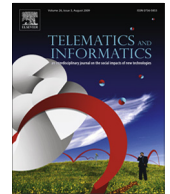




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# The influence of repetition and time pressure on effectiveness of mobile advertising messages



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## ARTICLE INFO

### Article history:

Received 7 March 2013

Accepted 27 October 2013

Available online 5 November 2013

### Keywords:

Mobile advertising

Time pressure

Advertising repetition

SMS advertisements

Context

## ABSTRACT

This study conducted two experiments to investigate the influence of advertising repetition and time pressure on mobile advertisement effectiveness. The first experiment examined the effect of advertising repetition in everyday life. SMS advertisements with different repetitions were sent to participants during 6 weeks. The results indicated that it was better to send less than three mobile advertisements each day. The second experiment examined the effect of time pressure in the lab controlled environment. Under high or low time pressure, participants received SMS advertisements while searching information through webpages. The results indicated that low time pressure contributed to better mobile advertisement effectiveness than high time pressure.

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## 1. Objectives and significance

Mobile advertisers must be very carefully not to risk privacy issues and customer trust. Privacy and security concern is one key obstacle to the success of mobile advertising (Gohring, 2002; Kotch, 2001; Mobile Marketing Association, 2012) and could threaten the entire m-advertising market, at least in the short term (Saunders, 2003). For example, 80% of consumers worry about privacy invasion in SMS campaigns (Forrester, 2001). One common solution is to ask for the permission before SMS campaigns (Barwise and Strong, 2002; Godin, 1999; Saunders, 2003; Leppaniemi and Karjaluoto, 2005).

However, asking for consumers' permission is the very first step. The next important question is how to properly deliver advertisements. Customers perceive the right ways, time, and place as important factors (Leppaniemi and Karjaluoto, 2005). This is supported by Fuller (2003), five factors could help marketers to distance themselves from spam: frequency, relevance, control, confidentiality and unsolicited. Both studies stress the importance of advertising timing.

Advertising timing is studied in traditional media rather than mobile devices. In the past, many human factor specialists, psychologists and engineers have devoted their efforts towards how to improve advertising scheduling, which comprise advertising repetition and advertising week time. However, most of these studies focus on traditional advertising media, for example, newspaper, television and so on. As the use of mobile devices becomes widespread throughout the world, it is important for the researchers to think about the timing in mobile advertising area.

The context is another important characteristic of mobile advertising. If mobile advertisements are delivered in proper context, it will lead to high possibility of impact (Gao, 2006). Previous studies mainly consider the context in terms of locations, and few considered time pressure. This study will fill the gap.

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The purpose of this research is to investigate how to maximize the effectiveness of advertising messages for mobile phone users by studying advertising timing (advertising repetition) and advertising context (time pressure). Two experiments were carried out to study chosen characteristics in particular, through which a concept model was build and validated.

## 2. Literature review

### 2.1. Advertising repetition

In this research, advertising repetition means the times an individual is exposed to a mobile advertisement in a day. Repetition not only provided more opportunities for an individual to process message arguments but repetition also aroused feelings of tedium or psychological reactance that ultimately proved detrimental to persuasion (Alwitt and Mitchell, 1985). Advertising repetition also influenced perception about the manufacturer's effort and credibility (Kirmani, 1997).

An inverted U-shaped relationship between repetition and attitudes was reported for traditional media (Cacioppo and Petty, 1979; Calder and Brian, 1980). When the number of message repetitions increased, persuasion and advertisements recall first increased but then wore out because high exposure frequencies induce expressions of displeasure and annoyance (Alwitt and Mitchell, 1985; Appel, 1971; Cacioppo and Petty, 1979, 1980; Gorn and Goldberg, 1980; Grass and Wallace, 1969; Miller, 1976). Therefore, Miller (1976) found that moderate exposure led to significantly more positive attitude toward the posters than low exposure and high exposure.

This inverted U-shaped relationship was also seen among advertisements through TV and Internet. The effectiveness of advertisement increased with advertisement repetition at first, however, the effect of the advertisement was saturated and decreases if advertisement repetition exceeded a certain point (Park et al., 2008).

The optimal repetition for traditional media was three exposure (Berger, 1992; Berger and Mitchell, 1989; Gorn and Goldberg, 1980; Petty and Cacioppo, 1979). Specifically, Petty and Cacioppo (1979) found an increase in agreement with an attitudinal position in the one and three exposure conditions, but by five exposure a decreasing trend became apparent. Also, Gorn and Goldberg (1980) reported that children voiced a greater preference for the product after receiving three advertisement exposure compared to children receiving either one or five exposure.

Few lab controlled study considered the optimal repetition for mobile advertising, and there are only two qualitative studies. Barwise and Strong's research (2002) indicated that receiving three text messages a day was remarked "about right." If people received more frequent advertisements, it may trigger a "delete on receipt" reaction. Haghirian et al. (2005) interviewed 815 mobile phone users and found that a high frequency of exposure decreased the perceived advertising value.

### 2.2. Time pressure

Stress occurs when there is an imbalance between the demands from the outside and the individual's personal capacity or resources to deal with the situation (Chalmers, 1981; Cox and Mackq, 1981). A time constraint may lead to the experience of time pressure, and in turn increase the level of arousal and psychological stress (Keinan et al., 1987; Lundberg, 1993; Maule and Hockey, 1993), and change human behavior (Svenson and Edland, 1993). Therefore, there is quite a long tradition of studying decision-making under time pressure (Maule, 1997; Maule and Edland, 1997).

Time pressure prevents a thorough and in-depth processing of information. It could make people seek cognitive closure and stop considering important aspects of multiple alternatives (Kruglanski and Freund, 1983). Instead, they make fast decisions through the use of heuristics, but the problem is that such heuristics or a focus on salient cues frequently result in systematic decision-making errors (Tversky and Kahneman, 1974) or preference reversals (Diederich, 1997). One solution is to adopt better strategies to deal with time pressure. People could increase in the speed of information processing, reduce the amount of information processing undertaken, induce a switch from compensatory to non-compensatory decision strategies, and increase the use of the attribute based processing instead of the alternative based processing (Maule and Andrade, 1997).

The relationship between time pressure and information search behavior has inconclusive results. On one hand, an inverse relationship between information search and time pressure were identified (Beatty and Smith, 1987; Blodgett et al., 1995; Jang, 1996; Moore and Lehman, 1980; Putrevu and Ratchford, 1997; Urbany et al., 1996). On the other hand, some studies found there is no relationship between time pressure and information search (Putrevu and Ratchford, 1997).

The level of time stress may explain its different influence on information searching. At low stress situation, increase stress by increasing arousal and effort mobilization will increase performance. A higher level of arousal, stress begins to product the attentional and memory difficulties that cause performance to decrease (Yerkes and Dodson, 1908).

## 3. Hypothesis and methodology

Based on the discussion in the previous chapter, a research framework (Fig. 1) is proposed which comprises two independent variables: advertising repetition (2 mobile advertisements per day, 3 mobile advertisements per day, 4 mobile advertisements per day and 5 mobile advertisements per day), and time pressure (high time pressure and low time pressure). The

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