

User Experience with Advertising over Mobile Phone: A Pilot Study

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Summary

This paper discusses potential uses of Short Message Services (SMS) as a means for mobile advertising. The adoption and user experience of mobile advertising was investigated in a pilot study. A convenience sample of 62 informatics students was exposed to a two week mobile advertising campaign in which they received and responded to 1-4 different textual messages per day. A survey was performed before and after the campaign to investigate the factors that could influence the adoption of mobile advertising as well as its effects on students' experience as participants in the campaign. Conclusions are drawn regarding the factors which have to be taken into account to facilitate consumer participation in mobile advertising campaigns.

Key words: mobile advertising, short message services, user experience, survey

Introduction

In comparison to land-line telephones, television, radio, and most other electronic communication media, mobile phones are much more personal devices. A mobile phone usually only has a single user and this attribute makes mobile phones suitable for high-precision targeting if they are used as a communication channel in marketing campaigns. According to Ahonen (2007) mobile devices are the most dominant devices worldwide (in comparison to other technological devices), with as many as 2.7 billion users in 2007 (see Table 1). E-marketing

potential is illustrated in the fact that in 2007 there were about 1.5 billion e-mail addresses on the Internet that were used by slightly less than 800 million people. On the other side, in 2007 almost 1.9 billion out of 2.7 billion mobile device users were actively using the SMS service, which indicates a comparable m-marketing perspective.

Ahonen (2009) recently claimed that there are 4 billion subscribers of mobile devices and that about 1.1 billion new mobile phones were sold in 2008. It must be noted that in many developed countries the penetration of mobile devices has exceeded 100%, i.e. there is a substantial percentage of users who are using not only one, but two or three mobile devices. According to Ahonen, in 2009 there have been about 2.7 billion active SMS users.

Table 1. Comparison of the number of technological devices worldwide

| Device/technology | Years of existence | Number |
|-------------------|--------------------|----------------|
| car | 100 | 800.000.000 |
| television | 60 | 1.500.000.000 |
| personal computer | 30 | 850.000.000 |
| regular phone | 110 | 1.300.000.000 |
| Internet | 15 | *1.100.000.000 |
| digital camera | 20 | 200.000.000 |
| mobile phone | 35 | 2.700.000.000 |

Source: Ahonen (2007); * number of users

Mobile messaging is a joint name for SMS (Short Message Service) and MMS (Multimedia Message Service). SMS advertising messages are limited to text with a maximum length of 168 characters, but they are ideal for access to all mobile users regardless of the type of a mobile device, available data space on a device or similar limitations that can present an obstacle to the success of an MMS advertising campaign. An MMS can contain a picture, audio content or video content. However, problems in MMS delivery can arise because of the inability of certain mobile devices to open specific types of formats (mpeg, avi, mp3 and the like). It must be emphasized that SMS is the most widely utilized data application in the world that is used by more than 75% of all mobile device users (Gopal and Tripathi, 2006).

Mobile marketing

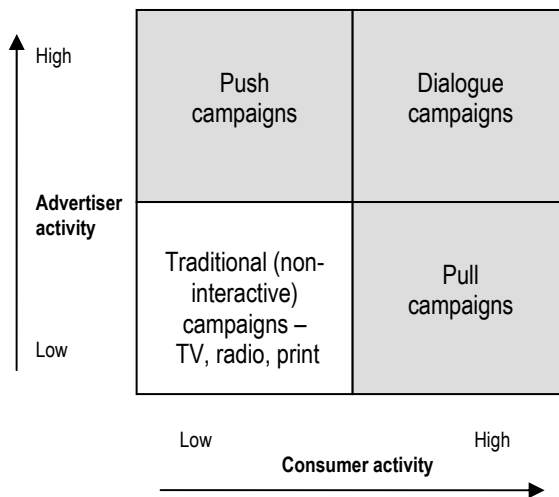
Push, pull, and dialogue marketing campaigns

The concept of sending advertising and promotional messages directly to mobile phone users has changed the previous concept of advertising and has opened up new possibilities to companies for creating innovative marketing campaign forms. However, mobile phones are still an insufficiently utilized advertising medium (O'Shea, 2007).

Mobile campaigns can be divided into three main groups (Jelassi and Enders, 2004): (a) pull, (b) push, and (c) dialogue. The previous division, depicted in

Figure 1, takes into consideration the activity level of the advertiser, as well as the level of user activity. *Push* mobile advertising is represented by sending unsolicited messages, usually via an SMS alert. In *pull* advertising the messages (usually promoting free information such as traffic reports or weather forecasts) are added to the browsed content requested by the customer (Schreiber, 2000; Dickinger et al., 2004). As can be observed in Figure 1, the highest degree of interactivity is present in a *dialogue* campaign between the advertiser and the user. On the other side, *traditional* campaigns (TV, radio, print, etc.) have the lowest level of advertiser and consumer activity.

Figure 1. Interactivity and mobile campaign types



Source: Adapted from Jelassi and Enders (2004)

Personalization in mobile marketing

The two main trends in mobile marketing are (1) customization, and (2) customerization. *Customization* denotes the dimension of customer service that represents personalization that is oriented toward the use of specific user profiles. According to Barnes and Scornavacca (2004), mobile users want to receive highly personalized information. On the other hand, *customerisation* represents a new/higher level of personalization and individualization that is made possible by mobile devices. Campaigns with a higher level of adaptability to users can have greater marketing effects and contribute to the design of mobile customer management systems (mCRM) for business (McManus and Scornavacca, 2005).

Viral marketing

Viral marketing is a special marketing strategy that encourages a client to forward a received message to third persons, through which a multiplication effect (avalanche effect) is achieved very quickly. The aim of the message is to arouse the user's interest in different ways (fun message, humor, surprise, exceptionally useful message, etc.) or to offer some added value (e.g. monetary stimulation) so that the user forwards it to his/her friends and colleagues (Pousttchi and Wiedemann, 2006). In this way, the client carries out marketing activities instead of the company. Those who receive a mobile advertising message from a friend are more likely to participate in the campaign (Salo and Tahtinen, 2005). This form of marketing deserves special attention in the development of mobile SMS advertising.

Privacy

Mobile advertising may have an adverse effect in raising users' fears in terms of privacy. Privacy is defined as "the right of any individual to control the information held about them by third parties" (Chaffey, 2003). It must be noted that Dickinger et al. (2004) observed that "*The mobile phone cannot distinguish between spam and genuine communication automatically*". They also found out that consumers fear registration to SMS-based information services for privacy concerns. Permission-based mobile advertising (PBMA) is considered to be the easiest way to tackle the privacy issue (Godin, 1999; Cleff, 2007).

Ahonen's (2007) comparison of e-mail messages and SMS messages indicated that an e-mail message is opened, on average, within 24 hours, while a reply occurs within 48 hours. On the other hand, SMS messages are read within 15 minutes of their arrival and the average response time amounts to less than 60 minutes. However, while as much as 65% of e-mails are spam, the percentage of spam among SMS messages is less than 10%. Therefore, protection of the mobile world from being polluted by spam is an important issue. The problem of unwanted messages that swamp e-mail inboxes is crucial and the answer to this problem will influence the development of mobile advertising.

Adoption problems

Even though mobile marketing adoption is on the rise, the marketers should have a clear understanding of the factors which drive consumer acceptance to attain and preserve the ability to consistently generate profits (Spurgeon, 2008, 95-100; Merisavo, et al., 2007). One of the basic problems is that advertisers do not know what users are doing when they see an advertisement on their mobile device, which means that they do not have direct and immediate feedback in relation to the success of a mobile advertising campaign. Until this problem is resolved, mobile advertising may not attract significant investment. However, in the online world it is fairly easy to determine the success of a marketing campaign. Websites can record what users do after they see an advertisement on a

specific webpage, for instance with the help of cookies and software for monitoring user habits. The data collected about user behaviour makes it possible to personalize online advertising messages and introduce targeted display of advertisements which are most likely to attract user attention and response.

The mobile phone industry has rejected the approach which would monitor user behaviour with cookies or similar technology solutions. Most mobile operators block cookies before they reach mobile phones, because operators claim that they pose a security threat to servers. An additional argument for operators is a potential increase in traffic resulting from the use of these additional programs, which could impede the normal use of mobile devices and perhaps even make calls impossible.

Potential problems may also arise from the lack of standards regarding the measurement of the effects of mobile advertising. While one advertising agency may want to know how many advertisements were shown to users included in the campaign, another agency may want to know whether the airing of advertisements led to actual purchase. The research that is presented in this paper attempts to provide insight into some of the ways the users perceive mobile advertising before, during, and after they were exposed to a campaign. In addition, the intention of the preliminary study that is presented in this paper was to measure the discomfort of users of mobile devices as a consequence of their exposure to SMS advertising.

Mobile marketing campaign

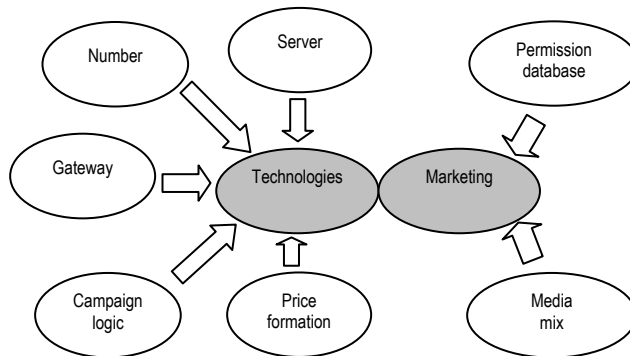
Sinisalo et al. (2006) offer a list of key problems which they identified during the process of creating a mobile campaign. The concrete campaign in their study was related to the implementation of an mCRM system in one of the largest Finnish companies in 2004 and 2005. The key problems of the mobile marketing campaign which were observed (see Figure 2) can be divided into two basic groups: (1) technological and (2) marketing problems.

On the technological level, five types of mobile campaign problems were identified: server, number, gateway, campaign logic, and price formation. On the marketing level, two basic campaign problems were related to permission database and media combination.

To provide the technological basis for our pilot study of mobile marketing we had to solve the *gateway* problem. A gateway is a communication device that links two independent systems that use different protocols and is dependent on the number of mobile operators that do business in the country in which the mobile marketing campaign is carried out. In Croatia, three operators are currently acting as mobile telecommunications providers (T-Mobile, Tele2, and Vipnet) and from the technological aspect this does not pose a big problem or create high costs, as opposed to, for example, Finland with more than 17 active operators (Sinisalo et al., 2006). If a mobile marketing campaign is carried out, users from all nationally available networks have to be able to access the cam-

paigned server without complication. In principle, operators have to provide a service for connecting to their networks for SMS/MMS messages. This service is often called *messaging interface*. It enables the sending of SMS and MMS messages among mobile devices which are registered with various operators, on the one side, and the information system of the company that implements the mCRM, on the other side. This service basically includes three different links: content gateway, short phone number/SMS number and a price formation service. Once the service is established, all mobile subscribers can initiate an SMS dialogue with the company.

Figure 2. Key points in creation of mCRM [15]



Source: Sinisalo et al., 2006

For the purpose of this research, we developed a Java application which allowed the personal computer to which a mobile device with a number was connected to behave like an SMS server that sends messages to users who are in the data base. The return messages of users were saved in a special database suitable for further analyses. In this way we created a simple, effective and low cost technological solution to support the planned methodology for our pilot study and also avoided the obstacles that Sinisalo et al. (2006) recognized in their case analyses of a mobile campaign.

Problem and hypotheses

The main goal of our study was to investigate how potential clients would react to a mobile advertising campaign. We decided to perform a pilot study on a small group of students who would receive 1-4 marketing SMS messages per day for a period of two weeks and evaluate the usefulness of each of the incoming messages. Therefore, the main problem of our study was to determine the potential acceptance rate of SMS marketing. For this we combined quanti-

tative and qualitative data on students' responses to mobile marketing messages and interpreted our campaign as a case study. However, we were also interested in determining the factors which contribute to the acceptance of SMS marketing. Several self-assessment scales were used for this purpose, which were correlated with measures of acceptance of mobile marketing.

The following hypotheses were formulated in relation to the problems of our pilot study:

- H1: Students in our convenience sample will on average demonstrate a high level of acceptance of SMS marketing.
- H2: The level of engagement of students in our convenience sample during the marketing campaign will not decrease over time.
- H3: Message attributes (related to brand, information value, entertainment, personalization, perceived usefulness) have an influence on the acceptance of mobile marketing.

Methodology

Our convenience sample consisted of 62 students of the fourth year of study of informatics at the University of Zagreb, Croatia. The subjects were aged between 21 and 24, 66% of them were male and 34% female. All of the subjects voluntarily participated in the study.

Before the students provided the researchers with their mobile phone number they were given a written statement regarding the privacy and confidentiality of data collected in our pilot study. Also, prior to their participation in the mobile marketing campaign the subjects responded to a survey regarding their actual use of mobile technology (phone, Internet etc.). In addition, the survey consisted of self-assessment scales that measured various constructs (user attributes) that could be related to the acceptance of mobile marketing. These constructs were associated with attitude about mobile advertising (Shimp and Kavas, 1984; Pollay and Mittal, 1993), perceived usefulness (Venkatesh et al., 2003), message attributes (brand, information value, entertainment, personalization), and use of services related to mobile advertising (Merisavo et al., 2007). Most of these self-assessment measures demonstrated an internal reliability in the range from satisfactory to very good (Cronbach alpha from 0.70 to 0.90).

The mobile marketing campaign in our pilot study lasted two consecutive weeks. During this campaign the subjects received SMS messages that were related to their college, program of the local cinema and theatre, city swimming pool, student restaurants and town bars/pubs, or included diverse advertisements of products and services. The subjects were asked to respond to each of the received SMS messages regarding its usefulness on a 1-5 Likert-type scale. After a week of participation in the mobile marketing campaign they also completed a brief survey regarding the received messages and their effects.

Results

After a week of exposure to the mobile marketing campaign the subjects in our convenience sample responded to the survey question "Mobile advertising is a useful concept which I plan to use in the future" with an average response of 4.14 on a Likert-type scale ranging from "1 – I do not agree at all" to "5 – I completely agree". Typical positive verbal responses of subjects to the campaign after its first week were: "Many messages were very useful to me (menu at the student restaurant, cinema, discount at the city swimming pool, college information) and I will miss them when the campaign is over."; "Interesting, I approve of it and support this kind of advertising as long as the user is capable of choosing and controlling the content that he/she receives and its amount."; "I support this and hope that it will benefit the students". In total there were 19 positive verbal responses to the mobile marketing campaign in our pilot study, three neutral verbal responses which were predominantly related to the need for personalization of the campaign form and content of messages. There was only one negative verbal response which indicated that this student considered mobile marketing as a form of spam. Both the quantitative and qualitative data collected in our pilot study confirm the first hypothesis (H1) and it can be concluded that the acceptance rate of mobile advertising was rather high and that most of the reactions of the subjects were positive.

Since the subjects in our pilot study were asked to respond to each of the received SMS messages on a 1-5 Likert-type scale regarding how useful the message was for them we were able to indirectly measure the effect of each message and of the campaign as a whole. It must be noted that most of the SMS's (85% of messages) during the *first week* of the mobile marketing campaign were highly personalized and received an average rating for usefulness of 3.0 or above from the subjects in the study. However, the messages during the *second week* of the campaign were more oriented toward specific products/services and received a lower average usefulness rating (only 62% of those SMSs received an average rating of 3.0 or above). The interactivity of the campaign in our pilot study was also higher in the first week, with about 70% or more subjects responding with their ratings or comments to most of the incoming SMSs. In Figure 3 the percentage of responses to the marketing SMSs in our pilot study is displayed. A lower percentage of responses is evident throughout the second week of the campaign. The percentage of students' responses with an evaluation of the received marketing SMS could be considered an indirect measure of their interest in the campaign. Therefore the second hypothesis (H2) was not confirmed since the level of engagement of students in the marketing campaign was not stable but decreased over time.

In our initial survey we used several self-assessment scales to investigate the potential acceptance factors of mobile marketing. As a measure of *acceptance of mobile marketing* we used a self-assessment scale with four items and with internal consistency (Cronbach alpha) of 0.83. The items of this scale were predominantly related to the intention of future use of mobile marketing. To inves-

tigate the relations of marketing message attributes with acceptance of mobile marketing this variable was correlated with message related constructs like brand information in message content, information and entertainment value of message, personalization of message content, and expected usefulness of participation in a mobile marketing campaign. Most of the self-assessment scales which were designed to measure those constructs had a satisfactory internal consistency (see Table 2).

The data presented in Table 2 confirms that message attributes have an important effect on the acceptance of mobile marketing. The *expected usefulness of participation* in a mobile marketing campaign (which is related to the content of the messages the subject is exposed to), the *personalization of the content* of messages (receiving predominantly those messages which are of personal interest to the subject), and the *information value* of the received messages had the strongest association with the acceptance of mobile marketing in our pilot study. The brand of product/service and the entertainment value of messages were also associated with the acceptance of mobile marketing although to a lesser degree. These results confirm our third hypothesis (H3) – that the acceptance of mobile marketing is related to the messages the user will be exposed to during a marketing campaign. However, the influence of the initial interest should not be disregarded since our pilot study indicated that after a period of exposure to mobile marketing messages the interest of the recipients may decrease (see Figure 3).

Figure 3. Percentage of subjects who responded with an evaluation of the received marketing SMS during the first and second week of the campaign

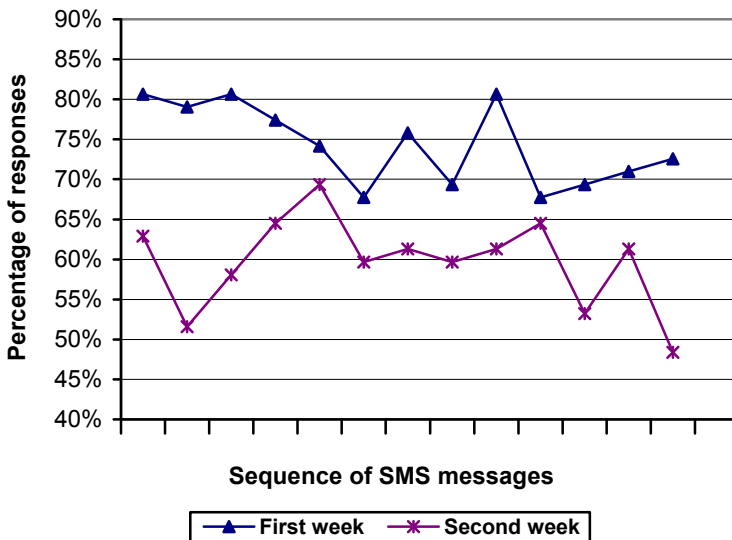


Table 2. Correlation of acceptance of mobile marketing with the constructs related to the attributes of mobile marketing messages and internal consistency of scales used to measure these constructs (N=62)

| MESSAGE RELATED CONSTRUCTS | CORRELATION WITH ACCEPTANCE OF MOBILE MARKETING | INTERNAL CONSISTENCY OF SCALE (CRONBACH ALPHA) |
|------------------------------------|---|--|
| Attractive brand in messages | 0.47 | 0.90 |
| Information value of messages | 0.59 | 0.81 |
| Entertainment value of messages | 0.33 | 0.65 |
| Personalization of message content | 0.67 | 0.70 |

Most of our data indicate that for the subjects in our convenience sample the participation in the mobile marketing campaign was generally positively accepted. Furthermore, after the first week of the mobile marketing campaign the subjects were asked to rate how uncomfortable they felt because of the participation in our study about acceptance of mobile marketing. It must be noted that none of the participants indicated that they felt uncomfortable because of their participation in our pilot study. Furthermore, the verbal content of their SMS responses to received mobile advertising messages was usually positive and did not indicate annoyance or other kind of unpleasant emotion, except for the advertising messages received on Sunday, which were not approved of by some of the subjects in our study.

Conclusion

The mobile phone is one of the most widely used technological devices and SMS is one of the most individualized channels of electronic marketing communication. However, marketing over a mobile phone may not have been widely accepted because of privacy concerns and technological complexity. In our pilot study we first resolved the technological problem with a simple Java application and a low cost solution to send marketing SMSs to the subjects. Then, by conducting a survey on a convenience sample of 62 informatics students we found out that mobile marketing could be accepted at least by a younger generation of computer literate mobile phone users. Most of the subjects positively evaluated their experience with the mobile marketing campaign in our pilot study. However, our findings also indicate that user/consumer interest in the participation in mobile marketing campaigns may decrease over time and that the mobile advertising messages need to be personalized and contain adequate information value to attract attention, receive greater interest, and avoid being perceived as spam.

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