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Exploring the effects of gender, age, income and employment status on consumer response to mobile advertising campaigns

Exploring the effects of gender

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Abstract

Purpose – The purpose of this paper is to examine the effects gender, age, income and employment status on consumer response to short message service (SMS)-oriented direct-response requests or a call-to-action tactic in a television advertisement or program, consumer's participation in SMS sweepstakes or other competitions, and consumer uptake of mobile services such as ringtones, logos, screensavers and wallpapers ordered by SMS message.

Design/methodology/approach – The data used in this study were collected via an online survey. A total of 4,062 consumers responded to this survey. Cross-tabulation and binary logistic regression were used to examine the associations between the explanatory variables and responses to mobile advertising campaigns.

Findings – The results suggest that women are more active than men in their responses to SMS call-to-action campaigns. In addition, the results indicate that mobile advertising is not only for teenagers. For instance, consumers in the 36-45 age group were most likely to respond to SMS calls-to-action in a television program and participate in SMS sweepstakes and other competitions. However, the youngest consumers most actively ordered mobile services using SMS. In addition, it was found that employment status had a substantial impact on consumers' SMS campaign activity.

Research limitations/implications – Self-report survey data are the bases of the findings discussed in this article. Substantial evidence exists in previous research that many respondents are inaccurate in reporting their own attitudes and past behavior. Thus, additional research relying on, for instance, SMS delivery measures (e.g. number of messages sent, number of replies, and – where an identifiable offer is promoted via mobile phone – the exact purchase rates), should be executed. Such experiments go beyond consumer reports by providing useful estimations of the impact of SMS text advertising based on customer inquiry and actual behavior.

Practical implications – This study clearly demonstrates the prevalence of SMS advertising campaigns and provides important insights into consumers' engagement with SMS advertising activities. Basic demographics such as gender, age, income, and employment status are useful in modeling and predicting consumer behavior in relation to SMS call-to-action campaigns. Thus, the findings reported in this paper should help marketers to design campaigns that focus more closely on the target audience.

Originality/value – While building on and maintaining continuity with extant work, this paper provides results that do facilitate research efforts focused on mobile media and aid practitioners in their quest to achieve mobile advertising success.

Keywords Mobile communication systems, Advertising, Marketing strategy, Finland

Paper type Research paper

Introduction

Mobile marketing, where mobile (wireless) media is used as a content delivery and direct response channel in integrated campaigns alongside traditional media such as TV, radio and print, or as a stand alone medium, is fast becoming an important advertising and direct marketing tool (e.g. Trappey and Woodside, 2005). Well-known



global brands already exploiting mobile marketing concepts include McDonald's, Coca-Cola, Pepsi, MTV, Volvo, Sony Pictures, Nike, Disney and Adidas (e.g. Sultan and Rohm, 2005; Mobile Marketing Association, 2008). Broadly speaking, mobile advertising revenue totaled US\$ 2,773 million in 2007, has been forecast to almost double to US\$5 billion in 2008, and to increase to over US\$16 billion by 2011 (eMarketer, 2007).

Previous studies have shown short message service (SMS) advertising to be effective both as a brand vehicle and in stimulating consumer response (Barwise and Strong, 2002; Rettie *et al.*, 2005; Scharl *et al.*, 2005). The uniqueness of SMS advertising lies in its potential to target consumers in a specific context (e.g. Barnes, 2002; Muk, 2007). Therefore, prior research has mainly focused on permission-based (i.e. push-based) mobile advertising. Permission-based mobile advertising can be defined as a message (e.g. SMS and MMS) that has been requested by the consumer as part of an opt-in scheme (e.g. a consumer fills in their mobile phone number on a regular customer registration form and agrees to receive commercial messages and information of interest). Permission-based advertising messages are powerful because by signing up to an opt-in list, the consumer is requesting the messages from the advertiser rather than simply being exposed to it. Therefore, as suggested by Martin *et al.* (2003), advertisers can gain better value for their money as the message recipients have already indicated a level of interest in the messages.

Besides permission-based mobile advertising, marketers are increasingly engaging in call-to-action/direct-response (pull-based) mobile advertising. That is, a customer is encouraged to send an SMS message in response to a call-to-action, for instance, in a TV, radio, on-pack or press advert (e.g. Trappey and Woodside, 2005). In Europe, one of the most widely used forms of direct-response mobile advertising is the Text "n" Win (also called Text 2 Win) promotion which is usually advertised on a package of something, like crisps, a candy bar or a drink, and the customer is invited to send a text message to a shortcode number for a chance to win a prize (Keegan, 2005). For instance, Pepsi recently worked with Enpocket to drive sales of Pepsi, and leverage Pepsi's Team England association in the run up to the World Cup finals by distributing approximately 95 million units of Pepsi Max, Pepsi Max Twist, Pepsi Regular and Diet Pepsi that each contained a unique code. The campaign was supported through the line with TV advertising and with a major presence at point of sale across a range of retail outlets. With a draw every 90min consumers simply had to text their unique code from the packaging to shortcode 60360. In all, more than a quarter of a million people participated in the campaign (Enpocket, 2008).

Consequently, with expenditure on mobile advertising growing, academics and practitioners alike have recognized that an important question remains unanswered: which consumer segments are most willing to respond to mobile advertising? Thus, the purpose of this article is to examine the effects of demographic variables on mobile advertising responses. More specifically, this paper examines how gender, age, income and employment status affects consumer response to SMS-oriented direct-response requests or a call-to-action tactic in a TV advertisement or program, consumer's participation in SMS sweepstakes or other competitions and consumer uptake of mobile services such as ringtones, logos, screensavers and wallpapers ordered by SMS message. These mobile marketing activities were incorporated into the study because they were considered to best demonstrate the level of consumer involvement in mobile marketing. Before presenting the findings of this study, this paper reviews the relevant literature and presents its methodology.



Literature review

Advertising is sold on the basis of the demographics of the audience expected to view the advertisements (Wolin, 2003). Thus, with a better understanding of individual differences, mobile marketers may develop strategies that make mobile marketing appealing to their target audiences (Muk, 2007). Among demographic variables, gender is often used as a segmentation strategy because it meets several requirements for successful implementation including it is easily identifiable, gender segments are accessible, gender segments are measurable and gender segments are large and profitable (Darley and Smith, 1995; Wolin, 2003; Petrevu, 2001).

In the context of computer-mediated communication, prior research seems to indicate that women are more likely than men to use email to build social contacts. This view was advocated by Jackson *et al.* (2001) who found in their study that American females are more likely to use emails than their male counterparts, but feel more computer anxiety and less computer self-efficacy. This observation is bolstered by Phillip and Suri (2004) who found in a study of promotional emails in the USA that women and men differ in their evaluation of information content and the visual presentation used in email. In addition, the results from the study showed that women preferred the option of forwarding promotional emails to friends more than men did. This observation is also consistent with the evidence that women have a higher need to reach out and maintain social contacts.

To date, little research has focused on gender differences in a mobile phone context. While studying Japanese mobile users, Okazaki (2004) found that female users are dominant amongst both e-newsletter subscribers and email users. In particular, there are almost twice as many female email users as male users. In Norway, Nysveen *et al.* (2005) examined gender differences in mobile chat service adoption. Although there were no significant differences across genders in ease of use and attitudes, the results suggest that social norms and intrinsic motives such as enjoyment, are important determinants of intention to use among female users. In addition, prior research has found that females use more SMS services than males (Ling, 2001 via Pedersen, 2005). This observation is bolstered by a recent empirical study that suggests that females are more actively involved with mobile media than their male counterparts (Trappey and Woodside, 2005).

Generally speaking, prior research indicates that in general men exhibit more positive attitudes to advertising than do women, and prefer internet advertisements to traditional media advertisements due to their interactivity (O'Donohue, 1995). In contrast, a study conducted by Okazaki (2007) reveals that Japanese females are more likely than their male counterparts to perceive stronger trust in mobile advertising. It was also found that Japanese women, regardless of frequent or infrequent usage, are likely to recall an advertisement more clearly than their mail counterparts. Trappey and Woodside (2005) analyzed 26 SMS text advertising campaigns and the findings indicate that women, irrespective of age and/or marital status, respond to an SMS call-to-action in either a TV advertisement or program at significantly higher rates than men. Consequently, the following research question is proposed:

RQ1. Does gender has an effect on consumer response to mobile advertising campaigns?

Like gender, age has also proved to be an important demographic variable of interest in the context of mobile marketing. According to Koivumäki *et al.* (2006), age is probably the most widely applied demographic variable in studying the differences in the

adoption of mobile end-user services. Haghirian *et al.* (2005) examined the perceived value of mobile marketing, and found that age does not influence the advert recipients' perception of mobile advertising significantly. Brackett and Carr (2001) reported a similar observation. In a study of the advertising value of web ads, they found that age did not influence the perception of advertising value.

In contrast, a study conducted by Trappey and Woodside (2005) based on 5,401 telephone interviews regarding 26 different mobile advertising campaigns reveals that consumers aged 18-44 are most likely to engage in SMS TV messaging behavior. More specifically, the likelihood of sending an SMS message increases until consumers reach an age of between 25 and 44. The researchers further observed that response rates tend to increase and then level off over time as consumers become familiar with the medium and accept it. In addition, it seems that SMS text messaging is becoming increasingly popular with older age groups. Their adoption is encouraged, for instance, by the need to stay in touch with younger relatives and by interactive television programmes. Thus, as older people are using SMS more actively they are also becoming more responsive to this advertising medium (Rettie *et al.*, 2005). Thus, the following research question can be proposed:

RQ2. How does age affect consumer response to mobile advertising campaigns?

Besides gender and age, other demographic characteristics such as income and education appear to impact consumers' judgments of and beliefs about advertising (e.g. Alwitt and Prabhaker, 1992; Shavitt *et al.*, 1998). That is, people with less education and lower income generally report a more favorable attitude toward advertising in general (Shavitt *et al.*, 1998). Prior research indicates that education and income are significant demographics in terms of Web diffusion (Atkin *et al.*, 1998). By the same token, the lack of money, i.e. a limited budget has been identified as a considerable barrier to adoption and usage of mobile phones (Sarker and Wells, 2003). However, little research has focused on other demographic variables such as income and employment status in responses to mobile advertising. Given the growing emphasis on strategic and highly refined targeting of advertising campaigns, it is important to note any differences in responses to mobile advertising that emerge, not only as a function of gender and age but also of other demographic characteristics. Consequently, the following research question is proposed:

RQ3. Does income and employment status have an influence on consumer response to mobile advertising campaigns?

Advertising has long been criticized for being excessively intrusive (e.g. Pollay, 1986). The mobile media are potentially even more intrusive than are other interactive marketing channels (Perlado and Barwise, 2005). The main reasons are ubiquity and the personal nature of the mobile phone. As stated by Sultan and Rohm (2005), mobile devices often stimulate an emotional connection with their users, as evidenced by the popularity of accessories purchased to personalize phones, which include customized ring tones, face plates and wallpaper backgrounds. In addition, mobile phones store information about individuals' social networks of friends and family, and business or school contacts. In this regard, Grant and O'Donohoe (2007) suggested that even young people have little motivation to use mobile phones to receive mobile advertising. Therefore, "push" mobile advertising campaigns are not as successful as expected. Instead, beyond receiving advertising messages, young people are texting back for branded promotions. That is, consumers are invited to participate in sweepstakes or

get coupons by dialing a short code promoted by the company on its products and advertisements to get the company to text them back via their mobile phones (Muk, 2007). These kinds of “pull” campaigns have been the most widely used mobile marketing campaigns. In fact, over 90 per cent of mobile advertising spending is made by direct response campaigns (eMarketer, 2007). Thus, this study examines consumers’ responses to SMS direct-response/calls-to-action in a TV advertisement or a program as well as their participation in SMS sweepstakes or other competitions.

Mobile services such as downloadable ringtones, icons and logos are still the most popular services in Europe (Carlsson *et al.*, 2006). In addition, it has been suggested that mobile marketing enables frequent consumer involvement and interaction through repeated content downloads and diverse competitions. As stated by Sultan and Rohm (2005) that kind of consumer activity is not incorporated directly into an actual purchasing transaction, but aims to create a positive association with a company, product, and/or service in a consumer’s mind. According to industry surveys, **mobile brand advertising is expected to rise in the near future** (e.g. Airwide Solutions, 2006). Therefore, we will also be examining the consumer’s usage of mobile services such as ringtones, logos, screensavers and wallpapers ordered by SMS message.

Methodology

The data used in this study were collected via an online survey. The survey was promoted on four different websites in Finland. **Those websites showed a banner ad that contained a brief description of the survey and a link to a website questionnaire.** The survey took place between 22 September and 15 December, 2005. The incentive to participate was a prize draw for a mobile phone priced at 199€. A total of 4,062 consumers responded to this survey.

The survey comprised a wide variety of questions about the **mobile marketing experience, acceptance and actions taken by consumers.** In addition, the survey contained questions covering potential factors that may influence consumers to engage in interactive SMS advertising campaign. In this study we used the following measures. A respondent’s activity with regard to mobile services was measured by the item, “Have you ordered mobile services such as ringtones, logos, screen savers by using SMS during the last six months” (Yes, No). Similarly, a respondent’s engagement in SMS via TV behavior was measured by the item, “Have you sent an SMS message to a TV show during the last six months?” (Yes, No). SMS sweepstakes and other competitions (i.e. Text “n” Win) were supposed to be the most popular SMS marketing activity, and therefore, respondents’ engagement in SMS competitions was measured by the item, “Have you sent an SMS to a lucky draw or other competition during the last six months?” (Yes, No). Each of the items used was consistent with past research in online marketing (e.g. Lohse *et al.*, 2000) and was modified for the mobile context. Finally, demographic information about gender, age, education, income and employment status was collected.

Crosstabulation and binary logistic regression were used to examine the associations between the explanatory variables and responses to mobile advertising. The odds ratios (OR) and their 95 per cent confidence intervals (95 per cent CI) were calculated for the explanatory factors. In order to evaluate the independent effects of each demographic variable – gender, age, income and employment status – the odds ratios were adjusted for other demographic variables. The analyses were carried out using SPSS 14.0 software.

Results

Of the 4,062 respondents who completed this survey, 1,932 (48 per cent) were male and 2130 (52 per cent) were female. Table I provides demographic profiles of both male and female respondents. Slightly more males than females were in the oldest age group (> 45 years) (16 vs 11 per cent) and were retired (5 vs 3 per cent). No essential difference was observed in the level of education between males and females, but more males than females (21 vs 7 per cent) had a personal income of more than 2,500 per month.

RQ1: does gender have an effect on consumer response to mobile advertising campaigns?

As illustrated by Table II, females participated in TV programs or responded to advertisements by using SMS more actively than males (34 vs 24 per cent). Specifically, the female gender was associated significantly with sending SMS to TV shows or in response to ads, first in unadjusted analysis (OR 1.57, CI 1.37-1.80), and also after adjustments for other demographic variables (adjusted OR 1.61, CI 1.40-1.86). Females also participated more frequently than males in SMS competitions of any kind in response to a call-to-action to do so (62 vs 53 per cent). In this regard, female gender was associated with participation in both unadjusted (OR 1.48, CI 1.31-1.68), and in adjusted (OR 1.49, 1.31-1.70) analysis (Table III). In addition, females reported that they

Demographics	Male		Female		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<i>Age, years</i>						
<21	383	19.8	443	20.8	826	20.3
21-25	409	21.2	525	24.6	934	23.0
26-35	508	26.3	568	26.7	1076	26.5
36-45	320	16.6	362	17.0	682	16.8
>45	312	16.1	232	10.9	544	13.4
<i>Education</i>						
Elementary school	365	18.9	344	16.2	709	17.5
High school graduate	222	11.5	294	13.8	516	12.7
Mid professional studies	139	7.2	145	6.8	284	7.0
Mid professional graduate	443	22.9	555	26.1	998	24.6
Higher professional studies	107	5.5	112	5.3	219	5.4
Higher professional graduate	192	9.9	237	11.1	429	10.6
University studies	152	7.9	180	8.5	332	8.2
University degree	184	9.5	163	7.7	347	8.5
Other	128	6.6	100	4.7	228	5.6
<i>Personal monthly income, euros</i>						
≤1,000	840	43.5	1112	52.2	1952	48.1
1,001-1,800	350	18.1	499	23.4	849	20.9
1,801-2,500	346	17.9	366	17.2	712	17.5
2,501-3,200	203	10.5	93	4.4	296	7.3
3,201-4,000	100	5.2	43	2	143	3.5
>4,000	93	4.8	16	0.8	109	2.7
<i>Employment status</i>						
Student	625	32.3	780	36.6	1405	34.6
Unemployed	260	13.5	333	15.6	593	14.6
Employed	945	48.9	957	44.9	1902	46.8
Retired	102	5.3	60	2.8	162	4.0

Table I. Demographics of 1,932 males and 2,130 females who responded to survey

Variables	Participated (%)	Unadjusted OR (95% CI)	Adjusted ^a OR (95% CI)
<i>Gender</i>			
Male	24.4	1.00	1.00
Female	33.6	1.57 (1.37-1.80)	1.61 (1.40-1.86)
<i>Age, years</i>			
<21	23.2	1.00	1.00
21-25	24.4	1.07 (0.86-1.33)	0.96 (0.76-1.20)
26-35	32.2	1.57 (1.28-1.93)	1.23 (0.96-1.58)
36-45	36.5	1.90 (1.52-2.38)	1.42 (1.08-1.88)
>45	31.4	1.51 (1.19-1.93)	1.17 (0.86-1.58)
<i>Personal monthly income, euros</i>			
≤1,000	25.8	0.64 (0.53-0.77)	0.83 (0.63-1.10)
1,001-1,800	31.4	0.84 (0.68-1.04)	0.86 (0.69-1.08)
1,801-2,500	35.3	1.00	1.00
2,501-3,200	32.1	0.87 (0.65-1.16)	0.95 (0.71-1.27)
3,201-4,000	29.4	0.76 (0.52-1.13)	0.83 (0.56-1.23)
>4,000	24.8	0.61 (0.38-0.96)	0.73 (0.46-1.16)
<i>Employment status</i>			
Student	22.6	0.61 (0.52-0.71)	0.76 (0.59-0.98)
Unemployed	33.4	1.04 (0.86-1.27)	1.14 (0.88-1.48)
Employed	32.5	1.00	1.00
Retired	33.3	1.04 (0.74-1.46)	1.15 (0.79-1.67)

Note: ^aAdjusted for all other variables in the table

Table II. Proportion (per cent) of consumers who have participated in TV programs by using SMS during the last six month, and multivariate logistic regression analysis of sending SMS to a TV show (odds ratios, OR and their 95 per cent confidence intervals, 95 per cent CI)

have ordered ringtones, logos and other downloadable mobile services more often than men (62 vs 50 per cent) (Table IV). As illustrated in Table IV, the female gender is associated with this feature even after adjustments for other factors have been included (OR 1.59, CI 1.40-1.81).

RQ2: how does age affect consumer response to mobile advertising campaigns?

Consumers in the age category of 36-45 were most likely to send an SMS to a TV show or in response to an advertisement (Table II). In this age group the response rate was 37 per cent. Interestingly, the lowest SMS-based TV call-to-action response rate of 23 per cent was observed in the youngest age group, those under 20. As illustrated in Table II, greater age was associated with greater participation in TV programs by using SMS compared to the youngest age group. However, adjustments for other demographic variables diminish the odds ratios. After all adjustments, the 36-45 age group was significantly more likely to send an SMS text to a TV show or in response to an advertisement (OR 1.42, CI 1.08-1.88) compared to the youngest age group.

Interestingly, the effect of age on participation in SMS sweepstakes or competitions was also very similar. Table III shows that the 36-45 age group was most likely to engage in SMS competition activities: 62 per cent of them had sent an SMS text to a sweepstake or other competition. Specifically, this age group was associated with SMS competition activity in both unadjusted analysis (OR 1.38, CI 1.12-1.69), and adjusted analysis (OR 1.25, CI 0.97-1.61) compared to the youngest age group.

Table III.
Proportion (per cent) of consumers who have participated in SMS competitions during the last six month, and multivariate logistic regression analysis of participating in SMS competitions (odds ratios, OR and their 95 per cent confidence intervals, 95 per cent CI)

Variables	Participated (%)	Unadjusted OR (95% CI)	Adjusted ^a OR (95% CI)
<i>Gender</i>			
Male	52.8	1.00	1.00
Female	62.4	1.48 (1.31-1.68)	1.49 (1.31-1.70)
<i>Age, years</i>			
<21	54.6	1.00	1.00
21-25	55.6	1.04 (0.86-1.26)	0.99 (0.81-1.20)
26-35	59.5	1.22 (1.02-1.47)	1.12 (0.89-1.39)
36-45	62.3	1.38 (1.12-1.69)	1.25 (0.97-1.61)
>45	58.1	1.15 (0.93-1.43)	1.10 (0.84-1.46)
<i>Personal monthly income, euros</i>			
≤1,000	56.1	0.89 (0.74-1.05)	0.85 (0.65-1.10)
1,001-1,800	61.5	1.10 (0.90-1.35)	1.07 (0.87-1.32)
1,801-2,500	59.1	1.00	1.00
2,501-3,200	56.1	0.88 (0.67-1.16)	0.95 (0.72-1.25)
3,201-4,000	59.4	1.01 (0.70-1.46)	1.09 (0.75-1.58)
>4,000	55.0	0.85 (0.56-1.27)	0.96 (0.64-1.45)
<i>Employment status</i>			
Student	54.7	0.85 (0.74-0.98)	1.06 (0.84-1.35)
Unemployed	63.4	1.22 (1.01-1.48)	1.39 (1.08-1.78)
Employed	58.7	1.00	1.00
Retired	56.2	0.90 (0.65-1.25)	0.97 (0.68-1.38)

Note: ^aAdjusted for all other variables in the table

Age was inversely associated with the likelihood of ordering mobile services such as ringtones, logos and screen savers by using SMS (Table IV). The youngest consumers under 21 were most likely (with an ordering rate of 64 per cent) and the oldest age group was least likely (with an ordering rate of 38 per cent) to order mobile services. All the age groups older than 20 years were less likely to order mobile services than the youngest age group, and the adjusted odds ratios were 0.75, 0.51, 0.51 and 0.26 for the age groups 21-25, 26-35, 36-45, and over 45, respectively.

RQ3: does income and employment status have an influence on consumer response to mobile advertising campaigns?

Table II shows that students tended to respond at the lowest rate to SMS-based TV calls-to-action (their response rate was 23 per cent). Interestingly, the response rate was 33 per cent across all the other employment groups: unemployed, employed and retired consumers. After adjustment for other demographics students were still less likely to participate in TV programs or respond to advertisements by using SMS (OR 0.76, CI 0.59-0.98) compared to employed individuals. Moreover, Table II suggests that consumers at the lowest income level (26 per cent) and at the highest income level (25 per cent) were least active, and that consumers at the income level of 1,801-2,500 euros per month were most active (35 per cent) in participating in TV shows or answering advertisements by SMS. However, after adjustment for other demographic variables, no difference was observed in the likelihood of participation.

As depicted in Table III, the unemployed consumers were more likely to participate in SMS sweepstakes and other competitions (63 per cent) than the employed consumers

Variables	Participated (%)	Unadjusted OR (95% CI)	Adjusted ^a OR (95% CI)
<i>Gender</i>			
Male	49.7	1.00	1.00
Female	61.9	1.64 (1.45-1.86)	1.59 (1.40-1.81)
<i>Age, years</i>			
<21	63.7	1.00	1.00
21-25	60.2	0.86 (0.71-1.05)	0.75 (0.61-0.91)
26-35	55.7	0.72 (0.59-0.86)	0.51 (0.41-0.64)
36-45	56.6	0.74 (0.60-0.92)	0.51 (0.39-0.66)
>45	38.1	0.35 (0.28-0.44)	0.26 (0.20-0.35)
<i>Personal monthly income, euros</i>			
≤1000	57.9	1.13 (0.95-1.34)	0.88 (0.68-1.15)
1,001-1,800	57.8	1.13 (0.92-1.38)	1.00 (0.81-1.24)
1,801-2,500	54.9	1.00	1.00
2,501-3,200	50.7	0.84 (0.64-1.11)	0.95 (0.72-1.25)
3,201-4,000	45.5	0.68 (0.48-0.98)	0.86 (0.59-1.24)
>4,000	47.7	0.75 (0.50-1.12)	0.94 (0.62-1.42)
<i>Employment status</i>			
Student	56.7	1.04 (0.90-1.19)	0.67 (0.53-0.85)
Unemployed	60.7	1.22 (1.01-1.47)	1.13 (0.88-1.45)
Employed	55.9	1.00	1.00
Retired	37.0	0.46 (0.33-0.65)	0.75 (0.52-1.08)

Note: ^aAdjusted for all other variables in the table

Table IV. Proportion per cent of consumers who have ordered mobile services (such as ringtones, logos, screen savers) by using SMS during the last six month, and multivariate logistic regression analysis of ordering mobile services (odds ratios, OR, and their 95 per cent confidence intervals, 95 per cent CI)

(59 per cent), even after adjustments for gender, age and income level (OR 1.39, CI 1.08-1.78). Interestingly, student status was associated with low participation in SMS competitions (OR 0.85, CI 0.74-0.98), but not after adjustment for other demographic factors (OR 1.06, CI 0.84-1.35). Table III further suggests that income level does not have substantial impact on consumers' participation in SMS competitions. This also applies to ordering mobile services such as ringtones, logos, and screen savers by using SMS (Table IV). In contrast, Table IV suggests that employment status does influence consumers' use of downloadable mobile services. The lowest ordering rate was observed among retired consumers (37 per cent) while the ordering rate varied between 56-61 per cent among the other groups. The observed associations that retired consumers were least active and unemployed consumers were most active, disappeared after adjustments for gender, age and income level. However, after adjustment students seemed to be less active (OR 0.67, CI 0.53-0.85) than employed consumers in this respect.

Discussion and conclusions

Many authors have suggested that consumers' experiences of mobile advertising to date remain limited and more research is needed to examine how mobile marketing communication is received and acted upon as it continues to evolve (e.g. Grant and O'Donohoe, 2007). This study answers this call by exploring the impact of gender, age, income and employment status on a consumer's engagement with mobile advertising and mobile services. The findings from the study provide useful and important implications for academics and practitioners in several ways.

First, our findings suggest that gender has a substantial impact on consumers' responses to SMS advertising and mobile service usage. It appeared that females tended to more actively participate in SMS TV show and other kinds of competitions. In addition, females more actively ordered mobile services by using SMS than their male counterparts. This result is consistent with prior research that indicates that women are more actively involved with the mobile media than men are. Specifically, Trappey and Woodside (2005) analyzed 26 SMS text advertising campaigns and the findings indicate that women, irrespective of age and/or marital status, respond to an SMS call-to-action in either a TV advertisement or a program at significantly higher rates than men.

Second, our findings indicate that age affects consumers' responses to mobile advertising campaigns. We found that consumers in the age group 36-45 were most likely to send an SMS to a TV show or advertisement, and participate in SMS sweepstakes and other competitions. This finding concurs with that of Trappey and Woodside (2005), who stated that the likelihood of sending an SMS message to a TV show increases until consumers reach an age of between 25 and 44. Apparently, younger consumers are not the only ones to embrace mobile technology (e.g. Sultan and Rohm, 2005). For this reason, advertisers wishing to maximize revenue from an SMS advertising campaign should consider seeking to target not only the youngest segments of the population but also older segments as usage and attitude figures indicate willingness to actively participate in SMS advertising. However, it should be highlighted that consumers under 20 were most likely to order mobile services such as ringtones, logos and screen savers by using SMS. Therefore, it appears reasonable to assume that brand building campaigns and other mobile marketing activities based on downloadable mobile services should be targeted at the young audience for the foreseeable future.

Third, besides gender and age, other socio-demographic characteristics such as income and employment status appear to be associated with consumer responses to mobile advertising. Interestingly, our findings indicate that students tend to respond at the lowest rates to SMS TV calls-to-action. The association persisted even after adjustment for other factors in the study. It was also found that the student group was associated with participation in SMS competitions. However, the association disappeared after adjustment for other factors in the study. In addition, our findings indicate that a status of unemployment was associated with participation in SMS sweepstakes and other competitions. This association also endured after adjustment for other factors included in the study. Our findings also suggest that income level does not have a substantial impact on consumers' participation in SMS competitions, and ordering mobile services such as ringtones, logos, and screen savers by using SMS. This seems to be inconsistent with prior research that found that a limited budget is a considerable barrier on adoption and usage of mobile phones (Sarker and Wells, 2003). A possible interpretation of our seemingly contradictory results may be related to the level of analysis. In this study, we focused on specific mobile services, but Sarker and Wells studied adoption and usage of mobile phones in general. Hence, it appears reasonable to assume that mobile services are being sold and SMS competitions being conducted at the right price levels, because personal income seems not to have an influence on the consumers' participation in SMS sweepstakes or other competitions or on take up of mobile services such as ringtones, logos, screensavers, and wallpapers ordered by SMS message.

In conclusion, this study provides useful and important implications for marketing researchers and practitioners in several ways. First, we showed in line with literature (Wolin, 2003) that the gendered advertising response difference exists. The results suggest that **women are more active than men in their responses to SMS call-to-action campaigns**. Therefore, we propose marketers to design mobile advertising campaigns directed toward females differently than those directed toward males. Furthermore, consistent with the earlier research which suggest that older segments of population are increasingly participating in SMS advertising (e.g. Trappey and Woodside, 2005), the results from this study show that **consumers in the 36-45 age group were most likely to send an SMS to a TV show or advertisement, and participate in SMS sweepstakes and other competitions**. Thus, marketers **should not overlook the fact that substantial shares of older demographics have also started using mobile data services and are potential target audience of SMS advertising campaigns**.

Third, this study clearly demonstrates the prevalence of SMS advertising campaigns. Given the high penetration of text messaging and the relatively low cost of sending text messages, SMS is an appealing medium for marketers to start mobile advertising activities. Finally, it should be highlighted that **mobile advertising is technology driven** (Zhang and Mao, 2008). Although there are **wide variety of mobile marketing technologies and techniques available for marketers, SMS remains an enormously important mobile communications tool for many years** (Reynolds, 2007; ABI Research, 2008). This is the case not only within emerging markets but also within mature mobile environments. Thus, we strongly encourage marketers to start mobile marketing activities with SMS text messaging. **Once consumer adoption and acceptance have reached a critical mass for rich media advertising delivered to consumers via their mobile phone in the form of TV, video, games, user-generated content and music, marketers may consider moving beyond a focus on SMS advertising toward mobile marketing that provides a richer user experience with a closer brand connection**.

Overall, this study provides important insights into consumers' engagement with SMS advertising activities. Basic demographics such as gender, age, income and employment status are useful in modeling and predicting consumer behavior in relation to SMS call-to-action campaigns. Thus, the findings reported in this paper should help marketers to design campaigns that focus more closely on the target audience.

Limitations and future research

This study is one step toward increasing our understanding of consumers' reactions to SMS campaigns. However, a variety of limitations should be acknowledged. First, self-report survey data are the bases of the findings discussed in this article. Substantial evidence exists in the marketing and advertising literature that many respondents are inaccurate in reporting their own attitudes and past behavior (see Woodside and Wilson, 2002). Thus, additional research relying on, for instance, SMS delivery measures (e.g. number of messages sent, number of replies, and – where an identifiable offer is promoted via mobile phone – the exact purchase rates), should be executed. Such experiments go beyond consumer reports by providing useful estimations of the impact of SMS text advertising based on customer inquiry and actual behavior. True experiments are also needed to validate the findings from this study. Second, most of the items used in this study were single item measures. However, multi-item measures would offer an opportunity to consider various possible factors that might influence

behavioral intentions and enable the use of statistical techniques such as structural equation modeling (e.g. Wanous *et al.*, 1997). Therefore, future research using multi-item measurement should be encouraged.

Another limitation of the study relates to external validity, since the survey respondents were from only one country and a convenience sampling method was utilized. As such, the results are generalizable only for Finnish mobile phone users. However, the rationale for studying Finnish consumers relates to their widespread use of the mobile phones. Recent statistics revealed that Finland has one of the highest levels of mobile phone penetration in the world with a rate of 114 per cent. Given the forecast of increased use of mobile advertising by advertisers, a study of Finnish mobile phone users offers intriguing insights, especially, since Finland has been a forerunner in mobile services and mobile phone manufacture. In addition, it should be highlighted that the culture of a country has an impact on consumers' adoption of technology and reactions to advertisements (e.g. Simon, 2001; Muk, 2007). This aspect was not considered in this study and therefore, any international generalization of the findings must be treated with caution.

An interesting avenue for future research would involve the use of mobile advertising in conjunction with other media. Although there are a substantial number of research papers on the use of multiple media in a campaign (e.g. Bhargava and Donthu, 1999; Chang and Thorson, 2004; Naik and Raman, 2003; Edell and Keller, 1989; Confer, 1992; Confer and McGlathery, 1991; Sheehan and Doherty, 2001), hardly anything is known about synergies resulting from the use of mobile media in a campaign. As such, companies will need to figure out exactly how to integrate the mobile platform within their overall marketing strategies. In addition, synergistic mixes of mobile media and more traditional media should be examined.

Furthermore, it has been suggested that mobile channels, especially, SMS messages offer the convenient function of forwarding advertising messages received on to friends. Prior research indicates that a substantial number of people take the opportunity to forward advertising messages received (Trappey and Woodside, 2005; Rettie *et al.*, 2005). Therefore, the forwarding of mobile advertising messages to other consumers in terms of viral marketing (see Phelps *et al.*, 2004) and penetration should also be examined.

Finally, it has been argued that highly focused, one-to-one communications can be beneficial to building long-term, durable relationships (Peppers *et al.*, 1999; Arnold and Tapp, 2001). In addition, researchers have suggested that mobile marketing, like Web communications, can be interactive but also offer an opportunity for a closer brand connection because of the personal nature of mobile phones (e.g. Sultan and Rohm, 2005). Thus, it would be useful to explore how interactive mobile marketing aids marketers to build and maintain long-term, profitable relationships with customers.

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