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Consumer acceptance of m-services: Marketing implications

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Consumer acceptance of m-services: Marketing implications

Abstract.

Consumers' evolving relationships with their mobile devices and their desire to access mobile services (m-services) present new opportunities to marketers, yet little research has been conducted in the area of m-services. Using structural equation modelling, this paper examines the effect of hedonic and utilitarian value of mobile phones on product and purchase involvement. It also investigates the effect of involvement, innovativeness, and self-efficacy on use of m-services. Data were collected from a convenience sample of 250 respondents using an online survey and a modified snowball procedure. Findings are discussed, further implications for managers are suggested and directions for future research are proposed.

Key-words: m-marketing, m-services, new technology, consumer usage

Introduction

New mobile digital technologies present opportunities for marketers to capitalize on consumers' evolving relationships with their mobile devices and their desire to access information and mobile services (m-services). Clarke III (2001: 134) argues that mobile devices such as mobile phones, smart phones and personal digital assistants (PDAs), are the 'fastest adopted consumer products of all time'. Consumers already use mobile devices (cell phones, personal mobile digital assistants) for traditional phone calls and message handling (Kalakota & Robinson 2002; Sullivan Mort & Drennan 2002). Increasingly they value these devices both for their usefulness and their capacity to provide entertainment, enhance communication and enable transactions. The combination of rapidly developing mobile digital technology and high uptake rates of mobile devices, present enormous potential for delivery of services through these devices (Bitner, Brown & Meuter 2000). M-services encompass a wide variety of types including the ability to send and receive text and pictures, to trade stock, to book theatre tickets online and receive personalised shopping alerts. Marketing messages, rebundled as information services, are also part of m-services. However, little is known about what influences consumers' acceptance of m-services. This paper examines perceptions of hedonic and utilitarian value of mobile phones and the relationship to product and purchase involvement. Further, it investigates the effect of involvement, innovativeness and self-efficacy on use of m-services.

Literature review.

Hedonic and Utilitarian Value of Mobile Phones. Consumer choice is driven by utilitarian and hedonic considerations (Babin, Darden and Griffin, 1994; Dhar and Wertenbroch, 2000). The consumption of many products involves both dimensions to varying degrees (Batra and Ahtola, 1990). Hedonic considerations relate to feelings, fantasy and fun (Hirschman and Holbrook, 1982) while utilitarian attributes relate to qualities of usefulness. It has recently been argued that the origins of involvement are little understood (Coulter, Price and Feick, 2003) despite the large amount of prior research. Here we argue that involvement (conceptualized as importance after Mittal, 1995) with a product and its purchase are influenced by perceived high degrees of utilitarian and hedonic value of the product. We focus on these product dimensions

because, as others have argued (e.g. Barben, Darden and Griffin, 1994), they form a basic underlying presence across consumption phenomena. In the case of the mobile phone, perceptions that it is both highly useful and highly pleasurable are argued to separately and jointly affect involvement with the product itself and the purchase of the product.

Involvement. Much research has been directed to the construct of consumer involvement (see e.g. Laaksonen, 1994). In particular it has been advocated that involvement be viewed as an individual, internal state of arousal with intensity, direction and persistence properties (Andrews, Durvasula and Akhter, 1990) clearly linking involvement to a consumer's motivational state. Involvement is considered to derive from the perceived importance of the stimulus, "be that stimulus the product itself or the purchase decision task" (Mittal, 1995:664). Hunt et al (1995) in their consideration of the two major types of involvement – product involvement and purchase involvement- found that they did not refer to the same concept. It is thus argued that each will have a separate and distinct effect on consumption behaviour. Here we consider involvement with the mobile phone product itself and with purchase of the mobile phone. Consistent with prior research on the impact of involvement on variety of product purchased (Coulter, Price and Feick, 2003) that high levels of involvement with the product or the purchase are both likely to lead to greater use of m-services.

Innovativeness. The influence of individual innovativeness on the use of new technology is recognized by researchers, specifically in relation to computer use (Foxall & Bhate, 1999), information technology (Argawal & Prasad, 1997) and Internet shopping (Donthu & Garcia, 1999). These studies all found significant correlation between innovativeness and technology usage intentions and behaviors. We argue that high innovativeness is likely to lead to greater use of m-services.

Self-efficacy. Over the last decade, studies have also examined the relationship between self-efficacy and use of information technology. Wood & Bandura (1989: 408) define self-efficacy as "beliefs in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands". Compeau & Higgins (1995: 192) who define computer self-efficacy as a "judgement of one's capability to use a computer, and... incorporates judgements of the ability to apply those skills to broader tasks", found that it plays a significant role in shaping individuals' behaviours in terms of computer use. Thus we argue that high levels of self-efficacy are likely to lead to greater use of m-services. Based on the preceding literature review, the proposed conceptual model is shown in Figure 1 and the specific hypotheses to be tested are as follows:

Hypothesis 1: *Innovativeness* will be positively related to use of *m-services*.

Hypothesis 2: *Mobile phone product involvement* will be positively related to use of *m-services*

Hypothesis 3: *Mobile phone purchase involvement* will be positively related to use of *m-services*

Hypothesis 4: *Self-efficacy* will be positively related to use of *m-services*.

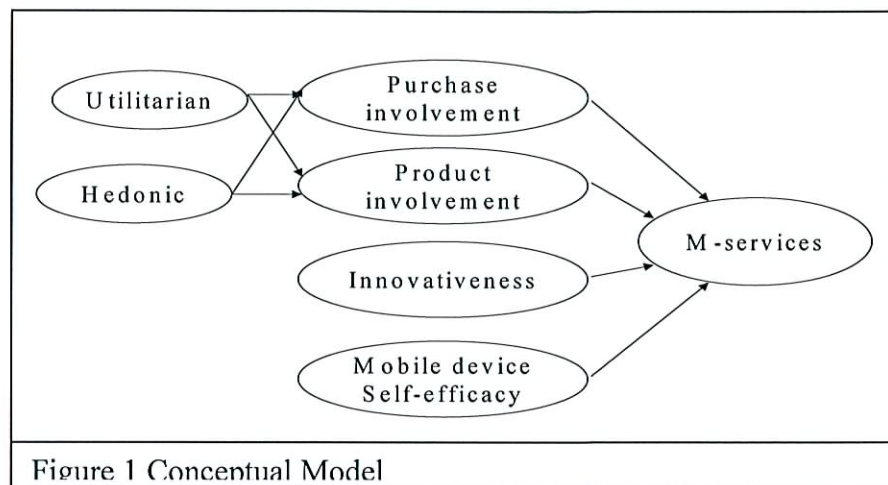
Hypothesis 5: *Perceived utilitarian value of mobile phones* will be positively related to *Mobile phone product involvement*.

Hypothesis 6: *Perceived hedonic value of mobile phones* will be positively related to *Mobile phone product involvement*.

Hypothesis 7: *Perceived utilitarian value of mobile phones* will be positively related to *Mobile phone purchase involvement*

Hypothesis 8: *Perceived hedonic value of mobile phones* will be positively related to *Mobile phone purchase involvement*

involvement



Research methodology

The sample. To undertake this study, a web-based survey was used and email invitations were sent to a number of staff and students of a large Australian business school directing them to the Web site and requesting them to send the invitation to others. The choice of a Web survey for data collection is justified on the basis of its appropriateness for the target sample, its response speed (Schillewaert, Niels, Langerak & Duhamel 1998), automated data collation (Comley 1996) and its ability to overcome incomplete and inappropriate responses (Schmidt, 1997). A sample size of 250 respondents was obtained, 59 % women and 41% men. Respondents were aged from between 17 and 19 years to 40+ years.

Operational measure of constructs. The constructs of *innovativeness*, *self-efficacy*, *hedonic and utilitarian value* and *product and purchase involvement* are modified from scales developed for previous research. To measure use of m-services, respondents were required to respond to a list of 31 examples of m-services. Using SPSS, the occurrences of actual use of each m-service were counted resulting in a new variable that reflects the total number of m-services used for each respondent. To address the issue of positive skewness, the variable was recoded to combine the 17 cases with values of 10 or greater. Details of the items used and source of scales for the current study are reported in Table 1.

Confirmatory factor analysis. Confirmatory factor analysis (CFA) using AMOS 4.1 (Arbuckle, 1999) was performed to assess the adequacy of behavioural measures and to test for discriminate validity of all constructs used in the study. All indicators loaded on their respective constructs as theory suggested (except for innovativeness scale of Donthu and Garcia (1999) which was modified to a two item scale) and the overall model fit with $X^2 = 272.735$, 170 degrees of freedom (df), $p = 0.000$; GFI = 0.9, RMSEA = 0.049, CMIN/DF = 1.604 (independence model with $X^2 = 600.189$, d.f. = 191): X^2 was significant as might be expected given the sample size (Anderson and Gerbing, 1988). To assess discriminate validity, correlations between factors over 0.60 were fixed to 1.00 (Rodriguez and Wilson, 2002), the model was recalculated and a chi-square measure was used as the model fitting criteria (Anderson and Gerbing, 1988). There was one factor correlation above 0.60 (perceived hedonism of mobile phones (PHM) and product involvement 0.69) and after recalculation, the

resulting model fit significantly less well than the unconstrained model (ΔX^2 278-272 =6; df (171-170); $p < 0.05$) establishing discriminant validity for PHM and product involvement factors and thus for all constructs in the model. Fit indices for the CFAs and Cronbach alphas for each indicator are shown in Table 1.

Table 1 Constructs measured^a

Construct	Scale	X^2	GFI	RMSEA	Alpha
Self-efficacy	Adapted from Compeau and Higgins (1996)	7.494 p=0.024	0.984	0.105	0.91
Mobile phone product Involvement	Beardon and Netemeyer (1999)	1.250 p=0.264	0.997	0.032	0.90
Mobile phone purchase Involvement	Beardon and Netemeyer (1999)	3.451 p=0/063	0.991	0.099	0.93
Utilitarian	Batra & Ahtola (1991)	0.241 0=0.887	1.000	0.000	0.77
Hedonic	Batra & Ahtola (1991)	6.748 p=0.034	0.987	0.098	0.78
Innovativeness	Donthu and Garcia (1999) ^{modified}				0.75

a Responses were on a 7-point scale ranging from "Strongly Agree" to "Strongly Disagree".

Results

Estimating the structural model produced the following results: $X^2 = 287.427$, 170 df, $p = 0.000$; GFI = 0.904; RMSEA = 0.049; CMIN/DF = 1.633. As noted previously, the significant chi-square statistics might have been expected given the large sample size (Anderson and Gerbing, 1988), but the other fit indices provide evidence of adequate fit to the sample data with the ratio CMIN/df being below three. Standardized regression weights and t-values for the model are shown in Table 2. T-values in excess of 1.96 were accepted as significant (Anderson and Gerbing, 1988). The results indicate that innovativeness positively influences the extent of use of m-services supporting Hypothesis 1. Consumers who have innovative characteristics will be more likely to try new m-services (beta = 0.470; $t = 2.226$). As predicted by Hypotheses 2 and 3, high product involvement and high purchase involvement were found to be a positive influence on use of m-services (H2 beta = 0.476, $t = 2.233$; H3 beta = 0.499, $t = 2.392$). Those consumers with high product involvement who considered that their mobile phones were very important to them, were part of their lives, and mattered to them were likely to use more m-services. Similarly, consumers with high purchase involvement who chose their mobile phone carefully, considered the choice an important decision and cared which mobile phone they bought were also likely to use more m-services. Hypothesis 4 predicted that consumers with high perceived self-efficacy would be likely to have high m-service use, but this hypothesis was not supported (beta = 0.071, $t = 0.355$). Self-efficacy thus appears to have no impact on extent of use of m-services.

It was hypothesized that product involvement would be positively influenced by both consumers' perceived utilitarian value (H5) and hedonic value (H6) of mobile phones. Only hypothesis 5 was supported (H5 beta = 0.622, t = 6.357; H6 beta = 0.136, t = 1.757). It appears that only the utilitarian value of mobile phones drives product involvement. Finally, Hypotheses 7 and 8 proposed that purchase involvement would also be positively influenced by consumers' perceived utilitarian value (H7) and hedonic value (H8) of mobile phones. Both these hypotheses were supported (H7 beta = 0.378, t = 4.059; H8 beta = 0.172, t = 2.009) indicating that both utilitarian and hedonic value influence purchase involvement.

Table 2 Standardized regression weights for structural model

Path	Regression weights	t-value
H1 Innovativeness → m-services	0.470	2.226*
H2 Product involvement →m-services	0.476	2.233*
H3 Purchase involvement →m-services	0.499	2.392*
H4 Self-efficacy →m-services	0.071	0.355
H5 Utilitarian →product involvement	0.622	6.357*
H6 Hedonic →product involvement	0.136	1.757
H7 Utilitarian →purchase involvement	0.378	4.059*
H8 Hedonic →purchase involvement	0.172	2.009*

Discussion

Results indicate that involvement with the mobile phone product is a result of the usefulness of the product, but that the purchase involvement for a mobile phone is strongly influenced by both pleasure and usefulness. It seems that the extent to which consumers feel that their mobile phones are useful, valuable and beneficial increases their involvement with the phone itself and the purchase of the phone. On the other hand, perceptions of high hedonic value only drive purchase involvement. Importantly, purchase and product involvement both have a significant influence on the extent of the actual use of m-services. Consistent with prior Internet research (Donthu et al, 1999), innovativeness was also found to impact on actual use of m-services. It is notable that the role of involvement is confirmed in this context, as involvement in the product class was not found to influence the time consumers spent at a Web page devoted to that type of product (Balabanis & Reynolds 2001). However, efficacy, previously found important in relation to computer and Internet use, was not found to be a significant influence on use of m-services. An explanation for this finding is possibly related to the seamless integration of technology when accessing services using mobile devices. M-services, products delivered to mobile devices via voice, text, email and web-mediated delivery, are an important area requiring the attention of marketing managers and also link to the next generation of e-commerce. This study has contributed new insights into the behaviour of consumer in this emerging service area, identifying the role of mobile phone product and purchase involvement and consumer innovativeness. It also identifies the influence of hedonic and utilitarian value of mobile phones. Future research should explore influences affecting the use of specific types of m-services to gain an understanding of those services that are more likely to fulfill mobile consumer needs.

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