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Consumer Attitude toward Mobile Advertising in China

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Abstract

Empowered by the Web's interactive and quick-response capabilities, mobile marketing is a very promising direct marketing channel. The present research investigates consumer attitudes toward mobile advertising in China. The results of a survey indicate that (1) consumers in China generally have slightly negative attitudes toward receiving mobile advertising (2) there is a direct relationship between consumer attitudes and consumer intention in receiving mobile advertising. (3) Personalization plays an important role in affecting consumers' attitude toward receiving mobile advertising. Thus the designers and marketers should better strategize their advertising designs by considering the personalization factor.

Keywords:

Mobile advertising, consumer attitude, personalization.

1. INTRODUCTION

The high penetration rate of mobile phones has resulted in the increasing use of handheld devices to deliver advertisements for products and services. According to Asian & Australasia Mobile Statistics (2005), by the end of Dec, 2004, the number of mobile phone users in mainland China, the number 1 mobile countries in the world, has hit 300 million, which took up about 19.74% of the global mobile phone users. In terms of SMS in Mainland China, according to the statistics by Ministry of Information Industry (2005), total short message business volume notched up to 217.76 billion pieces in 2004, which was 210 times of five years ago and took up about half of the total volume in the world. The revenue for the SMS was 24 billion US dollars in 2004. The amount will begin to grow further evidenced by the growth rate of 30% in the first two months of 2005. The number of mobile subscriber (334 million) was far more than the Internet subscriber (94 million) in China by last year, which means that the wireless Internet is more widely accessible than the wireline Internet.

The rising popularity of Short Messaging Service (SMS) has created a channel for advertising, called mobile advertising. The advantages of SMS in the context of the Chinese communication market because it is economical and represent a new kind of literature (Xu 2003). As China has the highest growth rate in the global Mobile and SMS penetration, the revenue is so lucrative and the market potential is enormous. The research problem of how to take advantage of the fifth channel (SMS and MMS channel; the other four channels are television, newspaper, radio and Internet) to do marketing in China is emerging. It is important to know how consumers feel about the mobile ads delivered to their mobile phone. What factor will affect their attitude? How designers and marketers should better strategize their advertising designs?

As a developing country, the finding on these research issues can be generated to the other developing regions as well. Moreover, most studies in the past were conducted within developed societies holding specific perceptions and value toward mobile advertising, which can hardly be applied to study the problem in a Chinese context. For example, Chinese users are reluctant to leave voice messages but prefer to leave text messages rather than talk to the machine. Furthermore, many interesting messages, like some political jokes or short adult humor, are distributed and

redistributed among subscribers. One of the reasons is that China still exerts strict control on these topics over the public media (Xu 2003). Therefore, China is a place worthwhile to researching on these topics.

In the next section, we review the literature of mobile advertising, personalization, attitude and intention. Then we develop our research framework on the factors that affect attitude toward mobile advertising. Next we describe the methods that we use to collect the data for this study and the empirical findings. Finally, we end the paper with outlining the research contribution, limitation, and future work.

2. LITERATURE REVIEW

2.1 Mobile Advertising

One-to-one Marketing, addressing customers individually, is well established in marketing and plays a central role in Customer Relationship Management (Kotler et al. 2002). The high penetration rate of mobile phones has resulted in the increasing use of handheld devices to deliver advertisements for products and services. Defined by Dickinger et al. (2004), mobile marketing is using interactive wireless media to provide customers with time and location sensitive, personalized information that promotes goods, services and ideas, thereby generating value for all stakeholders. Simplified speaking, the Wireless Advertising Association (WAA) defines wireless marketing as sending advertising messages to mobile devices such as mobile phones or PDAs through the wireless network. Empowered by the Web's interactive and quick-response capabilities, wireless marketing is a very promising direct marketing channel. One may expect mobile advertising to be more favourable to consumers for location-sensitive and time critical events. Examples of mobile advertising forms include mobile banners, alerts (usually dispatched as SMS messages) and proximity triggered advertisements (Giaglis et al. 2002).

Mobile advertising is a very important class of M-commerce applications. The advertising messages can be personalized based on information provided by consulting the user at an earlier stage or by the history of users' purchasing habits. Advertisements sent to a user can also be location-sensitive and can inform a user about various on-going specials (shops, malls, and restaurants) in surrounding areas. This type of advertising can be performed using SMS to mobile users (Varshney and Vetter 2002).

SMS, allows text messages of up to 160 characters to be sent and received via the network operator's message center to your mobile phone, or from the Internet, using a so-called "SMS gateway" website (Symbian 2001).As a fifth channel, SMS has been very successful, compared with other channel, television, newspaper, radio and Internet has more foundation and advantage to send personalized adverting to the customers. Because it has inherent advantages (summarized in Table 1), it becomes a possible channel for advertising.

Furthermore, companies can send coupons to cell phones via SMS. Mobile coupon offers at least three advantages (Dickinger 2004): targeting based on customer cell phone numbers; time sensitivity, e.g. receiving a 20% discount on purchases immediately after entering a shop; and efficient handling by scanning the coupon's bar-code at the cash desk. It is forecasted that consumers will use mobile coupons 300 times more often than ordinary paper coupons (Raskino 001). Customers keep their cell phone with them and therefore the coupon too.

Table 1. Advantages of Mobile Advertising

Advantages	Description	Source
Cost effective	Its main cost is buying cell phone numbers.	Xu et. al.,2002
No fixed-line constraints	Relaxes the mobility constraint associated with fixed-line Internet access	Tsang et al., 2004
Anytime and anywhere	A very personal device that allows an individual to be accessed virtually any time and anywhere	Xu et. al., 2002
High Click-through rates	Click-through rates and call-through rates are 19% and 12% respectively Compared to click-through rates of less than 1% for online advertising	Windwire (2000)
Personalization	Customized information treats each individual uniquely.	Watson et al.

Interactivity	Incorporate interactivity, allowing for one-to-one, many-to-many and mass communication models	(2002), Barwise and Strong (2002)
Less intrusive	SMS messages are less intrusive than phone calls as recipients can read the message at their leisure and choose whether to respond	Geser, 2002
Hedonic	Provide intrinsic stimulation, fun and self-esteem. The nature of the mobile phone itself and the experiences it offers makes the 'hedonic' dimension of this medium extremely plausible.	Chandon et al., 2000
Less time between Ad and actual transaction	In M-Commerce, the target customer is highly mobile and moves in close surroundings to the seller. Under this scenario, there could be a perceptible reduction in the time between advertisement and the actual transaction.	Jukic et al., 2003

As more wireless bandwidth becomes available advanced mobile devices, content rich advertising involving audio, pictures and video clips can be produced for individual users with specific needs, interests, and inclinations. Emerging technologies such as the Multimedia Messaging Service (MMS) help overcome this limitation (OMA 2002). Phones with higher resolutions and multicolor-displays can include visual elements for innovative marketing strategies (Dickinger 2004).

2.2Personalization
Mobile advertising has gained significant attention because of the unique attributes, such as personalization (Kalakota and Robinson 2001), that offer new opportunities to advertisers to place effective and efficient promotions on mobile environments.

The intrusive tactics advertisers employ when competing for consumers' attention can be annoying to the audiences (Sandage & Leckenby 1980; Rettie, Robinson & Jenner 2001; Zhang 2000). Consequently, studies tend to show a generally negative public attitude towards advertising. (Alwitt and Prabhaker 1994; Zanot 1981). We believe that personalization can help to relieve this problem. Users are receptive to advertising that is personalized and relevant to their lifestyle, states Reza Chady, the head of global market research at Nokia Networks (DeZoysa 2002)

From a social science perspective, social economic class is also a predictor of consumption patterns; consumers with similar background express similar consumption patterns (Schor 1999). Rao and Minakakis (2003) argue that it is urgently necessary for marketing techniques based on knowledge of customer profiles, history, and their needs. Yan et al.(2004) state that a personalized mobile advertising that accurately aims at certain customers and accommodate their needs according to their order of preference and shopping habits, doing so may even cause their resonance that increases feedbacks and responses and enhance enterprises' images. In any event, consumers would like the content of mobile services to be customized to their interests (Robins 2003) and relevant for them (Milne and Gordon 1991). Personalisation can enable marketers to reach their potential customers in a very individual way and thus increase the relationship with the user.

The aspect of personalization turns m-advertising into a very important m-commerce application, since it allows the usage of demographic information collected by wireless service providers and information on the current location of a mobile user. Thus, advertising can be carried out very precisely and with a clear focus on the target group (Varshney and Vetter 2002). Beyond personalization upon consumer's feedback, the ability to locate consumers allows the specific situation of a user to be considered. Consequently, advertising activities can be adapted to time and time-related items such as local events.

In summary, we will refer personalised mobile advertising as sending advertising messages to mobile devices such as mobile phones through the wireless network, based on customers' user demographics (e.g. income), user preference (e.g. preferred product), context (e.g. location and user activities) and content (e.g. brand name) factors.

2.2 Attitude and intention
Consumer perceptions of new technological innovations and technology acceptance have interested researchers a lot during the past two decades. There are couples of well-designed and a lot tested behavioral models that explain the

adaptation of new technology, e.g. the Theory of Planned Behavior (Ajzen and Fishbein 1980) and the Technology Acceptance Model (Davis et al. 1989; Mathieson 1991). In both of these models the central factors are the individual's attitude and intention to perform a given behaviour, an individual's decision to engage in a specified behavior is determined by their intention to perform the behavior, which in turn is determined partly by their attitude toward (reflecting their salient behavioral beliefs) the behaviour. Attitude is the consumer's liking, endorsement or preference for product attributes, which summarizes the criteria that consumers use to make decisions regarding what products to buy (Kinnear and Taylor 1996). Attitude is an important aspect of purchasing decisions that can be used to predict shopping behavior (Fishbone and Ajzen 1980, Kinnear and Taylor 1996).

3. RESEARCH FRAMEWORK

In the research done by Tsang et al (2004), they find that entertainment, credibility and irritation, informativeness is the significant of the factors affecting respondents' attitudes toward mobile advertising. They use attitude as a dependent variable and consider the antecedents of advertising value as factors of attitude in their framework.

Compared to others advertising, personalization is very important in the internet advertising. Personalization can ensure that visitors to online stores see the most appropriate and appealing internet advertising (Kim, Lee, Shaw, Chang, & Nelson 2001) and have positive benefits ranging from improved attitude toward the Website (Chen & Wells 1999) to purchase (Chakraborty, Lala, & Warren 2003). We believe that personalization factors will come into play in the mobile environment. This factor may help further distinguish the mobile environment from traditional and internet media. Specifically, in this paper we propose personalization will affect respondents' attitudes toward mobile advertising (see Figure1) in addition to those proposed Tsang et al. Figure 1 depicts our framework of consumer's perception on mobile advertising. These five factors are expected to affect mobile advertising attitude.

Figure1. Factors Contributing to Attitude towards advertising
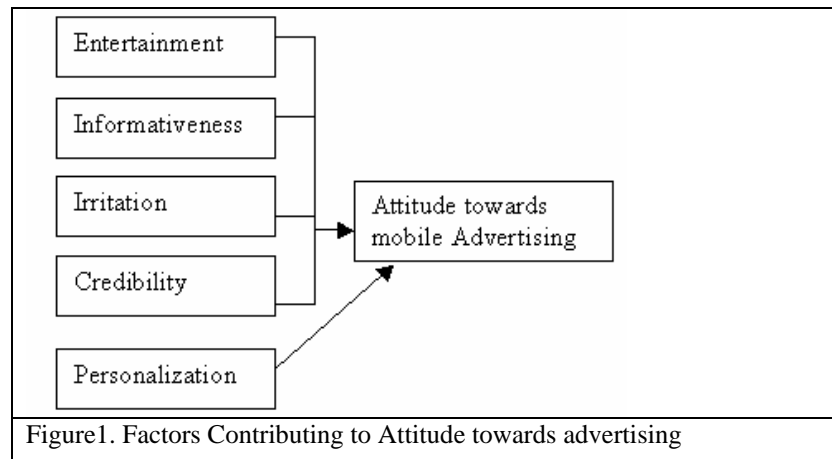
From the above framework, we have the following research hypothesis:

H 1: The perceived entertainment of mobile ad affects the attitude toward mobile ad.

H 2: The perceived informativness of mobile ad affects the attitude toward mobile ad.

H 3: The perceived irritation of mobile ad affects the attitude toward mobile ad.

H 4: The perceived credibility of mobile ad affects the attitude toward mobile ad.

H 5: The perceived personalization of mobile ad affects the attitude toward mobile ad.

H 6: Attitudes toward mobile ad affect consumer intentions to receive mobile ad.

4. METHODOLOGY

4.1 Research Design

A field survey was conducted in March 2005, China to test the hypothesis. The survey utilized a questionnaire designed to collect data regarding factors that will affect consumer attitudes and intention toward mobile advertising.

The convenience samples were collected. According to Hair et al. (2000), Coakes and Steed (2000), and Kinnear and Taylor (1996), convenience sampling is suitable for the requirements of exploratory research designs like the present one. Research targets are people in Guangzhou, Guangdong Province, China who have experience in using mobile devices and aged above 18.   By Feb 2005, GuangDong province has the highest number of mobile phone users, which is more than 2 times of the second highest province (Zhe Jiang) in China. As a more developed province in China, the result found will offer implication for the other area in China as well. The questionnaire is divided into four parts. The first part of the questionnaire asks whether the users have experience using mobile devices, SMS and MMS, and using mobile internet; the second part asks about respondents' attitude and intention toward mobile advertising, the improvement of their attitude if mobile advertising is personalized. The third part measures users' general attitudes toward mobile advertising as measured by five major attributes: personalization, entertainment, informativeness, irritation and credibility. The final part collects the demographic data.

Apart from the demographic attributes and user experience, all other measures were assessed via a 7-point-Likert-type scale ranging from "strongly agree" to "strongly disagree". These scales were reverse-coded where appropriate. Each customer was sent an email asking them to participate in a web-based survey. As an incentive, the respondents were offered a chance to win a Supermarket coupon (priced at HKD 50). A total of 205 questionnaires were distributed, and 112 of them (response rate 54.6%) were returned in the first two weeks, among which are 103 usable responses. The online survey was hosted on the website of a server in the university. The respondents included 58 males and 45 females. 91.3% of them were under 35 years of age, 95.1% had at least a college degree, which indicates that the respondents were primarily young and well educated. 34.95% of them has income of 2000—4000RMB. Since 100% of them has mobile devices and 99.03% has experience of receiving/sending SMS, both around 55% of them has experience of receiving/sending MMS and accessing mobile internet, they formed a good target group for mobile advertising.

4.2 Data Reliability

The questionnaire was pretested on 20 individuals on March 1-10, 2005, and was revised on the basis of their feedback. It was then distributed to person in Guangzhou, China between March 15 and March 28, 2005. All data were first tested for reliability using Cronbach's alpha to assess data reliability. The Cronbach's alpha for the attitude and intention toward general mobile

Table 2. Reliability Test	
Constructs	Cronbach's alpha
Entertainment	0.93
Informativeness	0.83
Irritation	0.78
Creditability	0.90
Personalization	0.86
Attitude	0.86
Intention	0.80
Improvement of attitude if personalized	0.90

advertising, attitude toward mobile advertising if personalized, constructs of attitudes are shown in Table 2.   As most research method guides treat a value higher than 0.7 as acceptable (Hair et al. 1998), the values in the table indicate that the data collected from the survey are reliable and suitable for further analysis.

4.3 Relationship between Personalization and Attitude

The average respondent score on overall attitude was 3.76, below the neutral score of 4, which implies that respondent attitudes toward mobile advertising were slightly negative. However, if the mobile advertising message is personalised, their attitude toward mobile advertising will improve, evidence by the higher-than-neutral respondent

score of 4.75. For those whose attitude is originally positive, their attitude will improve with the respondent score of 5.34. However, for those whose attitude is originally negative, their attitude will also improve with score of 4.27, which is higher than neutral score. Obviously, personalization pays a very important role in affecting people's perception towards mobile advertising. It can not only enhance people's positive attitude toward mobile advertising, but also improve people's attitude when it is originally negative.

4.4 Data Validity

There are 5 constructs proposed that will affect attitude toward mobile advertising. Most constructs are operationalized by adapting existing instruments from the literature. In developing these measures, we have used items from published scales (with appropriate modifications) wherever possible. Therefore, the constructs and items have face validity and construct validity. For each constructs there are about 3 items to measure; their discriminate and convergent validity is checked by performing the factor analysis (see Table 5.).

The variance maximizing approach of orthogonal rotation is used to extract five principal components as showed in table 3. We use the loadings of more than 0.7 to determine which

Table 5.Result of Factor Analysis

Factor Items	Factor Loading				
	1	2	3	4	5
Personalization 1	.323	**.838**	.009	.097	-.025
Personalization 2	.181	**.895**	-.049	.179	.018
Entertainment 1	**.705**	.406	-.252	.255	.013
Entertainment 2	**.846**	.259	-.239	.146	.066
Entertainment 3	**.847**	.249	-.231	.219	.107
Informativeness1	.486	.601	-.156	.195	.077
Informativeness2	.089	.011	-.055	.105	**.981**
Informativeness3	.640	.202	-.047	.524	.010
Irritation1	-.251	-.183	**.831**	.072	-.155
Irritation2	-.001	.191	**.781**	-.261	.018
Irritation3	-.310	-.168	**.800**	-.002	.034
Creditability 1	.242	.144	-.074	**.871**	.150
Creditability 2	.210	.175	-.074	**.907**	.004
Eigenvalues	2.983	2.349	2.157	2.155	1.034
Explained Variance (%)	22.949	18.066	16.592	16.575	7.950
Variance Cumulative (%)	22.949	41.015	57.607	74.182	82.132

variables are influential in the formation of factors. Based on the statements and the sign of the loadings, we can see that these 13 numbers of factor items discriminate into 5 factors quite well and converge among each specific factor. The interpretation of the 5 factors is given as follows: factor 1 represent entertainment, factor 2 represent personalization, factor 3 to 5 represent irritation, creditability and informativeness respectively.

The accumulated explained variance is 82.13%. The relatively high Eigenvalue (2.98) and the explained variance (22.94%) of the first factor, and 18.06% of the second factor, labelled "entertainment" and "personalization" respectively, suggest the significant emphasis placed by cellular phone user on these two features for mobile advertising, followed by irritation with variance of 16.59% and creditability with variance of 16.58%.

4.5 Factors Affecting Attitude

A correlation analysis indicates that all five attributes of mobile advertisement are significantly related to the overall attitude toward mobile advertising (see table 3). Creditability, personalization, informativeness and entertainment are positively correlated to the overall attitude, whereas irritation is negatively correlated to the overall attitude.

Table 3. Result of Correlation Analysis

	ATTA	CRED	PEA	ENA	INFOA
Creditability	.525(**)				
Personalization	.576(**)	.342(**)			
Entertainment	.643(**)	.497(**)	.585(**)		
Informativeness	.612(**)	.569(**)	.601(**)	.821(**)	
Irritation	-.224(*)	-.210(*)	-.159	-.476(**)	-.354(**)

** Correlation is significant at the 0.01 level (2-tailed).

Since the attributes are themselves significantly correlated, a stepwise regression analysis is used to differentiate their individual contributions. The results (in Table 4.) indicate that entertainment is the major factor that affects the overall attitude, with a contribution of 40.8%, followed by personalization of 6.1% and creditability of 4.8%. Irritation and informativeness are removed

Table 4. Results of Stepwise Regression

Factor	R Square	Adjusted R Square	Change Statistics		
			R Square Change	F Change	Sig. F Change
Entertainment	.413	.408	.413	71.197	.000
Personalization	.474	.464	.061	11.590	.001
Creditability	.522	.508	.048	9.969	.002

from the model automatically. The three constructs (entertainment, personalization, creditability) explain 50.8% of customers' attitude toward mobile advertising. If personalization is not put into the stepwise model, the whole stepwise model explain only 45.9% of the attitude, about 5% lower than the model with personalization as independent variables. Particularly, we found that in the stepwise regression model for female, personalization becomes the most important variables explained about 39.5% variance of the attitude. For male, entertainment is still the most important variables.

To summarize, the results indicate that (1) consumers attitudes toward mobile advertising is greatly affected by personalization of the advertising. (2). Entertainment and personalization and creditability are the important attributes affecting consumer attitudes toward mobile advertising. Therefore, hypothesis 1, 4, 5 is supported and hypothesis 2 and 3 is not supported. (3) Personalization is particularly favored by female and entertainment is emphasized by male.

4.6. Relationship between Attitudes and Intention
When respondent were asked about their intention to use the mobile advertising, 48 of them responds with score high than neutral score 5.09., and 45 responded with score lower than neutral score 2.08. A correlation analysis indicates that the attitude is significantly correlated to intention (p<0.000), which means that attitude toward mobile advertising is good indicator of people's intention toward using mobile advertising. Therefore, hypothesis 6 is supported.

As to the willingness to disclose personal information to get personalized mobile advertising, 47.6% of them has score below neutral score 4 while 31.1% of them has score higher than 4. For those whose attitude toward mobile advertising is positive (41.8%), they are more willing to disclose personal information evidenced by the mean of 4.37. On the contrary, for those whose attitude is negative (44.7%), they are very not willing to disclose with mean of only 2.96.

5. CONCLUSION
The understanding of Consumer attitude and intention toward mobile advertising is important for marketers to design a high-quality promotion campaign. As SMS, MMS are continually growing at an enormous rate in China, their business application in mobile advertising must be systematically evaluated and properly integrated into a merchant's business strategies and marketing initiatives. This research identifies specific factors affecting their

attitude toward mobile advertising. Entertainment and personalisation is the two most important factors that will affect consumer's attitude toward mobile advertising. Further, personalization is an important element that will improve consumer attitude toward mobile advertising. Consumers are willing to give out their personal data to gain more personalized mobile advertising if their original attitude is positive. Attitude is positively related to the intention to receive mobile advertisement.

Although based on real-world data, the study has certain limitations. First, the data were collected in a convenience sampling on the web, which may have resulted in sampling biases. Second, there may have been semantic and linguistic biases in the translation from English to Chinese.

On the whole, Mobile advertising will develop as an important channel for advertising in China, based on the astonishing growth of SMS and mobile phone users. Research may find that personalization is magic tool in affecting consumer attitudes. Practitioner will gain insight from our findings on how to design effective mobile advertising campaign. Future investigation can be conducted to identify what factors will contribute to the personalization and how to make the mobile advertising personalized to the needs of the customers.

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