COUPONS GOING WIRELESS: DETERMINANTS OF CONSUMER INTENTIONS TO REDEEM MOBILE COUPONS

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Firms are increasingly using the mobile media for communication and promotion and Short Message Service (SMS), in particular. This study investigates consumers' intentions to redeem mobile (m-) coupons. Results from a survey of 370 mobile phone users in Austria indicate that consumers' attitude toward and perceived control of m-coupons affect their intention to redeem such coupons. The effort involved in redeeming m-coupons strongly affects consumers' attitudes toward m-coupons, and fear of mobile spam influences consumers' perceived control with regard to commercial SMS. Value seekers are more sensitive to the effort involved in redeeming m-coupons and to mobile spam than are other consumers. The results suggest that firms should not overwhelm consumers with m-coupons, consider the usability of m-coupons in deciding the right offer, and educate their consumers about how to use the m-coupons.

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INTRODUCTION

Recent developments in both information technology and telecommunication have sparked a great amount of interest in mobile marketing. Already in the late nineties, market analysts projected a great future for marketing initiatives via mobile devices, turning mobile into a real hype (Shankar, O'Driscoll, & Reibstein, 2003). The reality for most companies, however, is that such practices have still not become mainstream activities. Thus far, companies have not been able to fully develop the potential value that mobile applications can offer to consumers (Kleijnen, de Ruyter, & Wetzels, 2007; Shankar, O'Driscoll, & Reibstein, 2003). This issue has not kept companies from pushing a great number of applications onto the market (Kleijnen, de Ruyter, & Wetzels, 2004) in an attempt to discover valuable marketing tools within the wireless arena.

The mobile phone is a highly personal medium (Barwise & Strong, 2002), which makes the mobile channel an effective means for reaching potential consumers. This promise, in combination with the overwhelming success of SMS (Short Message Services), has drawn the advertising industry's attention to cell phones as a medium for commercial content (Bauer et al., 2005). One particular application that is increasingly gaining interest as a marketing tool is mobile couponing. For example, McDonalds New York (www.mcdonaldslatenight.com) announced that it will start experimenting with mobile coupons to boost retail traffic in the slower late evening hours.

Mobile coupons are digital coupons sent to a mobile device such as a mobile phone, smart phone, or personal digital assistant. 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. However, while commercial use of SMS is exploding in the entertainment industry (e.g., horoscopes, jokes, lotteries), mobile couponing is still in its infancy (Schenker, 2004). The reason why companies might be hesitant to develop such initiatives on a larger scale is that while mobile technology is ready, consumers may not be. Some firms are extremely cautious toward the potential of mobile coupons as a successful promotion tool, while others see a promising future with consumers using hip mobile coupons much more often than paper coupons (Raskino, 2001; Schenker, 2004). Several studies report consumers' reluctance toward mobile advertising. With a few notable exceptions (e.g., Barwise & Strong, 2002; Bauer et al., 2005), little research has been devoted to explore the factors that contribute to consumers' willingness to adopt mobile advertising and mobile couponing in particular. This research examines consumers' intentions to redeem such coupons as coupon redemption rates are important drivers of sales increases, profits, and market performance (Leone & Srinivasan, 1997; Raghubir, 2004).

The study contributes to the existing literature in two ways. First, many studies on coupons employ aggregate coupon redemption models (e.g., Leone & Srinivasan, 1997), but a more profound understanding of motives and psychological processes that drive individual consumer behavior is needed (Kumar & Swaminathan, 2005; Ramaswamy & Srinivasan, 1998). In particular, when looking at mobile coupons, many studies have not yet moved beyond investigating general attitudes toward mobile advertising, privacy issues, and mobile technology (e.g. Barwise & Strong, 2002; Scharl, Dickinger, & Murphy, 2005). This paper, therefore, focuses on a specific mobile promotional tool, m-coupon, and investigates whether consumers redeem mobile coupons.

Second, not much is known about the moderating role of consumer characteristics in behavior toward m-coupons. In particular, we highlight the role of value seekers who are coupon-prone and price-conscious. Previous studies point out that these are essential traits that should not be overlooked when investigating coupon redemption (Ashworth, Darke, & Schaller, 2005; Lichtenstein, Ridgway, & Netemeyer, 1993; Swaminathan & Bawa, 2005). By exploring in-depth the characteristics and behavior of the value seekers, this research contributes to a better understanding of how personal factors strengthen or attenuate behavior toward mobile promotions.

MOBILE COUPONS

Mobile advertising and promotion is increasingly pointed out as a promising strategic tool for companies in their marketing mix and accordingly raises the attention of researchers. Shankar & Hollinger

(2007) and Tähtinen (2005) provide overviews of mobile advertising. Other researchers investigate the role of mobile advertising in a company's promotion mix (Scharl, Dickinger, & Murphy, 2005) and to what extent mobile advertising is adopted by multinationals (Okazaki, 2005). This broad range of research illustrates that the most important issue managers are struggling with is the acceptance of mobile advertising messages by customers (Scharl, Dickinger, & Murphy, 2005). We focus on this aspect with regard to the commercial use of coupons via SMS.

SMS has widely diffused among consumers worldwide (Bauer et al., 2005), leading to promising predictions. Pousttchi and Wiedemann (2006) discuss several options for the commercial use of SMS. The most common mobile coupon is a straightforward SMS that the consumer shows at the point-of-sale (e.g., a discount coupon). Additionally, Haig (2002) differentiates between impulse coupons (time-sensitive coupons aimed at stimulating impulse purchases) and pre-selected coupons (coupons related to product-categories in which consumers have expressed an interest). These two types of coupons are also known as push or pull coupons—pushed from the company to the customers' phones or pulled by the customers because of their interest in the product or the promotional offer.

Mobile coupons serve several objectives in the communication mix of enterprises. First, and perhaps the most obvious objective, is sales increase triggered by price reductions offered by the coupons' face value. As Swaminathan and Bawa (2005) point out, coupons are still considered as effective promotional tools for a wide range of products. Going a step further, considering the characteristics of mobile coupons, they can be made time- and/or location-sensitive. Thus, companies can use time-sensitive coupons to target their customers at times when sales are low due to the time of the day or due to seasonality. Furthermore, companies can use m-coupons as opportunities to improve company-consumer relationships. They can send m-coupons to customers who are unhappy with a product or service as part of their customer retention strategy. Often, enterprises have knowledge about their consumers, including complaint behavior or stage in the customer lifecycle, which enables them to build profiles on their tastes and needs. Firms can exploit this type of information and target mobile coupons to meet the needs of their customers. At the same time, however, this opportunity might be costlier than other promotional opportunities.

Thanks to these advantages, market forecasts of m-coupons are optimistic. Raskino (2001) predicts that customers will use mobile coupons 300 times more often than paper coupons, since they carry their mobile phones, and thus the coupons, with them all the time. However, in reality, mobile coupons are not an integral part of the marketing mix as yet. This situation is mostly attributed to consumers' lack of interest in and even reluctance to use such mobile advertising (Leppäniemi & Karjaluoto, 2005).

HYPOTHESES DEVELOPMENT

Little attention has been devoted to new media couponing (Kang et al., 2006) and research on mobile couponing is sparse. To explain consumer use of mobile coupons, we depart from the Technology Acceptance Model (TAM) (Davis, Bagozzi, & Warshaw, 1989) by including essential variables that specifically relate to the mobile service/coupon context (see Figure 1).

The TAM model suggests that intentions are directly or indirectly driven by three essential constructs (Davis, Bagozzi, & Warshaw, 1989): attitude, perceived usefulness, and ease of use. Attitude has been illustrated as having significant effects on the intention to use products or services, including mobile advertising (Bauer et al., 2005) and e-coupons (Kang et al., 2006). Therefore, we expect similar effects for mobile coupons.

Both perceived usefulness and ease of use have been acknowledged as core variables of TAM, but research does note the importance of redefining these variables with the research settings at hand to reflect the variety of different contexts accurately (Kleijnen, de Ruyter, & Wetzels, 2007). Hence, we express perceived usefulness as the economic benefit of the coupon, but discuss ease of use in terms of redemption effort. Literature on coupon attractiveness and redemption rates (Mittal, 1994; Raghubir, 2004; Ramaswamy & Srinivasan, 1998) reveals the importance of coupon face value, i.e., the economic benefit consumers derive from the coupons. Generally speaking, as the value of the coupons increases (i.e., the economic savings), consumers' evaluations of the coupons

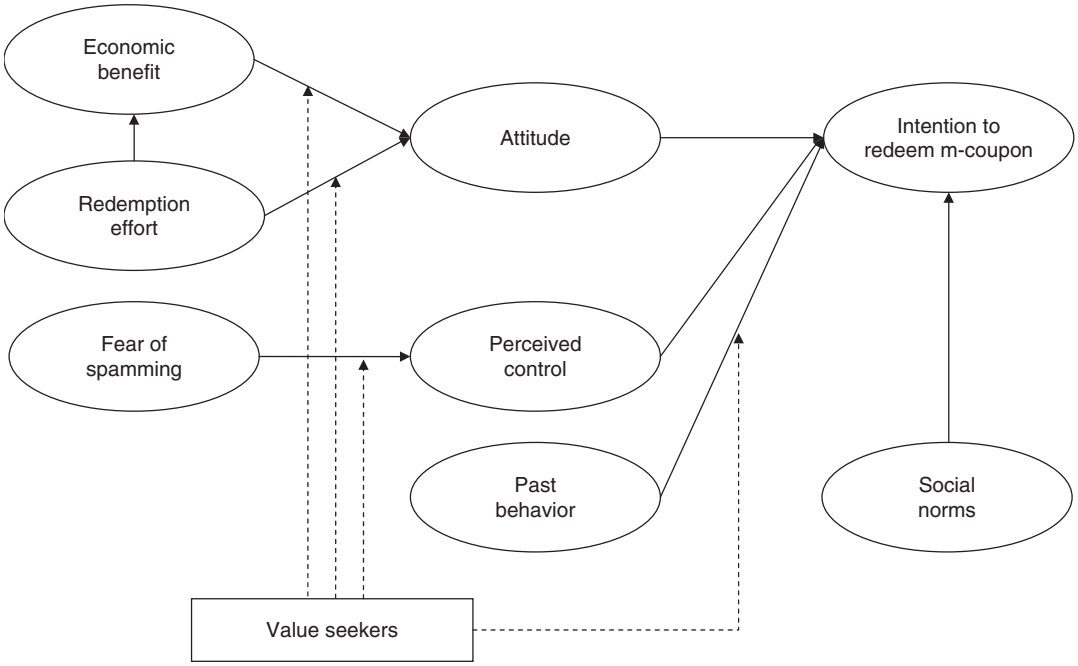

FIGURE 1
Conceptual Model.

become more positive (Raghubir, 2004). Mobile coupons are particularly aimed at providing consumers economic benefits (e.g., discounts) at the moment of redemption. Consequently, we expect a positive relationship between economic benefits and attitude toward mobile coupons.

In addition, we examine the role of redemption effort. Redemption effort refers to specific investments that need to be made by the consumer to obtain full use of the coupons (Kang et al., 2006). The greater the effort required to redeem a coupon, the less positive consumer evaluations of the coupon will be (Ramaswamy & Srinivasan, 1998). While consumers do not need to collect coupons from different newspapers and magazines anymore, consumers might find that the redemption of the mobile coupon itself is not entirely effortless. Kleijnen, de Ruyter, & Wetzels (2007) suggest that the use of utilitarian mobile services requires cognitive effort on the part of the consumer. Issues such as the number and clarity of the steps involved in the mobile service process, clarity of commands and symbols, and help functions need to be addressed (Pagani, 2004). The use of this new medium for couponing might challenge consumers' skills in dealing with the functionality of the mobile phone in the redemption process. Thus, we propose that the effort involved with redeeming a mobile coupon has a negative impact on attitude.

Furthermore, we recognize the negative effect of redemption effort on economic benefits. Consumers perceive the economic benefit to be less valuable if the redemption is cumbersome and imposes significant mental effort and time involved in learning how to use mobile coupons. Studies on the use of mobile services in general recognize that the perceived benefits of such services are diminished by efforts that are required from the consumer's side (e.g., Pagani, 2004). In addition, researchers also find that effort involved with traditional coupons reflects negatively upon the benefits of the coupons (Ashworth, Darke, & Schaller, 2005; Leone & Srinivasan, 1997). Therefore, we expect redemption effort to have a direct negative impact on the economic benefits of the mobile coupon.

H1: Attitude toward mobile coupons has a direct, positive effect on intention to redeem mobile coupons.

H2: Economic benefit has a direct, positive effect on attitude towards mobile coupons.

H3: Redemption effort has a direct, negative effect on economic benefit.

H4: Redemption effort has a direct, negative effect on attitude towards mobile coupons.

In addition to the (mobile) service literature, some studies in the field of couponing have also focused on alternative attitudinal models to explain consumer intentions to use coupons. Kang et al. (2006), for example, find that the theory of planned behavior is superior to other attitudinal models such as the theory of reasoned action. Perceived behavioral control significantly adds to the explanatory value of such models (Ajzen & Madden, 1986), particularly when investigating goal-directed activities such as coupon redemption.

Perceived behavioral control is related to the extent to which consumers believe that skills, resources, and opportunities are present to perform the required behavior (Mathieson, 1991). This variable is particularly relevant in situations where consumers experience less than complete control (Taylor & Todd, 1995). Research regarding e-coupons indicates that, in such technology-mediated environments, consumers are concerned about the amount of control that can be exerted (Kang et al., 2006). Consequently, for new media coupons (i.e., m-coupons), perceived control is recognized as a crucial factor in the decision making process (Kang et al., 2006).

While with e-coupons consumers worry about the specific skills and resources needed to redeem coupons via the Internet, they face different control issues with mobile coupons. These concerns are particularly fed by consumers' apprehension about spam via commercial SMS. Hence, perceived control is related to the general assessment of whether or not the entire process of receiving promotional SMS messages can be controlled by the consumer (Barwise & Strong, 2002). In off-line settings, companies frequently use off-line coupons as a source of information. Consumers are concerned about the fact that their mobile phone number might become part of advertising distribution lists and that they will receive numerous unwanted, highly intrusive advertising messages on their private mobile phone. Research on mobile advertising (Leppäniemi & Karjaluoto, 2005; Scharl, Dickinger, & Murphy, 2005) stresses the danger of irrelevance and inappropriateness of messages, timeliness, interference with privacy and information overload, unsolicited messages, and generally, a fear of spam. As a consequence, they feel a lack of privacy and that the sender acts intrusively and obtrusively. Thus, consumers lose their sense of control regarding mobile coupons on issues such as who sends them mobile coupons, how many they will receive, and when they will receive them (Scharl, Dickinger, & Murphy, 2005). This reasoning leads to the following hypotheses about perceived control.

H5: Perceived control over receiving m-coupons has a direct, positive effect on the intention to redeem mobile coupons.

H6: Fear of spamming has a direct, negative effect on perceived control.

Another factor that is not included in the TAM model but often discussed in extensions is social norms. Subjective norms reflect the perceived opinions of significant peers (Mathieson, 1991). The influence of the social surrounding can be very pervasive, and Bearden, Netemeyer, and Teel (1989) contemplate that consumers' susceptibility to such influences is fairly stable throughout a range of occurrences. Moreover, research on coupon usage confirms that the effects of social norms and attitude, which are independent of each other, only affect actual behavior via their mediated effects through behavioral intentions (Shimp & Kavas, 1984). In particular, for couponing, Ashworth, Darke, and Schaller. (2005) suggest that consumers are sensitive to the social consequences of using coupons. Depending on the social rewards of using coupons, consumers will be more or less inclined to redeeming them. Consequently, if relevant others judge mobile coupons to be worthwhile and useful, consumers are inclined to conform to that opinion, which will have a positive effect on their intention to redeem the mobile coupon.

H7: Social norms have a direct, positive effect on the intention to redeem mobile coupons.

Finally, research has shown that, in addition to attitude, social norms, and perceived control, past behavior substantially adds to explaining consumer intentions to redeem electronic coupons (Bagozzi, Baumgartner, & Yi, 1992; Kang et al., 2006). Past behavior—in this case, past use of coupons—often functions as an

informational input for making decisions (Bagozzi, Baumgartner, & Yi, 1992). People who have used coupons in the past have made a positive judgment about using coupons in general and are likely to extend this evaluation to other types of coupons (Bagozzi, Baumgartner, & Yi, 1992). Therefore, past use of coupons is included as a relevant predictor of intention:

H8: Past use of coupons has a direct, positive effect on intention to redeem the mobile coupons.

Consumer Characteristics

Many studies on coupon redemption focus on consumer demographics in explaining who uses coupons. However, Mittal (1994) finds that demographics are poor predictors of consumer behavior and coupon redemption in particular. Therefore, our study focuses on non-demographic consumer characteristics that have been suggested as key variables to explain differentiating findings in antecedent-predictor relationships. The literature on coupon use suggests two consumer characteristics that are strongly associated with coupon use: coupon proneness (Lichtenstein, Ridgway, & Netemeyer, 1993; Swaminathan & Bawa, 2005) and price-consciousness (e.g., Ashworth, Darke, & Schallar, 2005; Swaminathan & Bawa, 2005).

Coupon proneness can be regarded as a more affective-oriented motivation to use coupons as coupon prone consumers have an inherent desire to use coupons (Swaminathan & Bawa, 2005). Research on price deals, for example, points out that consumers can derive psychological rewards from price savings such as coupons (Ashworth, Darke, & Schallar, 2005). Coupon prone consumers enjoy the search for coupons (Lichtenstein, Ridgway, & Netemeyer, 1993), like hunting for bargains, and feel a sense of accomplishment when they save money (Chandon, Wansink, & Laurent, 2000; Lichtenstein, Ridgway, & Netemeyer, 1993). Price-consciousness expresses a more cognitive rationale to use coupons. Price-conscious consumers look at coupon use from a purely economic perspective; they want to pay the lowest price possible for the product or service at hand (Ashworth, Darke, & Schallar, 2005; Lichtenstein, Ridgway, & Netemeyer, 1993). Thus, price conscious consumers derive transaction utility from the use of coupons. While these two traits are distinct concepts that are well-defined in the literature, it seems that there is a natural relationship between those variables (Swaminathan & Bawa, 2005). For example, consumers that are price conscious also tend to be more coupon prone, as this is a strategy to lower prices. The current study refers to these price conscious, coupon prone consumers as "*value seekers*" as opposed to "*coupon apathetics*," i.e., consumers that are less involved with coupons.

For value seekers, we expect that the relationship between economic benefit and attitude is stronger than it is for others. Value seekers hunt for bargains and are particularly sensitive to price reductions (Chandon, Wansink, & Laurent, 2000; Swaminathan & Bawa, 2005) offered via mobile coupons. Therefore, it is likely that the impact of the economic benefits on the coupons is stronger for them than for coupon apathetics. In addition, for value seekers, we expect the impact of redemption effort on attitude to be attenuated, as value seekers are intrinsically motivated to redeem mobile coupons (Swaminathan & Bawa, 2005). Furthermore, it is likely that they are more experienced with coupon redemption (Bagozzi, Baumgartner, & Yi, 1992) and more educated about issues that would generally be considered strenuous by other consumers (Leone & Srinivasan, 1997). Therefore, they will be less concerned with redemption efforts. Moreover, we posit that the relationship between fear of spamming and perceived control is stronger for value seekers than it is for others. While it might seem that value seekers would tend to be more open to receiving promotional messages and thus might spend less time worrying about spam, research shows that an increased amount of messages received can cause an information overload. Information overload creates a high level of stress (Braun-LaTour, Puccinelli, & Mast, 2007), which can be particularly cumbersome for value seekers. Specifically, when the mobile channel is overloading them with offers, value seekers will be less capable of recognizing the good deals and thus will become frustrated by the process. The process of hunting for bargains is as essential to the value seeker as the outcome itself (Swaminathan & Bawa, 2005). Hence, due to their increased sensitivity to any interference with the process, we expect a stronger impact of fear of spamming on perceived control for value seekers. Finally, we suggest an interaction effect for value seekers in conjunction with past use of coupons. Past use of coupons is expected to serve as "*a type of informational input to the decision to act*" (Bagozzi,

Baumgartner, & Yi, 1992), which is more likely to be present for value seekers, as they have exhibited coupon-related behavior in the past. Therefore, the relationship between past use of coupons and intention to use mobile coupons is likely to be stronger for value seekers than it is for others.

H9: For value seekers, the relationship between:

a) economic benefit and attitude towards mobile coupons is stronger than it is for others.

b) redemption effort and attitude is weaker than it is for others.

c) fear of spamming and behavioral control is stronger than it is for others.

d) past use of coupons and intention to use is stronger than it is for others.

In sum, we identify a number of variables that directly or indirectly affect attitude and intentions with regard to mobile coupon redemption. In addition, we hypothesize moderating effects (value seeker vs. others) of the relationships between some of these variables and m-coupon redemption. These relationships are summarized in Table 1.

RESEARCH METHODOLOGY

Research Setting

The hypotheses are analyzed using data from an online survey of 370 mobile phone users in Austria. Coupons are frequently used in the service industry, including hair salons, retail stores, and restaurants (Taylor, 2001). Predictions in Austria are that mobile marketing and coupons as a tool are on the rise in the next years (DMV, 2005). In some monthly magazines by retail stores, coupons are included on a regular basis. There are even Web sites such as http://www.gutschein.at that provide Austrians with coupons for stores of different items, ranging from clothes to jewelry and hotel rooms. The coupons include downloadable electronic coupons for online shops, paper coupons, print and even SMS coupons. To ensure that respondents knew what mobile coupons were, we provided a short introduction about m-coupons (see Appendix 1). Furthermore, we asked whether respondents knew what mobile coupons were to ensure that they were able to answer the questions in the questionnaire. The overall questionnaire referred to mobile coupons in fast food restaurants and retail stores, as those two types are common in Austria and have been used in

TABLE 1 Summary of Hypothesized Relationships

MAIN EFFECTS

H	INDEPENDENT VARIABLE	DEPENDENT VARIABLE	EXPECTED EFFECT
1	Attitude	Intention	Positive
2	Economic benefit	Attitude	Positive
3	Redemption effort	Economic benefit	Negative
4	Redemption effort	Attitude	Negative
5	Perceived control	Intention	Positive
6	Fear of spamming	Perceived control	Negative
7	Social norms	Intention	Positive
8	Past use of coupons	Intention	Positive

MODERATING EFFECTS OF CONSUMER TRAIT: VALUE-SEEKING

H	MODERATED RELATIONSHIP	EXPECTED EFFECT
9a	Economic benefit → Attitude	Stronger
9b	Redemption effort → Attitude	Weaker
9c	Fear of spamming → Behavioral control	Stronger
9d	Past use of coupons → Intention to use	Stronger

past research on coupons (Suri, Swaminathan, & Monroe, 2004).

Measurement development

The items for each construct in the questionnaire were selected on the basis of an extensive literature review (see Table 2). We reformulated the items to fit the m-coupon context, using multiple-item, Likert-type scales. Table 2 reports the final items for each construct.

Sample

To collect the data, we posted a link to an online survey in various online forums (e.g., mobile phones, SMS, mobile games) and invited consumers to participate. Online data collection has obvious advantages over offline data collection, such as timeliness, low costs, and wide reach of audience (Illieva, Baron, & Healey, 2002). While some researchers have been hesitant to use online data collection opportunities, recent studies show that online research produces

TABLE 2 Measurement Scales

CONSTRUCT	CR	LOADINGS	ITEMS*	BASED ON
Fear of spam			In general, I find mobile advertisements :	Edwards, Li, & Lee (2002)
	0.98	0.923	Disturbing	
		0.917	Forced	
		0.946	Interfering	
		0.936	Intrusive	
		0.875	Obtrusive	
Economic benefits	0.82	0.751	Mobile coupons can save you a lot of money	Mittal (1994)
		0.748	I believe that the financial gain from using mobile coupons is worthwhile	
Redemption effort	0.89	0.901	It is time consuming to use mobile coupons	Mittal (1994)/Ramaswamy & Srinivasan (1998)
		0.750	It is complicated to redeem mobile coupons	
Past use of coupons	0.80	0.803	Please indicate the number of times you used a coupon for eating out during the past one-month period (open question)	Bagozzi, Baumgartner, & Yi (1992)/Kang et al. (2006)
		0.653	How frequently did you use coupons for eating out in the past (1 = very infrequent, 7 = very frequent)	
Perceived control	0.92	0.792	There are few obstacles for me to use mobile coupons	Kang et al. (2006)
		0.839	I am in control over the amount of mobile coupons I receive	
		0.841	I can control when I receive mobile coupons on my mobile phone	
Social norms			Most people who are important to me probably consider my use of e-coupons to be:	Kang et al. (2006)
	0.97	0.886	foolish–wise	
		0.923	useless–useful	
		0.911	worthless–valuable	
		0.905	Most people who are important to me think I definitely should not/definitely should use e-coupons for eating out	
Attitude			Please evaluate your attitude towards using an mobile coupon on the following scale:	Kang et al. (2006)/Mittal (1994)
	0.98	0.937	foolish–wise	
		0.966	worthless–valuable	
		0.941	bad–good	

Continues on p. 31

CONSTRUCT	CR	LOADINGS	ITEMS*	BASED ON
Intention to redeem			Please indicate the likelihood that you would use the mobile coupon: Definitely would not use it–definitely would use it	Ashworth, Darke, & Shaller, (2005) / Kleijnen, de Ruyter, & Wetzels (2007)
	0.99	0.929	Unlikely–Likely	
		0.981	Improbable–probable	
		0.993	Impossible–possible	
		0.899	Uncertain–certain	
		0.873		
Coupon proneness	0.95	0.854	Redeeming coupons makes me feel good	Swaminathan & Bawa (2005)/ Lichtenstein, Ridgway, & Netemeyer (1993)
		0.822	When I use coupons, I feel I'm getting a good deal	
		0.711	I enjoy using coupons, regardless of the amount I save by doing so	
		0.747	I have favorite brands, but most of time I buy brands I have a coupon for	
		0.821	I am more likely to buy brands for which I have a coupon	
		0.761	Coupons have caused me to buy products I normally would not buy	
		0.769	Beyond the money I save, redeeming coupons gives me a sense of joy	
Price consciousness	0.82	0.758	I shop a lot for specials	Swaminathan & Bawa (2005)/ Lichtenstein, Ridgway, & Netemeyer (1993)
		0.686	I find myself checking prices in stores even for small items	
		0.759	I usually watch the advertisements for announcements of sales	
		0.768	A person can save a lot of money by shopping around for bargains	
		0.808	I am not willing to go to extra effort to find lower prices	

* All scales are measured on a 7-point scale, ranging from 1 = strongly disagree, to 7 = strongly agree, unless indicated otherwise

equivalent results compared to data obtained off line (Shankar, Smith, & Rangaswamy, 2003). The accuracy, completeness, and response quality of online studies is similar to off line studies (Deutskens, de Ruyter, & Wetzels, 2006) and therefore are no longer a barrier to use online data collection formats.

After cleaning the data, we obtained a usable sample of 370 fully completed questionnaires. We used the questionnaires abandoned by respondents before their completion to investigate possible nonresponse bias (Armstrong & Overton, 1977). A comparison between fully completed questionnaires and the incomplete ones showed that there is no significant difference between these two groups. The first page of the questionnaire explained the research context and invited people to participate. Gender is distributed evenly in the sample and the average age of the respondents is 26.7 years. They can also be considered as highly educated, as more than 80% completed A-Levels or a university degree. This finding is generally consistent with a large part of the population that uses mobile telephony. Our sample meets the general profile of mobile service users who are primarily younger and well-educated people (A.T. Kearney, 2005).

The result on the amount of text messages respondents send and receive per week shows that, on average, a respondent receives 18 messages and sends 16. The median numbers of messages sent and received are both 10. To learn about respondents' responses to SMS advertising, we asked questions similar to those in Barwise and Strong's (2002) and Tsang, Ho, and Liang's (2004) surveys. When asked about how much of an SMS advertisement they actually read, 30 percent of the respondents indicated that they read nothing and an equal percentage of respondents indicated that they read 25 percent of the message. Fifteen percent

(15%) of respondents stated they read half the message, 5 percent indicated that they read 75 percent of the message, and 20 percent said they read the whole message.

Analysis and Results

We analyzed the data using Mplus, which accounts for non-normal distribution (Micceri, 1989) and allows for the inclusion of non-metric variables (Muthén & Muthén, 2007). To address differences between value seekers and others (coupon apathetics), we use a two-step approach. First, cluster analysis allows for the creation of the two groups. Then, multiple group analysis evaluates the differences regarding the four path estimates that are hypothesized to differ.

Measurement Validation. Anderson and Gerbing (1988) propose a two-step approach for evaluating the quality of the measurement and structural model. An analysis of the measurement model may detect weaknesses that influence the constructs and consequently the structural model. To assess the quality of the measurement model, we inspect the item loadings to evaluate convergent validity. All items load on the constructs they are intended to and show levels in excess of .60 (see Table 2). Next, we investigate reliability through composite scale reliability (CR) (Fornell & Larcker, 1981) and average variance extracted (AVE) (Fornell & Larcker, 1981). For all the measures, the CR is well above the .70 threshold (see Table 2) and the AVE exceeds the recommended cut-off value of .50 (see Table 3). Finally, we explore discriminant validity, which should reveal if more variance is shared with other constructs in the model than the construct it intends to measure. A comparison of AVE and the shared variance (correlation of latent variables) is shown in Table 3. The AVE provided on the diagonal compared to shared variance on the off diagonal shows that the condition for discriminant validity is satisfied for all the constructs of the research model.

Results of the Core Model. The data fit the research model well as reflected by the fit indicators, which are above the recommended cut-off values of .90 (Hu & Bentler, 1995). The Comparative-Fit-Index (CFI) and the Tucker-Lewis-Index (TLI) are at satisfying levels of .946 and .980, respectively. The Standardized Root Mean Square Residual (SRMR) is just above the cut-off value of $\leq .08$ with .084.

To test the hypothesized relationships, Mplus provides the z-values that should be at levels above 1.96 or below -1.96 for significant path coefficients. The test of the model shows that the hypotheses are supported to a large extent (see Table 4). Six of the eight hypotheses are supported ($p < .05$), while two of them are not ($p > .05$). The analysis reveals that attitude has a direct positive effect on the intention to redeem the m-coupon (H1, $\beta = .748$). In turn, attitude is positively influenced by economic benefit (H2, $\beta = .193$) and exhibits a negative relationship with redemption effort (H4, $\beta = -.720$). Our results also confirm that redemption effort negatively affects economic benefits

TABLE 3 Correlation Matrix of Major Variables

CONSTRUCT	1	2	3	4	5	6	7	8
1. Fear of spam	***.913***							
2. Economic benefit	−.429	***.692***						
3. Redemption effort	.419	−.269	***.797***					
4. Past use of coupons	−.213	.484	−.146	***.663***				
5. Perceived control	−.189	.392	−.232	.156	***.792***			
6. Social norm	−.326	.622	−.416	.441	.357	***.898***		
7. Attitude	−.478	.653	−.474	.413	.326	.808	***.945***	
8. Intention	−.416	.601	−.395	.415	.284	.641	.811	***.931***

Note: The AVE is reported on the diagonal.

TABLE 4 Results of Core Model

HYP	PATH	BETA	*z*-VALUE
H1	Attitude → intention to redeem	.748	14.790
H2	Economic benefit → attitude	.193	2.497
H3	Redemption effort → economic benefit	−.690	−10.010
H4	Redemption effort → attitude	−.720	−8.761
H5	Perceived control → intention to redeem	.111	3.134
H6	Fear of spamming → perceived control	−.377	−6.460
H7	Social norms → intention to redeem	−.003	−0.048
H8	Past use of coupons → intention to redeem	.091	1.821

(H3, $\beta = -.690$). Furthermore, fear of spamming is negatively related to perceived control (H6, $\beta = -.377$) and perceived control exhibits a positive effect (H5, $\beta = .111$) on intention. With regard to the other antecedents of intention to redeem the mobile coupon, both social norms (H7) and past use of coupons (H8) are not significant ($p > .05$).

Test of Moderating Effects. In line with Baron and Kenny's (1986) definition of moderation, we propose that three relationships in our model are stronger and one is weaker for the value seeker segment than the other segment. We identified these segments using cluster analysis of the coupon proneness (seven items) and price consciousness (five items) constructs. We used the TRN-32 software, applying the neural gas algorithm (Martinetz & Schulten, 1991) to perform the cluster analysis (Mazanec, 2001). The analysis consists of three phases: first, we decide on the number of clusters; second, we train the network to identify homogenous segments; and third, we profile the segments according to the output values. The cluster solution leads to a group of 216 value seekers and 154 coupon apathetics (remaining respondents). These two clusters now serve as a grouping variable for a multiple group analysis. As such, we perform a cluster analysis and use the results for multiple group Structural Equation Modeling (SEM) analysis, i.e. treating the segment membership (the moderator) as different groups (Baron & Kenny, 1986). This is a feasible approach because group membership is known due to the cluster analysis and the groups high in being value seekers can be compared to the one being low (Baron & Kenny, 1986). Unobserved heterogeneity may have been detected by finite mixture modeling using Mplus (e.g., Bart et al., 2005; Jedidi, Jagpal, & DeSarbo, 1997), but we prefer the simplicity of multigroup analysis to the complexity of increase in parameters relative to sample size, involved in such post-hoc heterogeneity analysis.

Before testing for the moderating effect, we need to perform tests to guarantee the changes in coefficients are due to group differences and not due to measurement error. Therefore, we estimated three models to account for measurement non-invariance, factor loading invariance, and factor loading and intercept invariance. These models are used to assess configural invariance, metric invariance, and factor variance/covariance.

The model is estimated with the moderated paths free to vary and the measurement model and other paths equal across groups. This procedure allows for a simultaneous assessment of the path differences between the group which is labeled value seekers and the one that is considered coupon apathetic. We test the difference between the path coefficients for the two groups using *t* tests (Muthén & Muthén, 2007).

Three of the four hypothesized moderating effects are significant at the .01 level (see Table 5). The relationship between economic benefit and attitude is not moderated for value seekers versus coupon apathetics (H9a). For the relationship of redemption effort, there is a significant interaction with value seekers (H9b).

TABLE 5 Results on Moderating Effects

HYP	PATH	HYPOTHESIZED EFFECT	COUPON APATHETICS	VALUE SEEKERS	*T*
H9a	Economic benefit → attitude	Strengthened	.146	.158	.9300
H9b	Redemption effort → attitude	Attenuated	−.680	−.750	2.8763
H9c	Fear of spamming → perceived control	Strengthened	−.207	−.320	21.6993
H9d	Past use of coupons → intention to use	Strengthened	.173	.118	6.2005

However, surprisingly, the relationship is stronger, not weaker for value seekers than for the others. As expected, the relationship between fear of spamming and perceived control (H9c) is stronger for value seekers than other consumers. For the relationship between past use of coupons and intention to use (H9d), the effect is contrary to what was hypothesized. The interaction is significant, but the relationship is weaker for value seekers than it is for others.

DISCUSSION

The current study contributes to contemporary research on the commercial use of SMS, and mobile coupons in particular, by offering insights into the factors that contribute to consumer usage of such mobile applications. Our results show that a favorable attitude significantly affects redemption rate, consistent with prior research findings on mobile advertising (e.g., Tsang, Ho, & Liang, 2004). Positive affective evaluations of mobile coupons are an essential factor in determining the acceptance of this form of commercial SMS. Attitude, in turn, is positively affected by economic benefits, while redemption effort has a negative effect on attitude. While most research on innovation characteristics illustrates relative advantage as the predominant factor in consumer evaluations (Kleijnen, de Ruyter, & Wetzels, 2007), our results show that, in the context of mobile coupons, redemption effort is the main determinant of attitude. However, other studies in the mobile service field confirm that mobile device limitations, cumbersome navigation, unclear service protocols, and complicated consumption processes are on top of the consumer's mind when it comes to mobile service delivery (Kleijnen, de Ruyter, & Wetzels, 2004; Shankar, O'Driscoll, & Reibstein, 2003). In particular, consumers appear to be worried that the mobile way of using coupons might be complicated and cost more (in effort) than the coupon is worth to them. This possibility is consistent with the finding that, next to the negative effect on attitude, redemption effort has a negative impact on economic benefit. While consumers are well acquainted with SMS and use it frequently as a communication tool (Scharl, Dickinger, & Murphy, 2005), the commercial application of mobile coupons is a leap too far to draw direct analogies in the mind of the consumer.

Furthermore, despite what seem to be positive attitudes toward this mobile marketing tool, consumer concerns regarding potential interferences in their mobile space should be taken very seriously. As our results illustrate, perceived control significantly affects consumer redemption intentions. This finding is consistent with Kleijnen, de Ruyter, and Wetzels (2007), who also suggest that perceived control affects consumers' evaluations with regard to the mobile channel. When consumers experience a lack of control over the medium and process, they feel they have no control over the outcome of the process (Bateson & Hui, 1987). In other words, consumers are worried that they lose track of the companies that send them offers, the amount of offers they will receive, and the time when they receive them. As expected, this perceived control is strongly affected by the extent to which consumers fear SMS spamming practices. A.T. Kearney's (2005) research illustrates that more than 25 percent of mobile users are willing to pay for services that protect them from spam. Consumers are extremely sensitive to such intrusions because the mobile space is considered highly personal and consumers are willing to go to great lengths to protect their personal, mobile space (Scharl, Dickinger, & Murphy, 2005). These fears are not completely unjustified as there is an increasing trend towards unauthorized spamming. This trend can turn out to be extremely

counterproductive for consumer usage of any type of commercial SMS.

Next, the results show no significant effect of social norms on intention to redeem mobile coupons. While there is ample research suggesting that social norms are an important factor in determining consumer intentions to adopt a new technology, the current setting is less sensitive to such influences. One possible explanation for this is the low level of visibility of mobile coupons. Social norms are often forms of peer pressure that are particularly relevant with highly visible and image-sensitive products or services (Kleijnen, de Ruyter, & Wetzels, 2004). Mobile coupons can be received and used in anonymity, which might cause consumers to rely on their own judgment more than on that of relevant others.

Past use of coupons also does not have a significant influence on the intention to redeem. While past use of coupons is often regarded as a good predictor of future behavior, the similarities between coupons in general and mobile coupons might be too small. In addition, traditional coupons might appeal to a different group of consumers than do mobile coupons. Traditional coupon users might enjoy the process of "hunting for bargains," screening newspapers and magazines, and collecting the coupons. This process contributes to their feelings of fulfillment when they accomplish a (price) saving. With mobile coupons, this process is eliminated. Mobile coupons might appeal more to (mobile) technology-savvy consumers that are not interested in investing the time and effort in obtaining coupons; they might prefer the convenience of the new medium and related services (Mikami et al., 2001).

With regard to consumer characteristics, we explored the moderating effect of being a value seeker on several relationships in the core model. Although we expected the relationship between economic benefit and attitude to be stronger for value seekers than for the others, the results do not show any significant differences. This result could be explained by the fact that the value of the coupon is in fact the main motivation to use a coupon for any consumer (Ashworth, Darke, & Schaller et al., 2005), whether he/she likes coupons or not. As this research takes a utilitarian perspective on the use of mobile coupons, it implies that the main driver for anyone to use mobile coupons is the lower final price of the product.

Regarding the relationship between redemption effort and attitude, the analysis reveals a stronger rather than a weaker effect of value seeking. Value seekers are more concerned about this barrier than what we expected. Rather than making an extra effort to get the mobile coupon redeemed, they perceive the effort as a high barrier that holds back from getting what they want in the end—the bargain. As the redemption effort gets too high, they might need to invest more (e.g., in time and in the consumption process), which might lead to a higher price than they want to pay, even if this price is non-monetary.

The results further indicate that the effect of fear of spamming on perceived control is stronger for value seekers than for the others. This group is particularly coupon prone and enjoys using coupons. Intrusive, unsolicited mobile advertising messages undermine their feeling of control regarding coupon redemption. They may miss out on messages relevant for them through an overload and loss of control and eventually not get the price savings they actually want and hunt for.

Interestingly, for value seekers, the relationship between past use of coupons and intention to redeem mobile coupons is weaker and not stronger than it is for others as we expected. In fact, past use of coupons is correlated with intentions only for coupon apathetics, whereas it is insignificant for value seekers. While we did not expect this effect to occur, there are possible explanations for this result. Past behavior as a driver of intentions can be regarded as a form of habitual behavior. While that might be the case for people that are not genuinely involved with coupon use (i.e., coupon apathetic), such habitual patterns are less likely for value seekers. Value seekers are truly motivated to use coupons, and this motivation is internally driven. Hence, they consciously evaluate the decision to use mobile coupons and are influenced by factors other than their existing habits.

LIMITATIONS AND FURTHER RESEARCH SUGGESTIONS

Although this study provides new insights into mobile coupon redemption, there are still various research avenues to pursue. A first limitation lies within the data available to us. Our data contain intention measures rather than behavioral measures. While many adoption

studies apply such an approach, follow up studies should consider using actual behavioral data. With the rise of mobile coupons as a marketing tool, such data are likely to become more readily available. Hence, typical limitations of the predictive value of intentional measures can be overcome, and more insights on the actual behavior of consumers can be obtained.

Second, our measure, "past use of coupons," focused on general coupon use rather than on mobile coupon use. As initiatives in the market emerge, there may be changes due to consumer experiences with mobile coupons. Such changes might significantly affect our findings as pre- and post-evaluation of adoption beliefs might vary based on consumer experiences. Further research should include such experience effects.

Third, an important issue not addressed in this research is the discussion with regard to opt-in versus opt-out possibilities of mobile advertising. Barwise and Strong (2002) discuss the importance of exploring these issues further, especially as consumers are highly concerned about their privacy. The mobile phone is more personal than any other media, and as a result, consumers are worried more than ever about being spammed by mobile ads. Overcoming such barriers needs further investigation.

Fourth, the full potential of location-based services needs to be uncovered. The possibility of using ads that are based on consumer locations would allow for personalized offers that are relevant for the customer (Leppäniemi & Karjaluoto, 2005). However, little is known yet about possibilities of location-based promotions and consumer attitudes toward such highly personalized promotional content via mobile phones.

Fifth, there is a lot of discussion on what kind of face value is most appreciated by consumers. Pousttchi and Wiedemann (2006) identify different formats of coupons, ranging from discounts and trial packages to free SMS/-MMS Multimedia Messaging Service available on the advertiser's Web site. In addition, more hedonically oriented sales promotions are increasingly gaining attention (Chandon, Wasink, & Laurent, 2000), especially in the mobile context (Bauer et al., 2005). Past research illustrates strong discrepancies in findings relating to the nature of face value (Raghubir, 2004) and performance of the company such as sales and exposure (Chandon, Wasink, & Laurent, 2000).

Finally, consistent with the issues on entertainment value, issues relating to effective message content, design and appeal of the coupon should also be addressed. While these issues seem rather trivial with the current status of mobile couponing, further technological advancements (e.g., MMS including color, sound, pictures) will lead to more sophisticated options with regard to the aesthetics of mobile coupons. Future research should investigate what stimuli are most appealing to mobile users.

MANAGERIAL IMPLICATIONS

This study yields a number of important managerial implications. The results show that consumer attitudes are a major influence on consumer intention to redeem mobile coupons. However, in general, consumer attitudes towards mobile advertising are strongly negative (Tsang, Ho, & Liang, 2004). This finding implies that companies that want to introduce mobile coupons face a serious challenge in turning this negative attitude around. The results of our study suggest that this turnaround can be accomplished by increasing economic benefits and diminishing redemption efforts. While companies cannot increase the value of m-coupons indefinitely, it is important for them to understand the value consumers derive from the coupons and the user friendliness of the coupons. Consumers need to be educated about the possibilities, protocols, and service process. Finally, company policies on privacy issues should be by clarified to the consumer to diminish fear of spamming and feelings of intrusiveness. Concerns about intrusiveness can be reduced by increasing relevance of the message (Edwards, Li, & Lee, 2002). Providing platforms for customers to opt-in for mobile advertising services, stipulating the number, timing, and content of messages provides them with more sense of control. Over and above these choices, an opt-out possibility has to be implemented to provide the customers some degree of empowerment. These actions will diminish their fear of spamming and increase the level of perceived control.

Our results show that value seekers are an attractive segment. However, companies should consider some

issues when targeting this segment. While companies might expect value seekers to make extra efforts to redeem the coupons, the results indicate the opposite. As the impact of redemption effort on attitude is stronger for this segment, companies should devote special attention to this issue and treat value seekers with extra care. Additionally, companies should overcome their concerns about spamming. One way of doing so is to target specific direct marketing campaigns at these consumers with extra information on mobile coupons about what they are, how to get them, and what the details on the redemption process are. Due to their positive disposition toward coupons, value seekers are more likely to be interested in these types of mailings and become better informed about mobile coupons than are other consumers.

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APPENDIX 1 Survey Introduction

We are happy you are interested in our survey!

This survey is about the usage of coupons you receive as promotions for fast food chains (McDonalds, Burger King. . . .) or for retailers (Billa, Merkur, Bipa, etc.). Such coupons can be collected from direct mailings or magazines. Nowadays they are also sent via e-mail or SMS. We would appreciate it if you provided us with information on your attitude toward such coupons and whether or not you received them via SMS on your mobile phone. Completing the questionnaire only takes a couple of minutes.

Thank you for your support and we hope you enjoy filling out the questionnaire!