants were asked to think of the mobile phone and m-services they were currently using at the time of survey completion.

3.2. Measurement

All measures used in this study were adopted from previous studies and modified to the context of consumers' mobile phone and service use. The questionnaire consisted of five parts: 1) m-services use, 2) m-services benefits (basic and innovative benefits), 3) m-services consumption value (utilitarian and hedonic values), 4) satisfaction with current m-services and interest in future m-services, and 5) demographics. Three questions were posed to participants regarding their m-services use and current m-services subscription, 1) whether or not they currently use m-services, 2) the types of m-services they currently use on their mobile phones, and 3) average times and hours per day spent in m-services activities. These items serve two purposes: 1) to single out current m-services users and 2) to prompt their attention to their use of m-services in an attempt to help them answer subsequent questions.

Basic and innovative benefit items were selected from Anckar et al. [2003]. Perceived basic benefit and innovative benefit were measured with three items each. M-services consumption values (utilitarian and hedonic values) were measured using a 10-item semantic differential scale [Voss et al. 2003]. Four items were used to measure satisfaction with current m-services [Westbrook & Oliver 1981]. Interest in future m-services was assessed using four items adopted from Shih and Venkatesh [2004] and modified to relate to mobile settings. All items except for the m-services value scales were assessed using 7-point Likert scales (7 = strongly agree). Table 1 presents items corresponding to each variable. All items were summated and averaged to create a single item measure for each variable.

4. RESULTS

A total of 204 responses were gathered, and all respondents were current users of m-services. The mean age of the respondents was 23.11 years old, ranging between 18 and 30 years old. The majority were female (75.5%) and Caucasian (81.9%). On average, they spent 32 minutes making 5 calls, and 62 minutes using other services each day.

4.1. Preliminary Analysis

Exploratory factor analysis with maximum likelihood method was performed to identity underlying factor structure and to check the adequacy of the measurement items. Minimum eigenvalue of 1 was used as a criterion to decide number of factors extracted. Items that have factor loading greater than 0.5 on a single factor and difference greater than 0.2 on the other factors were retained. As a result, six factors were extracted with two items removed (one from each innovative benefit and utilitarian value) from original 24 items. Cronbach's alpha was estimated to check measurement reliability and all estimates exceeded .80, confirming internal consistency. Table 1 presents all the factor loadings of the final 22 items to their designated factors along with Cronbach's alphas. Table 2 presents the descriptive statistics of and correlations among the six variables used in this study.

Table 1: Survey Items, Factor Loadings, and Reliabilities

Variables/Indicators	Factor Loading	Cronbach's α
Basic Benefit		0.84
1. Flexibility with respect to my location ("anywhere") and the time of the day ("anytime").	.75	
2. The convenience and handiness of small, wireless mobile devices (in comparison to desktop computers).	.92	
3. The possibility to get reminder and information services (for instance hot news) in real time, as the mobile device is always connected to the network, and always with me.	.75	
Innovative Benefit		0.84
1. Lower prices (some special offers are available only through mobile devices).	.97	
2. Uniqueness (the possibility to use services that are intended only for/ available only through mobile devices - for instance pinpointing/routing services, making small payments such as parking fees, purchases at vending machines, etc.).	.67	
3. The new dimensions of communication (picture/audio/video messages, streaming video; the possibility to have visual contact with the person you are talking to).*	n.a.	
Hedonic Value		0.94
1. Dull - Exciting	.78	
2. Not delight - Delightful	.93	
3. Not thrilling - Thrilling	.99	
4. Unenjoyable - Enjoyable	.92	
5. Not fun-Fun	.75	
Utilitarian Value		0.87
1. Ineffective - Effective	.58	
2. Unhelpful - Helpful	.98	
3. Not functional - Functional	.83	
4. Impractical - Practical	.64	
5. Unnecessary - Necessary*	n.a.	
Satisfaction		0.92
1. I am happy with the performance of services I use with my mobile phone.	.87	
2. I am satisfied with the services I use with my mobile phone.	.93	
3. I am disappointed with the services I use with my mobile phone (reverse coded).	.90	
4. I truly enjoy the performance of the services I use with my mobile phone.	.74	
Interest in Future m-Services		0.94
1. Receiving weekly ads from stores you like	.94	
2. Receiving coupons from stores you subscribed	.89	
3. Using retailer provided mobile services to enhance your shopping	.83	
4. Receiving lifestyle related information provided by the retailers	.87	

Note. *Items excluded in the final analysis

Table 2: Descriptive Statistics and Correlations

	Mean	SD	BB	IB	UV	HV	SA	IF
Basic benefit (BB)	4.55	1.53	-					
Innovative benefit (IB)	3.69	1.56	.39**	-				
Utilitarian value (UV)	6.02	0.95	.36**	.14	-			
Hedonic value (HV)	5.02	1.34	.39**	.41**	.54**	-		
Satisfaction (SA)	5.21	1.21	.26**	.24**	.39**	.42**	-	
Interest in future m-services (IF)	3.83	1.70	.33**	.40**	.23**	.35**	0.14*	-

Note. Numbers are correlation coefficients. * p-value < .05, ** p-value < .01 (two tailed test).

4.2. Hypothesis Test

A series of multiple regression analyses was conducted to test the hypotheses using SPSS 17.0. Regression analyses were employed instead of statistical analysis with latent variables (SEM: structural equation model) because variables that include basic and innovative benefits and interest in future m-services are considered formative, which prevents the application of analyses using latent variables such as SEM.

As presented in Table 3, the results support all postulated hypotheses except for H1b (innovative benefit → utilitarian value). Hypotheses 1 and 2 predicted the impact of consumers' perceived benefits of m-services (a: basic benefit, b: innovative benefit) on m-services consumption values: utilitarian value (H1) and hedonic value (H2). Basic benefit significantly influenced consumers' perceived utilitarian value, supporting H1a (ß = .359, p < .001) whereas the relationship between innovative benefit and utilitarian value was not significant, failing to support H1b (ß= -.004, n.s.) (F (2, 201) = 14.725, p < .001, R^2 = .119). Perceived basic benefit significantly influenced both hedonic and utilitarian values, supporting H2a (ß = .267, p < .001) and H2b (ß = .310, p < .001) (F (2, 201) = 30.345, p < .001, R^2 = .224). Both utilitarian and hedonic values of m-services had significant effects on satisfaction, supporting H3a (ß = .226, p < .01) and H3b (ß = .296, p < .001) (F (2, 201) = 26.928, p < .001, R^2 = .203). Last, satisfaction had a significant impact on interest in future m-services, supporting H4 (ß = .141, p < .05) (F (1, 202) = 4.122, p < .05, R^2 = .015).

Table 3: Results of Multiple Regression Analyses

Predictors	Dependent Variables			
	Utilitarian Value (H1)	Hedonic Value (H2)	Satisfaction (H3)	Interest in Future m-Services (H4)
Basic Benefit	.359***	.267***		
Innovative Benefit	-.004	.310***		
Utilitarian Value			.226**	
Hedonic Value			.296***	
Satisfaction				.141*
Adjusted R^2	.119	.224	.203	.015
F-value	14.725***	30.345***	26.928***	4.122*

Note. Standardised regression coefficients are reported.
* p-value < .05, ** p-value < .01, *** p-value < .001.

5. Discussion and conclusions

As mobile services grow, an increasing number of studies have been attempting to broaden our knowledge about consumer behaviors as well as efficient and effective mobile business operations. Research on m-business is still, however, at an initial stage, and there is a need for more in-depth investigation of m-services beyond adoption. Focusing on the post-adoption evaluation of continued use of m-services, this study explores 1) how perceived benefits and values of current m-services affect consumer satisfaction with current m-services consumption and 2) how satisfaction influences their interest in future m-services. The propositions built on the appraisal → emotional

response → coping framework [Bagozzi 1992; Lazarus 1991] were tested in the context of young consumers' mobile phone use. The findings from this study show that both utilitarian and hedonic values of m-services (appraisal) derived from perceived benefits have a positive impact on satisfaction with current m-services (emotional response), leading to interest in future m-services (coping). Moreover, the results show that perceived hedonic value of m-services comes from basic as well as innovative features-driven benefits, while perceived utilitarian value only draws from basic feature-driven benefits.

This study has important theoretical implications. First, the findings confirm the applicability of the appraisal → emotional response → coping framework [Bagozzi 1992] by empirically testing it in a consumers' m-services use setting. Second, this study provides evidence that two factors (perceived benefits and perceived values of current m-services) have explanatory power on consumer evaluation of post-adoption experience of m-services (satisfaction with current m-services), as anticipated. Third, the finding shows that two types of m-services value (utilitarian and hedonic values) have a positive impact on satisfaction. The multi-dimensionality of value applies to the m-services context as other retail service contexts [e.g., Babin et al. 1994; Crowley et al. 1992; Jones et al. 2006; Voss et al. 2003]. Additionally, in this particular setting of m-services, perceived hedonic value (ß = .296) exerts a stronger influence on consumer satisfaction than utilitarian value (ß = .226), accentuating the importance of hedonic value in comparison to utilitarian value in influencing post-consumption experience (satisfaction). These findings are consistent with previous studies demonstrating that, compared with utilitarian values, hedonic values (e.g., enjoyment, affects) exhibit greater impact on consumer responses, including satisfaction [Bruner & Kumar 2005; Yi 1990]. Lastly, in line with previous research demonstrating the positive associations between consumer satisfaction and consumers' retention and extended service use [e.g., Anderson & Sullivan 1993; Gotlieb et al. 1994; Huh & Kim 2008; Yang & Peterson 2004], this study showed a significant relationship between satisfaction with current m-services and consumers' interest in future m-services. As consumer satisfaction with current technology increases, their confidence in new m-services increases and their perceived risks associated with the new service decrease [Venkatesh et al. 2003] leading them to become more open to similar new technology and services. Yet, the relationship was weak; this seems not surprising that the nature of future services cannot be predicted from that of the current services.

This study offers some practical implications. An enhanced understanding of the driving factors of consumer satisfaction and extended future usage from this study will help retailers and m-services providers to develop products and services that better cater to consumers' needs for m-services and to draw up more effective marketing strategies. First, mobile-services marketers and mobile-phone/service developers who are trying to garner consumers' patronage and extended usage can take advantage of our findings to create services and functionalities that effectively induce consumers' hedonic and utilitarian values. Classification of consumers' basic and innovative benefits can serve as a parsimonious guideline for developing such services and devices. After making sure both utilitarian and innovative benefits work well, marketers can selectively pursue certain benefits which will best satisfy the needs of their target markets over others. For example, given the differential effects of basic and innovative benefits on hedonic and utilitarian values, providers targeting hedonic/experience-driven customers need to put extra effort into making their m-services/devices more innovative (e.g., enhanced entertainment) besides being practical since hedonic value is derived from basic as well as innovative features. Likewise, utilitarian or task-driven customers can be effectively attracted by delivering mainly basic features (e.g., convenience, cost saving). Second, the results suggest that both hedonic and utilitarian consumer values constitute consumer satisfaction, which in turn influences the extent to which consumers are interested in future m-services. M-services providers also need to monitor how their customers evaluate the m-services and make an effort to keep up with customers' expectations for both hedonic and utilitarian consumption values in order to effectively retain existing customers and to extend the usage level of their m-services.

Some limitations can be seen in the present study. First, college-age consumers are considered to be early adopters of new technologies. In this respect, understanding college-age consumers' continued use of m-services can be a good start for obtaining insights into how other consumers will receive and use m-services in the near future. However, the distinguishing qualities of this group (e.g., low disposable income, high education) may have differential effects on the relationships among the constructs suggested in this study. It is recommended that more research be done using a larger sample size with a wider age range and diverse income and education levels. Second, this study may suffer from common method variance, which often is the case in self-reporting survey data. Although the presence of common method variance does not necessarily invalidate the findings and conclusions of this study [Doty & Glick 1998], it may bias the results. Thus, caution is deemed appropriate. Third, one may argue that classifying consumer benefits into basic benefits and innovative benefits is somewhat arbitrary. That is, a benefit considered innovative today can be considered mundane tomorrow. A continuing investigation into the classification of m-services benefits along with the development of new m-technology and m-services is anticipated. Fourth, items

used to assess m-services benefits might be out of date [Anckar et al. 2003; Shintaro 2005]. More reliable and valid measures of m-services benefits could have identified more comprehensive benefits delivered by m-services. Contrary to the study's proposition, innovative benefits of m-services do not have a direct influence on perceived utilitarian value of m-services. Accordingly, future research needs to re-test the model to confirm such findings or to incorporate other unexplored innovative/experiential benefits which may have an impact on utilitarian value in the model.

While this study gives useful insights into m-services users' evaluation and responses to current and future m-services beyond m-technology adoption, it should be noted that the model would be improved by taking other factors into account, such as individual characteristics (e.g., familiarity with technology, technology anxiety and innovativeness) [Nysveen et al. 2005; Parasuraman 2000; Shih & Venkatesh 2004] and contextual characteristics (e.g., culture) [Harris et al. 2005; Lee et al. 2002; Park et al. 2007]. Also, future research in need should explore possible moderators that may control the dynamics among perceived benefits, perceived value, satisfaction, and interest in future m-services observed in this study. For example, Falk et al [2007] identified individual traits (e.g., age, gender, technology experience, inertia, status quo bias) as moderators which intensify or mitigate conflicts among different service channels. Investigations into adoption-enhancing and adoption-inhibiting factors between m-services and m-devices or across various m-services will enable the conceptualization of a typology of consumer use of current m-services. Related to this, taking the typology of m-services into account will help promote a better understanding of consumer adoption of m-services. Interest in future m-services in this study focused on consumer interest in using "simple" m-services. Yet, the tested model may work differently in more complex services contexts requiring high levels of user interaction, thus calling for further research. Lastly, the observation on the low variances explained by the model invites additional investigation into the antecedents of consumption values, satisfaction with current m-services, and interest in future m-services.

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