

## An Exploratory Study on the Adoption of Mobile Advertising in China

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### Abstract

With the development of mobile technology, mobile advertising has become popular worldwide. It seems that almost every user who owns a mobile device receives mobile advertisements from various service providers. However, most consumers hold negative attitude toward mobile advertising. Therefore, this research aims to investigate the factors which influence consumers' adoption of mobile advertising. Based on literature review from previous research, a research model was proposed. This research model was empirically evaluated using survey data collected from 302 receivers of mobile advertising. According to the analytical results of our study, consumers' attitude toward mobile advertising and incentives explain about 80% of consumers' intention to receive mobile advertisements. Besides, entertainment, credibility, personalization and irritation all have direct effects on consumers' toward mobile advertising, and the effect from entertainment is quite strong. Furthermore, both theoretical and practical implications of this study are discussed.

**Keywords:** Mobile Advertising, Entertainment, Credibility, Irritation, Personalization, Incentives, Consumers' Attitude.

### 1. Introduction

With the development of mobile technology, mobile advertising has become popular worldwide. This new advertising media has been employed by many multinational companies, such as McDonald's, Microsoft and Google, etc. To maximize the chances to communicate with a captive audience, advertisers are beginning to funnel money into mobile advertising. After several false starts, mobile advertising has now truly taken off and is forecast to account for 37% of all growth in global ad expenditure this year, and 31% in 2014, according to a recent report by ZenithOptimedia. Besides, according to iResearch, the money spent on mobile advertising increased by 151% in China during March and September in 2013.

It is obviously that Chinese practitioners have paid enough attention to mobile advertising, however, most previous studies revealed the public attitude towards advertising in western countries [3, 4]. Mobile services have been the fastest diffusing technology in history, but acceptance of mobile services has varied between different services [6, 7]. Therefore, more attention should be paid to investigate public attitude towards mobile advertising in China. A critical question thus arises. What factors are most predictive of how consumers would respond to mobile advertising? Based on analysis of prior literature on related fields, a research model was developed to investigate the adoption of mobile advertising. The objective of this paper is to empirically examine how well the proposed research model is able to explain mobile advertising adoption in China.

The remainder of this paper is organized as follows: Section 2 discusses the theoretical background of this study. The research model and hypotheses are presented in Section 3. The research method and results of this research are provided in Section 4. This is followed by a discussion of the findings in Section 5. Practical implications of this study are discussed in Section 6. Section 7 concludes this research and suggests directions for future research.

## 2. Literature Review

### 2.1. Attitude towards Internet Advertising

Although Internet has emerged for a relatively short time, its penetration and impact seems to be significant. Different from the attitude towards traditional advertising, the attitude towards Internet advertising in general was mixed. In [17], Schlosser et al. found that nearly one third of the respondents held positive attitude, one third held negative attitude and remaining one third held neutral view towards Internet advertising. According to the previous research [5], informativeness, entertainment and irritation of advertisements were critical predictors of their value and were important to the effectiveness of Web advertising. They would influence consumers' attitude toward Internet advertising.

**Table 1.** Literature review on mobile advertising adoption.

Literature	Research purpose	Findings
Noor et al. (2013) [13]	Analyze consumers' attitude towards mobile advertising and their intention to purchase the advertised products and services.	The relationships between consumers' attitude towards mobile advertising, subjective norms, perceived behavioral control and their intention to purchase products and services are significant.
Hung et al. (2012) [10]	Investigate factors influencing the perception of mobile advertising in different cultures (a comparison between Japan and Austria).	The results suggest that infotainment and credibility are key factors predicting advertising value among Austrians and the Japanese. However, our findings show that Japanese customers are more irritated by mobile advertising than are Austrian respondents.
Chowdhury et al. (2010) [3]	Study the factors affecting consumer attitudes toward SMS-based advertisements in Bangladesh.	The findings show that if mobile advertisers can present mobile ads pleasingly, with appropriate information, consumers will not be annoyed and there is a fair possibility that they will gradually like the ads. Furthermore, credibility has found to be the most significant of the factors affecting respondents' attitude toward mobile ads.
Drossos et al. (2007) [4]	Investigate the significance of a number of factors associated with SMS advertising effectiveness.	The findings indicate that incentive, interactivity, appeal, product involvement, and attitude toward SMS advertising in general directly influence attitude toward the advertisement, attitude toward the brand, and purchase intention.
Hanley et al. (2006) [9]	Study factors affect mobile advertising acceptance among college students.	Results show that college students would consider accepting ads on their cell phones if specific cell phone ad delivery conditions were met or free cell phone products and services or monetary incentives were offered.
Haghirian et al. (2005) [8]	Study costumers' attitude toward advertising via mobile devices among Austrian users.	Users' attitude toward mobile advertising is negative and ads value and message content have the most impact on the attitude.

## 2.2. Mobile Advertising

As the field of mobile advertising is just at the beginning, it appears that there are only a few studies about mobile advertising employed theoretical and methodological approaches when compared with the literature of traditional and Internet advertising. Some studies have explored factors affecting consumers' adoption of mobile advertising, and some of these studies are summarized in Table 1.

This research aims to complement and extend existing research by focusing on customers' adoption of mobile advertising. It is a continuing effort in studying the potential factors affecting the acceptance of mobile advertising.

## 3. Research Model and Hypotheses

Based on the literature review, we proposed a research model illustrated in Fig. 1.

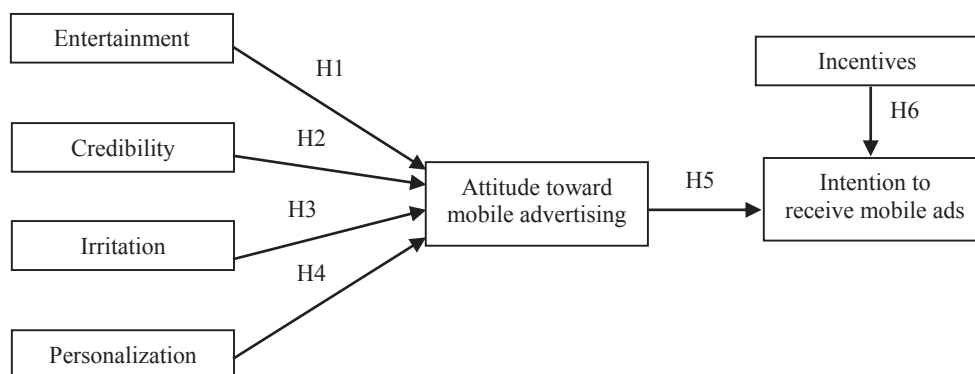


Fig. 1. The research model.

### 3.1. Entertainment

Entertainment element in advertising can fulfill consumers' needs for aesthetic enjoyment and emotional release [5]. Besides, Saadeghvazir et al. found that the entertainment of mobile advertising leads to positive attitude toward mobile advertising [16]. Therefore, we proposed the following hypothesis:

Hypothesis 1: The entertainment of mobile advertising has a positive effect on users' attitude toward mobile advertising.

### 3.2. Credibility

Credibility of an advertisement is influenced by different factors, especially by the company's credibility. Advertising credibility play an important role which create value of web advertising. In terms of trust in privacy and the laws of mobile advertising, Merisavo et al. found that credibility positively influenced the acceptance of mobile advertising in Finland [12]. On the basis of the former research, the following hypothesis was proposed:

Hypothesis 2: The credibility of mobile advertising has a positive effect on users' attitude toward mobile advertising.

### 3.3. Irritation

Irritation in advertising can be termed as an advertisement that creates annoyance, unhappiness, and brief intolerance. Altuna et al. found that irritation comprised the only negative dimension of consumer attitudes towards mobile advertising [1]. Therefore, we hypothesized:

Hypothesis 3: The irritation of mobile advertising has a negative effect on users' attitude toward mobile advertising.

### **3.4. Personalization**

Personalization is one of the main features of mobile advertising. Rao and Minakais found that personalized advertising would also enhance consumer satisfaction [15]. This indicates that personalization would improve consumers' attitude towards mobile advertising. Accordingly, the following hypothesis was proposed:

Hypothesis 4: The personalization of mobile advertising has a positive effect on users' attitude toward mobile advertising.

### **3.5. Attitude**

The relationship between attitude and intention is also supported in the field of mobile marketing. For example, Tsang et al. also found that consumers' attitude toward mobile advertising affected their consumer intentions to receive mobile advertisements directly [18]. Therefore, we proposed the following hypothesis:

Hypothesis 5: Consumers' attitude toward mobile advertising has a positive effect on their intention to receive mobile advertisements.

### **3.6. Incentives**

Incentive based advertising is an approach that provides specific financial rewards to consumers who agree to receive advertisements into their mobile phones [14]. For example, mobile phones companies may reward consumers with free connection time for listening to voice advertisements. Iddris found that advertisers create the value to message by sending incentive based advertisement [11]. On the basis of the former research, the following hypothesis was proposed:

Hypothesis 6: Providing incentives for receiving mobile advertisements has a positive effect on consumers' intention to receive mobile advertisements.

## **4. Data Analysis**

Empirical data was collected by conducting a survey, in form of a written questionnaire online and offline from October 15 to December 15, 2013. The survey yielded 346 responses both online and offline, 302 of them were usable. The participants were mainly college students. The primary reason of choosing college students as the major participants is that in comparison to other age groups, college students are more likely to use mobile devices frequently, view news and mobile advertisements, and do shopping online.

The first part of the questionnaire was about the demographic questions. 29.8% of the participants were male, and 70.2% were female. All the participants were between 18 and 25 years old, and 98.0% of them have the bachelor degree at least. All the participants had received mobile advertisements, and 95.0% of them had read mobile advertisements. 48.3% of the respondents indicated that they most frequently received SMS-based mobile advertisements.

In China, 3G and WiFi are the two most common wireless network technologies that provide wireless Internet access and services to users. Some areas in big cities (e.g., Beijing, Shanghai) are even fully covered by WiFi. Unlike the developed countries, mobile commerce hardly reaches low-income earners that constitute the majority of the population in China. But many from the young generations are comfortable with using some existing basic mobile services. This may help them attempt to try some advanced mobile services in the future. As mobile communication technology is developing very fast and the mobile commerce market in China is growing, more and more advanced mobile services will be available on the

business market. Given that China has the largest number of mobile phone subscribers in the world, it is believed that mobile commerce has a potentially exceptional future in China.

The second part of the questionnaire was set to test the hypotheses proposed above. Developed from the literature, the measurement questionnaire consisted of 20 items<sup>1</sup>. A seven point Likert scale, with 1 being the negative end of the scale (strongly disagree) and 7 being the positive end of the scale (strongly agree), was used to examine participants' responses to all items in this part. In addition, data were analyzed using the structural equation modeling (SEM).

#### 4.1. Measurement Model

In this study, we examined goodness-of-fit of the measurement model by using six widely-used fit indices: the chi-square/degrees of freedom ( $\chi^2/df$ ), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the comparative fit index (CFI), the normed fit index (NFI), and the root mean square error of approximation (RMSEA). Table 2 shows that all the fitness measures are within acceptable range. Therefore, we consider the measurement model is acceptable, and the measures indicate that the model fit the data.

**Table 2.** Fit indices for the measurement model.

Measures	Recommended criteria	Measurement model
Chi-square/d.f.	<3.0	1.913
GFI	>0.9	0.913
AGFI	>0.8	0.884
CFI	>0.9	0.954
NFI	>0.9	0.909
RMSEA	<0.08	0.055

In [2], Bagozzi and Yi proposed the following three measurement criteria: Factor loadings for all items should exceed 0.5, the CR should exceed 0.7, and the AVE of each construct should exceed 0.5. According to the results, the factor loadings range from 0.699 to 0.941, and the CR values range from 0.829 to 0.945. In addition, the AVE of all constructs exceeded 0.5 with the minimum of 0.619. As the three values of reliability are above the recommended values, the scales for measuring these constructs are deemed to exhibit satisfactory convergence reliability.

The measurements of discriminant validity are presented in Table 3. It is easy to find that the variances extracted by the constructs are more than the squared correlations among variables. The fact reveals that constructs are empirically distinct. As the convergent and discriminant validity measures are quite well, the test of the measurement model is satisfactory.

**Table 3.** Discriminant validity.

Variables	Entertainment	Credibility	Irritation	Personalization	Attitude	Incentives	Intention
Entertainment	0.850						
Credibility	0.182	0.619					
Irritation	0.171	0.030	0.678				
Personalization	0.138	0.101	0.035	0.715			
Attitude	0.452	0.190	0.151	0.185	0.845		
Incentives	0.060	0.070	0.033	0.081	0.103	0.677	
Intention	0.413	0.259	0.129	0.163	0.540	0.131	0.792

(Note: Diagonals represent the average variance extracted, while the other matrix entries represent the square correlation).

<sup>1</sup> The measurement items are available at: <http://www.idi.ntnu.no/~shanggao/ISD/Items.pdf>

#### 4.2. Tests of the Structural Model

The structural model was tested using Amos 20.0, which is an add-on module for SPSS. The results of the structural model are shown in Fig. 2.

The R2 (R square) in the figure denotes to coefficient of determination. The standardized path coefficients between constructs are presented, while the dotted lines stand for the non-significant paths. As a result, the six hypotheses were supported. In addition, all the hypotheses were statistically significant. The positive effects of entertainment and credibility on attitude were relatively strong, as shown by the path coefficients of 0.51 and 0.25 ( $P < 0.001$ ). The other path coefficients of irritation and personalization were statistically positively significant at  $P < 0.01$ . The paths from entertainment, credibility, irritation and personalization explain 71% of the observed variance in attitude toward mobile advertising. Thus, Hypotheses 1, 2, 3 and 4 were supported. The effect of attitude toward mobile advertising on intention to receive mobile advertisements is quite strong, as indicated by the path coefficient of 0.89 ( $P < 0.001$ ). The other path coefficient from incentives to intention to receive mobile advertisements is statistically significant at  $P < 0.05$ . Besides, 80% of the observed variance in intention to receive mobile advertisements can be explained by the two paths. Therefore, Hypotheses 5 and 6 were supported.

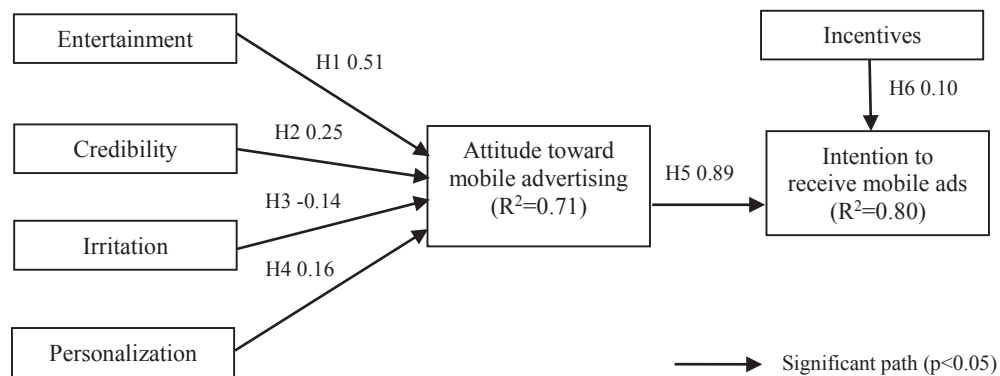


Fig. 2. Results of structural modeling analysis.

#### 5. Discussion

In our study, we found all the six hypotheses were supported. As the empirical data illustrated, the respondents held negative attitudes about receiving mobile advertisements. This may be because they found mobile advertisements irritating intimate nature of mobile phones. It indicated that consumers' attitude would be favorable if the mobile advertisements were sent with permission.

Entertainment was the most significant of the factors affecting respondents' attitudes, followed by credibility, personalization and irritation. The effect of entertainment has been confirmed in the first hypothesis. This is consistent with the previous studies. For example, Faraz et al. found that the entertainment of mobile advertisements was significantly related to consumers' attitude toward mobile advertising [16]. The empirical findings indicated that if mobile advertisements were funny, and contain pictures, sound, video or other forms to attract consumers' attention, they were more likely to be accepted by the consumers. The results presented that credibility also results in positive attitude toward mobile advertising. Similar results were found in other studies, such as Tsang et al. found that credibility affected consumers' attitude toward mobile advertising directly [18]. It seems that famous and well-known companies have a good chance of making mobile advertising campaigns successfully.

According to the result of the fourth hypothesis, personalization has positive effect on consumers' attitude toward mobile advertising. Today, consumers would more likely to

receive advertisements with personalized information. One of the main reasons people criticize advertising may be attributed to irritation. According to the results in our study, irritation has negative effect on consumers' attitude toward mobile advertising. Mobile advertisements may disturb consumers' usage of mobile devices. Thus, the providers of mobile advertisements should get consumers' permission in advance. In addition, consumers' intention to receive mobile advertisements is also affected by the incentives associated with the advertisements. Although consumers might hold negative attitudes toward mobile advertising, sometimes they were willing to accept those advertisements in case that some incentives were associated.

However, we are also aware of some limitations of this work. Firstly, the participants of our study were mainly college students. This sample might not be fully representative of the entire population. Secondly, all the data were collected using self-report scales in the research. This may lead to some caution because common method variance may account for some of the results.

## 6. Implications

This research made contribution to find factors that consumers' adoption of mobile advertising in China. The results illustrated that consumers' intention to receive mobile advertisements was also guided by their attitude. From a practical perspective, the findings in our study implied that practitioners should concern about factors that affect consumers' adoption of mobile advertising. The results showed that entertainment has the strongest effect on consumers' attitude toward mobile advertising. Thus, if more creative and interesting mobile advertisements are provided, consumers' attitude toward mobile advertising could become more positive. Practitioners may use the findings of this study to plan their business campaign to their potential consumers. For example, they can personalize mobile advertisements according to consumers' profiles, and they can also provide financial rewards to attract consumers.

Further, mobile advertising services providers should improve their understanding of trust-related concerns and personal preferences and characteristics of the target users in order to fulfill the users' expectations. For instance, practitioners can send mobile advertisements with appropriate information at proper time in order to avoid unnecessary interruptions and disturbances to potential consumers.

## 7. Conclusion and Future Research

This study examined the factors which affect consumers' adoption of mobile advertising in China. A research model with six research hypotheses was proposed in this research. All the hypotheses were positively significant supported. The results indicated that entertainment, credibility, personalization, and irritation affect consumers' attitudes toward mobile advertising directly. Meanwhile, incentives and consumers' attitudes toward mobile advertising have positive effects on consumers' intention to receive mobile advertisements. Thus, practitioners should concern all the factors that affect consumers' adoption of mobile advertising.

Continuing with this stream of research, we plan to the research model's validity in other empirical contexts, such as mobile advertisements on a specific mobile application. Future research is also needed to empirically verify the research model with larger samples in China.

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