

The Role of Moderating Factors in Mobile Coupon Adoption: An Extended TAM Perspective

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Abstract

This research represents a theoretical extension of the extended Technology Acceptance Model (TAM) to study the consumer adoption of mobile coupons. We developed a model to test the relationship between theoretical constructs spanning technological and cognitive influence processes and their impact on Behavioural Intention. This study aims to integrate price consciousness and value consciousness into the promotional effectiveness framework. The results of the study indicate that perceived usefulness and perceived ease of use influence attitude, which in turn influences the intention to use m-coupons. Social influence and compatibility play a major role in influencing the intention to use mobile coupons. The key objective of this research paper is to study the role of value consciousness and price consciousness as moderating variable in predicting the customer intention to use mobile coupons. The high value conscious and price conscious customers indicate more interest in redeeming m-coupons than other customers. This result confirms that in the mobile technology context, traditional adoption models such as TAM could be applied but needs to be modified and extended in order to increase their prediction and explanation power.

Keywords: Mobile Coupons, Discount Coupons, extended TAM, and Mobile Marketing

1. Introduction

Mobile Marketing, which can be called the next generation of eMarketing, is more and more common in today's society. The mobile marketing is growing at a much faster rate because it is considered more cost effective, personalized, and results-driven. The advent of mobile marketing has resulted in a new form of sales promotion. Now, advertisers are deploying digital coupons on mobile phones, aiming to exploit the inherent location and real time delivery capabilities that make for a more compelling solution than traditional paper coupons. Juniper Research forecasted that 200 million mobile subscribers globally will use m-coupons by 2013 (Neil, 2008)

A mobile coupon (m-coupon) is an electronic ticket solicited and/or delivered by mobile phone that can be exchanged for a financial discount or rebate when purchasing a product

or service (MMA, 2007). They can carry messages including text, pictures, audio, and, more recently, even videos. The consumer receives the coupon on the mobile device and stores it there until he or she decides to redeem it. Currently, many businesses are using this new mobile channel to create new opportunities. The mobile operators and other service organizations are providing a new service called "mobile coupons," enables the downloading of coupons offered by different outlets onto the mobile phones for use later. At present, the m-coupon market is still in its growth stage and it seems the business opportunities for it are limitless.

The prevailing view that coupon effectiveness is contingent upon certain consumer characteristics has received limited empirical follow-up (Lichtenstein, Netemeyer, and Burton 1990; Guimond, Kim, and Laroche, 1999).

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Lichtenstein et al (1990) provided evidence that value consciousness and coupon proneness are distinct constructs that both underlie coupon redemption behaviours. The present study, focus on the interaction between coupon, technology acceptance and consumer characteristics. Consumer segment differences likely to vary in their responsiveness to sales promotions and would determine the most effective form of policy for reaching target consumer segments (Kukar-Kinney and Grewal, 2007). The goal of the current research is to fill this gap in knowledge about consumer responses to sales promotions incorporating price consciousness and value consciousness in the analysis. Although consumers' level of price / Value consciousness has been extensively discussed, there is limited research to date examining its moderating effect on the effectiveness of promotional actions (Palazon and Delgado, 2009).

Mobile coupons previously the biggest barrier to entry was the technology. It seems that they are facing another challenge now: consumer adoption. Even though there are considerable researches on mobile services, but there are not many studies on mobile coupons. With a few notable exceptions (e.g., Hsu, Wang, and Wen, 2006; Dickinger and Kleijnen, 2008), little research has been devoted to explore the factors that contribute to consumers' willingness to adopt mobile couponing. Little is still known about consumers' attitudes toward adopting, or not adopting, and factors that influence consumers' attitudes and value perceptions about them. It is likely that the new media environment would alter consumers' couponing behaviour identified in previous research.

This research explores in-depth the characteristics and behaviour of the coupon prone customers, this research contributes to a better understanding of how personal factors strengthen or attenuate behaviour toward mobile coupons. However, little attention is given to relatively new type of coupons like mobile coupons. This study, therefore, seeks to analyze whether the behavioural attitude and intention of consumers using m-coupons shows the same result as that from traditional discount coupons and whether there is a difference in influential factors.

2. Literature Review

2.1. Print Coupon Redemption Behaviour

There is a continuing debate about the determinants of coupon use. Many researchers have sought to explain coupon deal redemption in terms of the socioeconomic and demographic characteristics of consumers or to identify the psychological factors that motivate consumers to use coupons (Narasimhan, 1984; Blattberg, and Neslin, 1990; Bawa, Srinivasan and Srivastava, 1997). Although they have contributed a lot to our understanding of coupon redemption behaviour, there is no coherent evidence for the effectiveness of coupon programs (Mittal, 1994). Many researchers have sought to identify the characteristics of coupon-prone or deal-prone consumers. According to Bawa, Srinivasan and Srivastava (1997) there are five factors that might affect consumer response to coupons. They are: a) coupon characteristics, b) mailer characteristics c) brand characteristics d) product characteristics and consumer characteristics.

Shimp and Kavas (1984) applied Ajzen and Fishbein theory of reasoned action to conceptualise coupon usage. They found that both personal attitudes and subjective norms played major roles in determining intentions to use coupons. Bagozzi, Baumgartner and Yi (1992) studied the intentions to redeem a coupon and the act of coupon redemption. They found that coupon usage was influenced jointly by consumers' self-efficacy (confidence in the ability to use coupons), instrumental beliefs (beliefs that it should lead to a favourable outcome) and affect toward means (liking for the act). All these findings together suggest that by paying attention to the design of the direct mail coupon promotion, manufacturers may be able to increase coupon usage through reinforcing the perceived benefits, reducing the perceived costs and strengthening the link between intentions and redemption behaviour (Bawa, Srinivasan and Srivastava, 1997).

Bonniei, Campbell and Fredenberger (1996) used factor analysis to identify the underlying factors that deter consumers from coupon redemption. Their study reveals that consumers perceive couponed products to be of low quality and feel embarrassed to use coupons in their shopping activities. Coupon usage increases, as one perceives higher satisfaction and pride with the use of coupons (Babakus, Tat, and Cunningham, 1988). Han, Yoon and Cameron (2001) investigated how web user's attitude, intention and behaviour in using online coupons are affected by offline coupon attitude. The results indicate that all three independent

Table 1: Researches on Mobile Service Adoption

Author/s	Technology and Application	Basic Model Used	Key Variables
Pedersen (2002)	Mobile Internet Services	TAM and TPB	PU, PEOU
Hung et al. (2003)	Mobile Commerce	TAM	PU, PEOU
Muk (2004)	SMS Advertising	TRA	Attitude, Subjective Norms
Han (2005)	Mobile Medical Information System	TAM	PU, PEOU, PIIT, COM
Kleijnen, Wetzels and Ruyter (2004)	Wireless Finance	TAM	PU, PEOU, SI, PSQ
Bedford (2005)	Mobile Commerce	UTAUT	Trust, PE, EE, SI, FC
Lin and Wang (2005)	Mobile Gaming	TAM	PU, PEOU, PC, Self Efficacy, Financial Resources
Hsu, Wang and Wen (2006)	Mobile Coupons	Decomposed TPB	COM, PIIT, PEOU, PU, SI
Dickinger and Kleijnen (2008)	Mobile Coupons	TAM	Price consciousness Fear of Spam Economic benefits Coupon Proneness Past use of coupons Redemption Effort
Shen and Chen (2008)	Mobile Advertising	TPB	PU, PEOU
Tao (2008)	Mobile Commerce		Privacy
Shen and Chen (2008)	Mobile Advertising	TAM	PU, PEOU
Koury (2008)	Mobile Advertising	TAM2	Social Norms

variables affect web users' attitude and intention to use online coupons, but do not affect their online couponing behaviour.

2.2. Mobile Coupon Redemption Behaviour

A number of researchers have studied user acceptance of mobile technology and services such as the mobile Internet, text messaging, contact services, mobile payment, mobile gaming and mobile parking services based on IS adoption models. Pedersen (2002) conducted an exploratory study about early adopters' behaviour with regard to using mobile Internet services. He decomposed the TAM and the TPB to build a new research model in order to understand the phenomena. He found that, at least from a measurement perspective, adoption research models might successfully be applied to the study of mobile service adoption. However, he argued that simple IS adoption research models, e.g. the TAM, should be extended with both subjective norms and behavioural control in attempts to explain the adoption of mobile commerce services. He further recommended that his model could be modified when applied to study other mobile commerce services (Pedersen, 2002).

Kwon and Chidambaram (2000) used the TAM to investigate patterns of cellular phone adoption and usage in an urban setting. The results of their study confirmed that users' perceptions influence their behaviour towards cellular phones, specifically, the perceived ease of use. Hung, Ku and Chang (2003) used the TAM for evaluating the acceptance and usage of mobile commerce by collecting data from students. The perceived usefulness and ease of use were found to have positive impacts on the users attitudes and behavioural intention. Lapczynski (2004) integrated four technology acceptance models (TAM, TAM2, TPB, TTF) and created a robust model for mobile computing devices. He added three new factors (adaptability, mobility, and security) that act as antecedents of perceived usefulness, which is one of two foundational belief constructs in technology acceptance model theory.

Kleijnen, Wetzels and Ruyter (2004) investigated consumer acceptance of wireless finance and found that the variables of perceived cost, system quality and social influence correlated significantly with attitude towards use. The variables such as participants' age, computer skills, mobile technology

readiness and social influence proved to have moderating effects in the mobile phone usage context. Social Influence was added to the model, and found to display significant effect on BI. Bedford (2005) used UTAUT model to investigate acceptance and use of m-commerce. He added trust as one of determinant of behaviour intent. The trust factor increased the total variance of basic model by 2%. Lin and Wang (2005) tested integrated TAM model by adding, perceived credibility, perceived self-efficacy and perceived financial resources. The results support the integrated model in predicting consumers' intention to use m-commerce.

Hsu, Wang and Wen (2006) studied the factors influencing attitude and behavioural intentions of consumers using m-coupons using decomposed theory of planned behaviour. The results of the study demonstrate that personal innovativeness has no direct relation to behavioural attitude. Behaviour and attitude of consumers are largely influenced by endorsement of family and friends. Shen and Chen (2008) used an integrated research model (TPB) to explore the factors that influence consumer intention of using mobile advertising in China. Existing knowledge, perceived usefulness and perceived ease of use all had positive effects on consumers' usage intention. Amin extends the applicability of the technology acceptance model (TAM) to mobile phone credit cards and includes "perceived credibility (PC)", the "amount of information about mobile phone credit cards (AIMCs)" and "perceived expressiveness (PE)", in addition to "perceived usefulness (PU)" and "perceived ease of use (PEOU)". The results indicate that PU, PEOU, PC and the amount of information contained on mobile phone credit cards are important determinants to predicting the intentions of Malaysian customers to use mobile phone credit cards (Amin, 2007).

The results of these studies confirm that in the mobile technology context, traditional adoption models such as TAM could be applied, but need modification and extension in order to increase their prediction and explanation power (Han, 2005). The finding from these studies regarding mobile phone emphasis that social factors, perceived credibility compatibility and personal innovativeness should be included in the basic TAM model.

2.3. Researches on Coupon Proneness, and Price Consciousness

Most of coupon research study involves a disaggregate-level analysis concentrating on the individual consumer's demographic and psychological correlates (e.g., deal proneness, coupon attitudes, brand loyalty, and coupon proneness) of coupon redemption behavior (Pedersen, 2002; Mittal, 1994; Guimond, Kim, and Laroche, 1999). Lichtenstein et al. (1990) research findings show that consumers' coupon redemption behaviours are induced by value consciousness rather than coupon proneness.

Price consciousness is defined as "the degree to which the consumer focuses exclusively on paying a low price" (Lichtenstein et al., 1990). Therefore, price conscious consumers are concerned about searching for a low price in the marketplace, and they derive emotional value and entertainment from shopping for lower prices (Alford and Biswas, 2002). Consumer price consciousness has been regarded as a key issue in sales promotions and store brand purchases. For example, Aliawadi et al. found that store brand purchases in particular were associated with price consciousness (Ailawadi, Neslin and Gedenk, 2001). Sinha and Batra (1999) also found that price consciousness was a significant reason driving consumers to buy store brands in some categories more often than in others. In particular, prior research in sales promotions has suggested that price consciousness moderated the effects of low price guarantees on consumers' pre-purchase evaluations, behavioral intentions (Dutta and Biswas, 2005), and store loyalty (Kukar-Kinney and Walters, 2003).

Therefore, different consumer segments can be distinguished based on their price consciousness (e.g., high vs low). The research results reported by Palazon and Delgado (2009) indicate that price consciousness is a key consumer trait because it moderates the effectiveness of price discounts and premiums at moderate and high benefit levels.

3. Research Model and Hypothesis

The success of mobile coupons hinges on consumer's willingness to adopt new technology and engage in activities using systems and devices different from what they have used in the past. To be precise, eight important determinants of technology acceptance are studied: perceived usefulness (PU), perceived ease of use (PEOU), social influence (SI) compatibility (COMP), perceived credibility (PC) and personal innovativeness (PI), coupon proneness (CP), mobile coupon attitude (ATT).

Value Consciousness and Price Consciousness acts as the moderating variable for coupon redemption behaviour.

H₁: The perceived usefulness by the consumer has a positive effect on their attitude towards using m-coupons.

H₂: The perceived ease of use by the consumer has a positive effect on their attitude towards using m-coupons.

H₃: The coupon proneness of the consumer has a positive effect on their attitude towards using m-coupons.

H₄: The perceived credibility by the consumer has a positive effect on their attitude towards using m-coupons.

H₅: The Personal Innovativeness of the consumer has a positive effect on the

behavioural intention towards using m-coupons.

H₆: The Social Influence has a positive effect on the behavioural intention towards using m-coupons.

H₇: The compatibility of the consumer in using mobile phone has a positive effect on the behavioural intention towards using m-coupons.

H₈: The mobile coupons attitude has a positive effect on the behavioural intention towards using m-coupons.

H₉: The effect exerted by PU, PEOU on Attitude is greater for high value conscious customers.

H₁₀: The effect exerted by PU, PEOU on Attitude is greater for high price conscious customers.

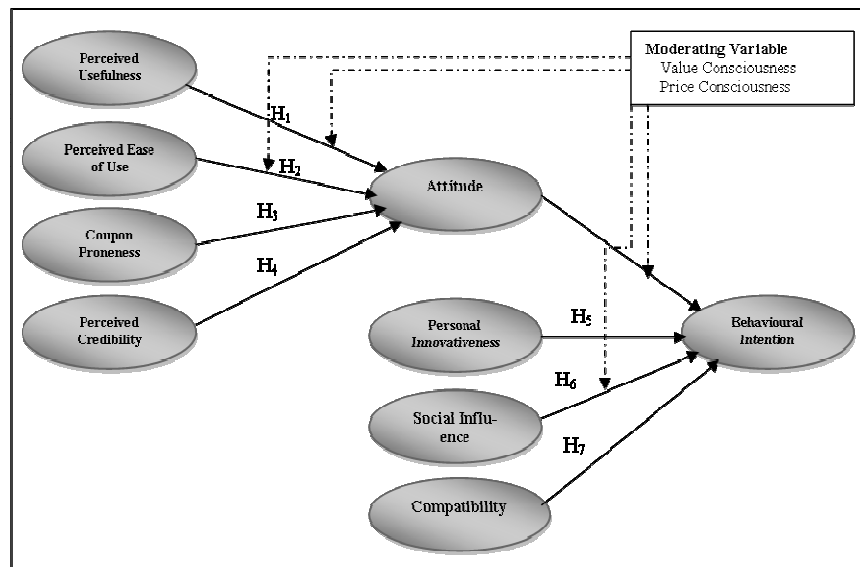


Fig 1. Research Model

4. Methodology

A pre-test was conducted to validate the instrument. Feedback about the layout of the questionnaire and question ambiguity was obtained. Some changes were made to the questionnaires as deemed appropriate. The revised questionnaires were distributed to 1000 participants as noted earlier. The sample of this research was drawn from major cities of Malaysia. A stratified sampling method was used for this study. The whole population is divided into four strata's based on total number of

mobile phone users. Proportionate allocation was made in each of the strata that is proportional to that of the total population.

The areas covered for the survey are Selangor, Kuala Lumpur, Johor and Sarawak. These areas are selected based on the number of hand phone users in Malaysia. 22.1% of hand phone users are located in Selangor, 13.5% in Johor, 8% in Sarawak and 8.6% in Kuala Lumpur (MCMC, 2008).

Table 2: Profile of Respondents

Variable	Frequency	(%)	Variable	Frequency	(%)
<u>Gender</u>			<u>Location</u>		
Female	374	48	Selangor and KL	463	59
Male	407	52	Johor	171	22
			Sarawak	147	19
<u>Household Income:</u>			<u>Age</u>		
Under RM 2000	331	42	Under 18	31	4.0
RM 2001 – RM 4000	216	28	19 to 25	482	61.5
RM 4001 – RM 6000	134	17	26 to 33	223	28.5
RM 6001 – RM 8000	45	6	34 to 41	36	4.5
RM 8001 – RM 10000	18	2	42 to 48	6	1.0
RM 10001 and Above	24	3	Above 50	3	0.5
<u>Race</u>			Total Number of Respondents	781	100
Malay	396	51			
Chinese	275	35			
Indian	73	09			
Others	37	05			

Table 3: Convergent Validity and Internal Consistency Reliability

Description	Item	Cronbach alpha	Based On
Perceived Usefulness	Using M-Coupons would make me a smart consumer Using M-Coupons would make my shopping easier Using M-Coupons would save money Using M-coupons make shopping more enjoyable. Overall M-Coupons is very useful	0.963	Venkatesh and Davis, :596 [35]
Perceived Ease of Use	Downloading M-Coupon via mobile phone is very easy Mental effort taken to download m-coupon via mobile phone is effortless The task of sending text messages via mobile phone is very simple The task of interacting with the m-coupon ads via mobile phone is very simple Learning to operate the m-coupon is easy for me is very easy Using the m-coupons takes too much time from my normal duties Overall M-coupon is easy to use	0.952	Venkatesh and Davis, :596 [35]
Personal Innovativeness	When I hear about new mobile technology I am looking for possibilities to experiment with it I don't want to experiment new mobile technology. I am usually the first to try out new information technology. I like to experiment with new information technology	0.856	Hsu, 2005 [27]
Coupon Permeance	Redeeming Coupons makes me feel good I enjoy searching discount coupons. I enjoy using coupons regardless of the amount I save by doing so. Beyond the money I save, Redeeming coupons give me a sense of joy. When I use coupons, I feel that I am getting a good deal. I have favorite brands. But most of the time I buy the brand I have a coupon for. I am more likely to buy brands for which I have a coupon.	0.944	Lichterstein, Netemeyer, and Burton, 1990 [3]; Guinard, 1997 [4]
Social Influence	Most people who are important to me think I should use m-coupon My close friends think I should use m-coupons Most members of my family think I should use m-coupons My peers think I should use m-coupons	0.954	Shimp & Karzas, 1984 [13]
Perceived Credibility	I trust using M-Coupon does protect my privacy I am not worried about the security in using M-Coupon Mobile coupon usage may permit other persons to gain access to my personal important information I am concerned about mobile phone virus in a transaction over the Mobile connection.	0.926	Pickarain et al., 2004 [35]
Compatibility	Using M-Coupons fits into my work style I think that using M-Coupons fits well with my life style Using M-Coupons is compatible with all aspects of my work	0.927	Hsu, 2005 [27]
Mobile Coupon Attitude	Bad – Good Foolish – Wise Harmful – beneficial Not attractive – attractive Sad – Happy	0.927	Karzas, 1981 Shimp & Karzas, 1984 [13]
Behavioral Intention	I will intend to get more details about M-Coupons I will intend to download M-Coupons I will intend use mobile Coupon frequently in my personal life I will intend to use Mobile Coupon in doing my shopping	0.962	Venkatesh, Morris, Davis and Davis, 2003 [36]

There were 824 returned responses, for an overall response rate of 82.4% from the total number of participants; there were 43 invalid returned responses, which were eliminated before final the data analysis. The reason for nonparticipation was mainly due to lack of time to complete the survey. Fifty-two percent of the completed surveys were from male respondents. Majority of the respondents (91%) belong to the age group of 19-33 years old. 45% of the respondents' monthly income range from RM2000 to RM6000.

5. Data Analysis and Results

5.1. Measurement Model

Based on the literature review, the hypotheses have been conceptualized in the structural model presented in Fig. 1. A confirmatory factor analysis using AMOS 16 was conducted to test the measurement model. The Cronbach alpha's for all the constructs were more than 0.8 and exceeded the suggested value of 0.70 recommended by Hair et al. (2006). The result demonstrated the survey results have high reliability and ensure a proper ground for further analysis. In this section, we will first examine the measurement model and then assess the structural model by following the two-step analytical procedures. As shown in Table 5, all the model-fit indices exceeded their respective common acceptance levels, suggested by previous research, and thus demonstrating that the measurement model exhibited a fairly good fit with the data collected.

Reliability and convergent validity of the factors were estimated by composite reliability; average variance extracted and factor

loadings (See Table 4) (Hair et al., 2006). The composite reliability was estimated to evaluate the internal consistency of the measurement model. The composite reliabilities of the measures included in the model ranged from 0.7500 to 0.8747. All were greater than the benchmark of 0.70 recommended by Hair et al. (2006). The average variance extracted of the measures included in the model ranged from 0.6081 to 0.8443. A variance extracted of greater than 0.50 indicates that the validity of both the construct and the individual variables is high (Hair et al., 2006).

Table 4: Factor loading, composite reliability and average variance extracted

Construct	Item	Factor loading	Composite Reliability	Average Variance Extracted
Perceived Usefulness	PUa	0.910	0.8333	0.8443
	PUb	0.924		
	PUc	0.916		
	PUd	0.913		
	PUe	0.911		
Perceived Ease of Use	PEOUa	0.856	0.8746	0.7413
	PEOUb	0.891		
	PEOUc	0.882		
	PEOUd	0.905		
	PEOUe	0.911		
	PEOUf	0.745		
	PEOUg	0.823		
Coupon Promeness	CPa	0.868	0.8747	0.7757
	CPb	0.868		
	CPc	0.870		
	CPd	0.894		
	CPe	0.894		
	CPf	0.753		
	CPg	0.828		
Perceived Credibility	SECa	0.941	0.7998	0.8012
	SECb	0.855		
	PRLa	0.905		
	PRLb	0.877		
Attitude	AttA	0.838	0.8332	0.7288
	AttB	0.808		
	AttC	0.863		
	AttD	0.898		
	AttE	0.859		
Compatibility	COMa	0.893	0.7500	0.8319
	COMb	0.922		
	COMc	0.921		
Social Influence	Sla	0.858	0.7999	0.7709
	S1b	0.908		
	S1c	0.888		
	S1d	0.857		
Personal Innovativeness	PIa	0.700	0.7993	0.6081
	PIb	0.812		
	PIc	0.838		
	PId	0.762		
Behavioural Intention	E1a	0.889	0.7999	0.8399
	E1b	0.925		
	E1c	0.941		
	E1d	0.953		

5.2. Structural model

Comparison of all fit indices, with their corresponding recommended values, provided evidence of a good model fit. Properties of the causal paths, including standardized path coefficients, *t*-values, and variance explained for each equation in the hypothesized model are presented.

The results indicate that all the hypotheses for the core model can be confirmed. Properties of the causal paths, including standardized path coefficients, *t*-values and variance explained, for each equation in the hypothesized model, are presented in Figure 2 and Table 8. As expected, hypotheses H1, H2, H3, H4 H5, H6, H7 and H8 were supported in that perceived usefulness, perceived ease of use, coupon proneness and perceived credibility, had a significant effect on m-coupon attitude. Mobile coupon attitude, Compatibility, Social Influence and personal influence has direct effect on mobile coupon intention to use. They account for 66.5 percent of the variance in behavioral intention. Perceived usefulness strongly determines the attitude to use m-coupons. Perceived usefulness

($\beta = 0.491$) contributing more to mobile coupon attitude to use than perceived ease of use ($\beta = 0.171$), and coupon proneness ($\beta = 0.09$), and perceived credibility ($\beta = 0.17$). Attitude ($\beta = 0.57$) strongly determines the intention to use mobile coupons followed by social influence ($\beta = 0.22$) and Compatibility ($\beta = 0.21$).

5.3. Test of Moderating Effect

We identified segments using cluster analysis of price consciousness construct. We used SPSS software to perform two step cluster analysis. The cluster solution leads to a group of 269 value seeking customers' and 512 Non value consciousness customers. These two clusters serve as a grouping variable for a multiple group analysis. As we perform a cluster analysis and use the results for multiple group Structural Equation Modelling analysis. Hypotheses about the moderating effects of user variables were tested by comparing path coefficients between the two groups produced for each moderator using *t*-value. In the case of *t*-value over 1.96 (over 95% confidence), we conclude the coefficient has moderator effect.

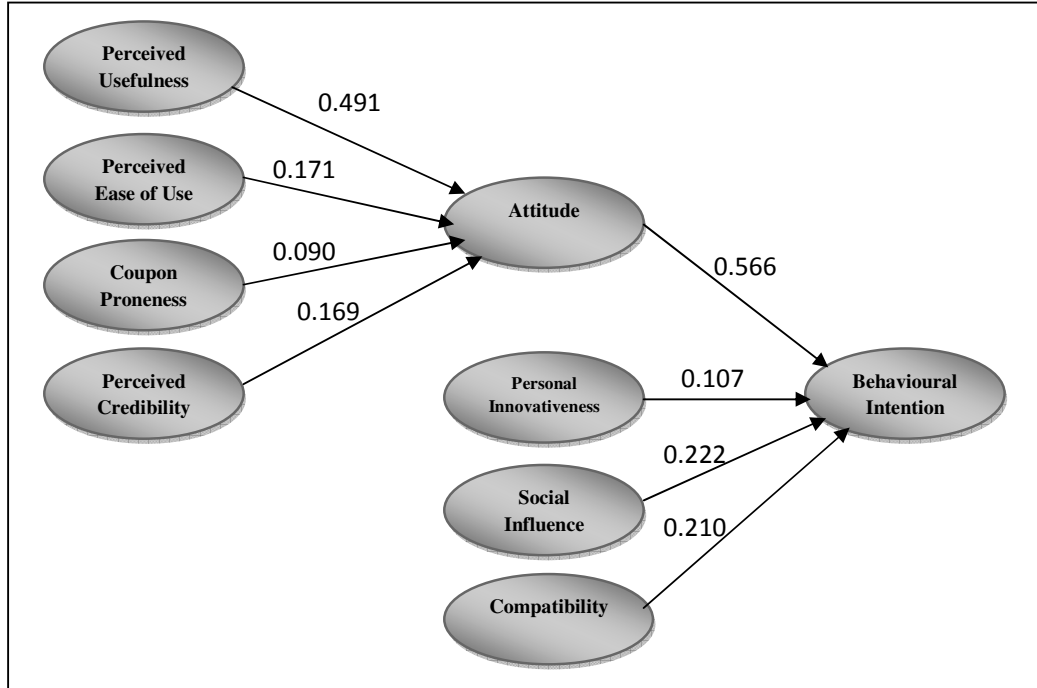


Figure 2. Structural model of Behavioral intention to use m-coupons

Table 5: Results of Moderating Effects of Price Consciousness

Hypothesis	Path	Effect	High Price Consciousness Customers		Low Price Consciousness Customers	
			β	t	β	t
9a	PU → Attitude	Strengthened	0.385	7.789	0.4130	8.606
9b	PEOU → Attitude	Attenuated	0.221	4.137	0.114	2.072
9c	Social Influence → BI	Strengthened	0.168	4.195	0.345	1.433
9d	Attitude → BI	Strengthened	0.787	14.745	0.642	9.814

Table 6: Results of Moderating Effects of Value Consciousness

Hypothesis	Path	Effect	High Value Consciousness Customers		Low Value Consciousness Customers	
			β	t	β	t
9a	PU → Attitude	Strengthened	0.402	9.960	0.408	6.295
9b	PEOU → Attitude	Strengthened	0.167	3.897	0.189	2.391
9c	Social Influence → BI	Strengthened	0.256	6.732	0.241	3.615
9d	Attitude → BI	Strengthened	0.688	14.180	0.696	10.035

6. Discussion and Conclusion

The objective of this paper is to examine the moderating effect of price consciousness in the effectiveness of price discounts and premiums at different promotional benefit levels. To accomplish this objective, the responses of more and less price conscious consumers to price discounts and premiums across moderate and high benefit levels have been examined because there are few publications to date that have analyzed its moderating effect. On the whole, the results largely support our main predictions.

The results also show that consumers with higher levels of price / value consciousness have a higher intention to redeem m-coupons. This supports previous research done by Palazon and Delgado (2009). As the results of this study show, highly price-conscious consumers are likely to search for a better price regardless of the level of advertised discount. Given this tendency, it seems that offering a low price guarantee may be an effective method to reduce

the search intentions of highly price-conscious consumers.

The current study contributes to contemporary research on the mobile coupons by offering insights into the factors that contribute to consumer usage. The results obtained have important implication for business and future research. The findings of the study strongly support the appropriateness of using the extended TAM model to understand the acceptance of mobile coupons from consumers' perspectives. First, we find that there is indirect effect of PU, PEOU, CP, PC on BI and direct effect on Attitude. SI, PI, COM, Attitude has a direct effect on BI. Social influence plays a very important role in behavioural intention. Based on the findings of this study, it appears that social influence has direct effects on consumer's behavioural intention. The results indicate that all the hypothesised relationships in the core model were confirmed.

Table 7: Fit indices for measurement and structural models

Fit indices	Recommended value	Measurement model
$\chi^2/d.f.$	≤ 3.00	2.426
GFI	≥ 0.90	0.901
AGFI	≥ 0.80	0.880
NFI	≥ 0.90	0.946
CFI	> 0.95	0.968
RMSEA	≤ 0.06	0.043
HOELTER	≥ 200	349

Table 8: Verification results of relationship of each construct

Hypothesis	Relationship	Path Coefficient	t-value	p
H ₁	Perceived Usefulness → Attitude	0.491	11.789	0.001
H ₂	Perceived Ease of Use → Attitude	0.171	4.351	0.001
H ₃	Coupon Proneness → Attitude	0.090	2.543	0.001
H ₄	Perceived Credibility → Attitude	0.169	5.436	0.001
H ₅	Personal Innovativeness → BI	0.107	4.203	0.001
H ₆	Social Influence → BI	0.222	7.476	0.001
H ₇	Compatibility → BI	0.210	6.906	0.001
H ₈	Attitude → BI	0.566	17.861	0.001

Consistent with prior studies, perceived usefulness and perceived ease of use were found to be significant antecedents of the attitude towards m-coupons (e.g. Hsu, Wang and Wen 2006; Han, Yoon and Cameron, 2001; Venkatesh and Davis, 2000). This study supports prior research (e.g. Pikkariainen et al., 2006; Hsu, Wang and Wen 2006) which found the significant effect of perceived credibility on behavioural intention to use IT/IS in the context of mobile marketing.

The validated model provides a useful framework for managers needing to assess the possibility of success for m-coupon introductions, and to pro-actively design mobile coupon campaign. Results illustrate the importance of perceived usefulness related to the adoption of mobile coupons services.

Increasing the perceived usefulness of m-coupon by potential customers is very important for mobile marketing practitioners. Social influence also plays a very important role in behavioural intention to redeem the mobile coupon. The attitude and behavior of consumers are still largely influenced by the endorsement of family and friends, marketing practitioners need to take into consideration when promoting the mobile coupons.

The ease of use of mobile coupons plays a significant part in adopting this new service. The cause of an underused m-coupon may be because potential users do not have enough knowledge resources required to use it. Furthermore, organizing education and training courses in various mobile computing technologies can facilitate people's familiarity

with m-coupon applications and help them develop positive ease of use beliefs in the m-coupons. The results also indicate that security and privacy issues are important concerns for consumers in using m-coupons. Mobile marketing practitioners need to get explicit permission from customers before they send the mobile coupons. Additionally, companies should overcome their concerns about spamming.

Although this study provides new insights into mobile coupon redemption, there are still various research avenues to pursue. The antecedents of mobile coupon behavioral intentions are similar for adopters and non-adopters. Motivation for not adopting mobile coupons which might illustrate different patterns and future research need to use different variables to study the reasons for not adopting this particular service. The second limitation concerns the sample. Although the sample size was quite large, it consisted of Malaysian consumers only. This has an effect on the generalization of the findings. An interesting avenue for further research could be, for example, a detailed study on mobile service usage across countries. The third limitation is our data contain intention measures rather than behavioral measures. Therefore follow up studies should consider using actual behavioral data. The study results proved several factors that markedly affect the behaviour and attitude of consumers in using m-coupons, which can be used for further research in the future.

Several interesting managerial implications can be derived. First of all, increasing the perceived usefulness of m-coupon by potential customers is very important for mobile marketing practitioners. Additionally, the significant moderating effects indicate that a segmentation approach might be very effective in reaching the customers to adopt m-coupons. The cause of an underused m-coupon may be because potential users do not have enough knowledge resources required to use it. Furthermore, organizing education and training courses in various mobile computing technologies can facilitate people's familiarity with m-coupon applications and help them develop positive ease of use beliefs in the m-coupons. The validated model provides a useful framework for managers needing to assess the possibility of success for m-coupon introductions, and to pro-actively design mobile coupon campaign. The study results proved several factors that markedly affect the behaviour and attitude of consumers in using m-coupons which can be used for further research in the future.

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