Smart Choice: Smartphone Users' Intentions to Accept Mobile Advertising

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Abstract

This study explores motivations that influence smartphone users' intentions to accept mobile advertising. In order to accomplish this research objective, the relationships among various factors identified from past literature were tested via online survey. The empirical findings from the current study suggest that a consumer's attitude toward mobile advertising from his or her previous experience is the most powerful predictor of intention to accept mobile advertising on smartphones. In addition, consumer perception of the smartphone as a device that is compatible with an individual's lifestyle and the social benefits of using a smartphone predict intention to accept mobile advertising among smartphone users.

Keywords: Smartphone, Mobile advertising, Innovation Diffusion Theory

Introduction

The hottest consumer products that are generating the most buzz among marketers and excitement among consumers these days are smartphones. A smartphone is a "mobile phone that provides digital voice service as well as any combination of text messaging, e-mail, Web browsing, still camera, video camera, MP3 player, video player, television and organizer (PC magazine, 2010)." The connectivity of a smartphone allows the consumer to actively engage in brand-related messages, thus presenting businesses and advertisers with new opportunities and challenges in reaching out to current and potential consumers.

As of 2012, according to Nielsen's report, nearly half of Americans own a smartphone, suggesting there is a penetration rate of approximately 49.7% of the U.S. population (Nielsen, 2012). Nielsen media predicts that the smartphone will overtake feature phones (i.e., a traditional mobile phone) by increasing its market share reach to 50 % of all mobile users. The fact that nearly half (49.7%) of U.S. households have a smartphone indicates that the smartphone has moved beyond the adoption phase in the U.S. and is now entering a more widespread diffusion phase. The exponential growth of the smartphone implies the arrival of the Web 3.0 era. Web 3.0 includes "applications that are pieced together and run on any devices, fast, customizable, and distributed virally" (Schmidt, 2007). In other words, the Web 3.0 era is the time of ubiquitous computing when people can connect to an information source via a mobile device anytime, anywhere. The smartphone is capable of providing an interactive communication venue between marketers and consumers regardless of time and location in the Web 3.0 era. It is therefore crucial for marketers and researchers to pay attention to smartphones as an emerging media platform.

The smartphone also enables marketers to reach a broad audience ranging from young and technologically savvy consumers to more general populations. The main consumers of smartphones in past years were typically males between the ages of 25-34 with high income levels who used their smartphones for business. But today, as accessibility and affordability increases, the user base of the smartphone is broadening. Smartphone users are utilizing their phones in everyday life for a mix of both business and pleasure (Stewart and Quick, 2009). With the smartphone's growing popularity, this presents a great opportunity for advertisers and marketers to capitalize on it and more effectively launch their marketing/advertising campaigns. There are various reasons why advertisers and marketers should use smartphones

as an advertising medium. First, smartphones are usually never too far from their owners, and those owners are always checking their smartphones. Second, the growing popularity of mobile applications and branded applications that can be downloaded onto smartphones provides a wealth of exposure for brands. Lastly, location-based mobile advertising can also be beneficial as advertisers can target consumers more efficiently with relevant messages.

Notwithstanding the potential benefits of using a smartphone as an advertising medium, there is limited empirical research investigating the important factors affecting smartphone users' adoption of mobile advertising. This study aims to bridge the gap in research by conducting an empirical study exploring factors influencing smartphone users' acceptance of mobile advertising.

Literature Review

As a relatively new advertising practice, the use of the smartphone as a mobile advertising platform is still in its infancy. As previously mentioned, the current penetration rate of the smartphone is 49.7 % of the U.S. population. Therefore, the application of theories in innovation or new technology adoptions may help to understand how advertising on a smartphone is accepted by early adopters and how it will be diffused into other adoption groups. To this end, a review of the key factors influencing diffusion of new media technology and advertising on the new media is needed.

Technology Factors

The Technology Acceptance Model (Davis, 1989) has been widely employed by various new technology acceptance studies (Bauer, Barnes, Reichardt, & Neumann, 2005; Muk, 2007; Wu & Wang, 2005; Yang, 2007). Davis (1989) introduced the TAM to explain and predict user behavior by focusing on two key beliefs: perceived usefulness (PU) and perceived ease of use (PEU). The TAM suggests that these two beliefs predict an individual's use of technology and their intention to use it. Davis (1989) defined perceived usefulness as the extent to which an individual believes that using a certain technology will enhance his/her job performance. Perceived ease of use is defined as the extent to which an individual believes that using the technology will be free from effort (Davis, 1989).

Perceived Ease of Use (PEU). Innovations or technology that is perceived to be less difficult to use is more likely to increase acceptance of the innovation. This can also be understood theoretically with Rogers' idea of perceived complexity. Rogers (2003) suggested that complexity—the degree to which an innovation is perceived as difficult to understand or use—is a major predictor of consumer acceptance of innovations. Further, Davis (1989) noted that ease-of-use corresponded to the complexity construct in the Innovation Diffusion Theory (IDT) (Rogers, 2003). Although both perceived ease-of-use and complexity are named differently, both constructs explain consumers' perceived ease or difficulty in terms of using a technology. Thus, complexity and PEU are incorporated here as a perceived ease-of-use.

In the context of mobile advertising, PEU indicates that an advertising medium, which consumers perceive as hard to use, is more likely to decrease consumers' acceptance of advertising messages on the medium. If smartphone users have difficulty using the device, they may be less likely to receive advertising messages on their smartphone, because it is one more thing that they cannot control. Therefore the consumer's perception of the smartphone as an advertising device that is easy to utilize when they need it is an important factor to influence intention to receive advertising messages on one's smartphone. Empirical studies of mobile advertising suggested that PEU or the complexity of mobile devices is one of the important factors in determining consumer acceptance of mobile advertising. For example, Muk (2007) suggested that a small keypad along with a complex system of sending and receiving text messages via mobile devices would hinder consumers' willingness to receive mobile advertising.

H1: *A user's PEU of a smartphone will positively affect intention to receive mobile advertising on a smartphone.*

Perceived Usefulness (PU). How useful consumers perceive advertising message on their smartphones will influence their intention to receive mobile advertising. In other words, perceived usefulness of advertising on one's smartphone that provides timely and relevant information will help smartphone users to have a more favorable attitude toward mobile advertising and intention to receive advertising. Specifically, the TAM suggested that perceived usefulness is one of the major predictors of technology acceptance (Davis, 1989). In the context of mobile advertising, previous studies empirically tested the validity of PU as one of the main predictors of accepting mobile advertising. For example, Wu and Wang

(2005) suggested that the perceived usefulness of mobile commerce predicted consumers' adoption of mobile commerce. Wei, Marthandan, Chong, Ooi, and Arumugam (2009) also suggested that user intention to use m-commerce is influenced by PU. Therefore the following hypotheses can be suggested:

> **H2:** *A user's PU of a smartphone will positively affect intention to receive mobile advertising on a smartphone.*

Consumer Factors

Rogers (2003) suggested that adopters of any new innovation or idea could be categorized into five categories: innovators, early adopters, early majority, late majority, and laggards. According to Rogers (2003) innovations would spread through a society in an S-curve, as the early adopters select the technology first, followed by the majority, and finally the laggards until a technology or innovation becomes commonplace. Rogers (2003) suggested that an innovation that is perceived by receivers as fit with one's pre-existing values, easily observed by members of society, and less complex will be adopted more rapidly than other innovations.

Compatibility. An individual's existing values or past experiences with advertising may predict an individual's acceptance of smartphone mobile advertising. This can be theoretically understood through the IDT. Rogers (2003) suggested that consumers will not adopt any innovate idea that is not compatible with the individual's past experiences or existing values. Compatibility is defined as "the degree to which an innovation is perceived as being consistent with the existing values, past experience, and needs of potential adopters" (Rogers 2003 p. 224). According to Park and Chen (2007) the compatibility of a smartphone with a user's personal values, experiences, and needs is positively influenced by their attitudes toward using a smartphone. Therefore a consumer who perceives the smartphone as a technology that fits his/her lifestyle may be more likely to accept advertising on the smartphone. Additionally, in the context of smartphones, a consumer's past or pre-existing attitude toward mobile advertising is an important factor for predicting acceptance of mobile advertising on their smartphone. For example Soroa-Koury and Yang (2010) suggested that attitude toward mobile advertising significantly predicted the intention to adopt mobile advertising.

H3a: *The compatibility of a smartphone will positively affect the intention to receive mobile advertising on a smartphone.*

H3b: *Attitude toward mobile advertising in general will positively affect the intention to receive mobile advertising on a smartphone.*

Observability. Some ideas or innovations are easily observed and communicated to other people, whereas others are less so. Rogers (2003) suggested that any ideas or innovations that are more easily observed by the majority of a social system are more likely to be adopted. Rogers (2003) defined observability as one's subjective perception about how adoption of a certain innovation will be perceived by others in a social system. For example, the use of mobile coupons delivered on one's smartphone in public spaces (e.g., in restaurants or coffee shop), may increase his or her observability in the society. The more people are seen benefiting from using an advertising message on a smartphone (e.g., carrying a digital coupon on the smartphone) in public spaces, the more likely others are to accept advertising on smartphone. Specifically, young consumers are more concerned about peer evaluation and are thus more likely to be strongly influenced by watching the behavior of others within their age group (Jun & Lee, 2007; Leung & Wei, 2000; Swallow, Blythe, & Wright, 2005; Wei et al., 2009). Jun and Lee (2007) identified that social influence is one of the factors that predicts consumer use of mobile phones and their acceptance of mobile advertising. Leung and Wei (2000) also suggested that mobile phones have been generally perceived not only as a platform of mass media that provides entertainment and information, but also as a personal media device that enhances an individual's observability and social interaction with others. Therefore, the following hypothesis can be formulated:

H4: *Observability will positively affect intention to receive mobile advertising on a smartphone.*

Innate Innovativeness. Adopters of innovations are said to possess certain personality attributes that set them apart from the general population (Lin, 2006). These attributes may determine if an individual is relatively more innovative and also more willing to take risks in adopting new products or services earlier than others. Specifically, an individual's inherent personality can often be used as a predictor of consumer acceptance of innovations (Bauer et al., 2005; Rogers, 2003; Lassar, Manolis, & Lassar, 2005; Lin, 2006; Mort & Drennan, 2007). For example, Rogers (2003) suggested that an individual's inherent personality could

be used to predict whether or not consumers adopt innovations. Further, in their study of exploring predictors of consumer acceptance of mobile marketing, Bauer et al. (2005) suggested that a consumer's innate innovativeness is highly relevant for investigating the acceptance of mobile marketing. Innate innovativeness is defined as an "individual's inherent innovative personality, predisposition, and cognitive style toward innovations that can be applied to consumption domains across product classes" (Bauer et al., 2005, p.183). Consumers characterized by a high degree of innovativeness are usually very open to new experiences and tend to make constructive use of information received. Therefore, the following hypothesis can be suggested:

> **H5:** *Innate innovativeness will positively affect intention to receive mobile advertising on a smartphone.*

Method

The primary objective of this study was to provide a comprehensive understanding of smartphone users' acceptance of mobile advertising. Specifically, this research explored what motivates smartphone users' intention to receive mobile advertising. In order to accomplish this research objective, the relationships among various factors identified from past literature were tested via online survey.

Sample and Procedure

Participants for this study were conveniently recruited from students enrolled in introductory advertising classes at a southwestern university in the U.S. Potential participants were randomly selected from a student participant pool, with a total of 1,500 active members receiving the first announcement email from the researcher by way of their instructors. The email announcement provided the URL necessary to access the study along with an invitation to fill out a survey online. The final sample size (n = 206), who had past experience with mobile advertising on their smartphones, represents a response rate of approximately 14 percent. All respondents were given extra course credits as an incentive for participating in the study.

Measurements

The survey instrument contained measurement items covering independent and dependent variables such as PEU, attitude toward mobile advertising, and intention to receive mobile

advertising messages. They were adapted from previous literature on technology adoption, innovation diffusion, and mobile advertising (Jun & Lee, 2007; Teo & Pok, 2003; Venkatesh & Davis, 2000; Yang 2007). Ten items measured the PEU and PU from TAM. The PEU was operationalized as "the degree to which a person believes that using a smartphone would be free of effort" (Venkatesh & Davis, 2000). Six items measured the consumers' perceived ease-of-use regarding their smartphones. Perceived usefulness was operationalized as the degree to which a person believes that using a smartphone would enhance his or her daily activities. Four items measured the usefulness of mobile devices. These items were measured along a seven-point Likert-type scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (7).

A total of 14 items covered three user characteristic variables: innate innovativeness (6 items), observability (5 items), and compatibility (3 items). Six items of innate innovativeness measures were used to measure smartphone users' innate innovativeness (Yang, 2007). The observability was operationalized as the degree to which an innovation's uses were perceived to enhance one's image or status in one's social system and was measured with five items (e.g., Using mobile advertising improves my image within the organization) (Teo & Pok, 2003). The compatibility was operationalized as the degree to which smartphone users perceive the smartphone as a technology that fits his/her lifestyle and was measured with three items (e.g. Using a mobile advertising phone fits well with my life style) (Teo & Pok 2003). These 14 items were measured along a seven-point Likert-type scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (7). As shown in Table 1, all measures were found to be reliable with Cronbach's alphas ranging from .82 to .95.

Attitudes Toward Mobile Advertising. This study adopted a four-item measure of attitudes toward mobile advertising along a seven-point semantic differential scale (i.e., unfavorable vs. favorable; bad vs. good; likable vs. unlikable; positive vs. negative). Given an acceptable Cronbach's alpha level (α = .96), the four items were averaged to form the attitude toward mobile advertising scale and another four were averaged to form the attitude toward advertising in general scale (α = .95).

Intention to Accept Mobile Advertising. Jun and Lee's (2007) five-item measure of intention to accept mobile advertising was used to measure consumers' intention to accept mobile

advertising via a seven-point semantic differential scale, ranging from "Very Unlikely" to "Very Likely." Given an acceptable Cronbach's alpha level (α = .88), the five items were averaged to form the behavioral intention scale.

Table 1. Descriptive Statistics for Key Variables

Variables	Mean	SD	Min	Max	Cronbach's alpha	Measurement scale	# of items
Perceived Ease of Use	5.69	.78	3.00	7.00	.92	7-pt Likert type	8
Perceived Usefulness	5.06	1.38	1.00	7.00	.94	7-pt Likert type	4
Innovativeness	5.34	1.03	1.67	7.00	.88	7-pt Likert type	4
Observability	3.55	1.33	1.00	7.00	.82	7-pt Likert type	5
Compatibility	3.54	1.68	1.00	7.00	.95	7-pt Likert type	3
Mobile Attitude	2.78	1.40	1.00	7.00	.96	7-pt Semantic Differential	4
Behavioral Intention	2.56	1.45	1.00	6.60	.88	7-pt Semantic Differential	5

Results

Sample Profile

After eliminating 12 respondents who submitted incomplete surveys and were never exposed to mobile advertising on smartphone previously, a sample of 194 respondents was obtained. Of the sample, 59.4% were female and 40.6% were male. Anglo Americans comprised 60.0% of the sample followed by Hispanic Americans (14.7%), Asian Americans (8.4%), and African Americans (6.3%). Over eighty percent of the respondents were ages 18-24, followed by ages 25-34 (5.7%), and ages 35 and over (8.2%). A detailed profile of the sample is listed in Table 2.

Table 2. Demographic Profile of the Sample (N=194)

		Frequency	Percent
Gender	Female	114	59.4
	Male	78	40.6
Age Group	18-24	167	86.1
	25-34	11	5.7
	Over 35	16	8.2
Education Level	High School	32	16.5
	Some College	118	60.8
	Bachelor's Degree	9	4.6
	Master's / Professional Degree	21	10.8
	Doctor's Degree	10	5.2
Income Level	Less than $25,000	15	7.7
	$25,001-$35,000	10	5.3
	$35,001-$50,000	16	8.4
	$50,001-$65,000	15	7.9
	$65,001-$80,000	11	5.8
	80,001- 100,000	28	14.7
	Over 100,000	95	50.0
Ethnicity	African American	12	6.3
	Anglo American	114	60.0
	Asian American	16	8.4
	Hispanic	28	14.7
	Multi-racial	20	11.5

Hypotheses Testing

Multiple regression analyses were employed to test relative influence of the independent variables on the dependent variables. Table 3 summarizes the results of the regression analyses predicting behavioral intention. As illustrated, the regression model was found to be significant for predicting intention to accept mobile advertising on a smartphone (R^2 = .41, F (6, 177) = 20.26, p < .01). As shown in Table 3, consumer attitudes toward mobile advertising in general were found to be significant predictors of intention to receive mobile advertising on their smartphones (*beta* =.44, p < .01) (H3a). Compatibility (*beta* =.22, p < .01) (H3b) and observability (*beta* =.16, p < .01) (H4) were found to be significant predictors of intention to receive mobile adverting on smartphones. Among these predictors, mobile advertising attitude was the most powerful predictor of consumers' intentions to receive mobile advertising on their smartphones followed by compatibility and observability. Inconsistent with our prediction, perceived ease of use, (*beta* = -.03, p = NS), perceived usefulness (*beta* = .08, p = NS), and innate innovativeness (*beta* =.01, p = NS) were not found to be significant predictors of intention to accept mobile advertising among smartphone users. Thus, these results provide support for H3a, H3b, and H4.

Table 3. Regression Analysis for Predicting Intention to Accept Mobile Advertising on Smartphone

	Regression Coefficient (b)	**Standardized Regression Coefficient (beta)**	**t**
Constant	-.42		
Mobile Attitude	.45	.45	6.75**
Compatibility	.18	.22	3.12**
Observability	.23	.16	2.70**
PEU	-.06	-.03	-.51
PU	.08	.08	1.33
Innovativeness	.02	.01	.19
R^2	.41		
F	20.27**		

Note. *p < .05, **p < .01

Discussion

This study intended to provide a comprehensive understanding of mobile advertising acceptance among early adopters of the smartphone. The empirical findings of this study suggest that (1) attitude is the most powerful predictor of intention to accept mobile advertising among smartphone users; (2) consumer perception of the smartphone as a compatible device that fits with individual life style predicts intention to accept mobile advertising on smartphones; (3) the social benefits of using a smartphone predicts intention to accept mobile advertising among smartphone users.

Consistent with previous findings (Jun & Lee, 2007; Park & Chen, 2007; Peters, Amato, & Hollenback, 2007; Soroa-Koury & Yang, 2010; Tsang, Ho, & Liang, 2004) mobile advertising attitude was found to be the strongest predictor of intention to receive mobile advertising among smartphone users. Interestingly, the result from this study suggests that smartphone users perceive mobile advertising negatively (M = 2.78, SD = 1.4) regardless of their favorable attitude toward advertising in general (M = 4.73, SD = .87). This implies that most smartphone users are not welcoming advertising messages on their smartphones regardless of their favorable perceptions of advertising in general. This might be the reason why some of the hypotheses in this study were not supported. Inconsistent with our prediction, some variables such as PEU, PU, and innovativeness were not found to be significant predictors of intention to receive mobile advertising among smartphone users. In other words, smartphone users are not very open to mobile advertising regardless of its technological benefits (e.g. perceived ease of use, perceived usefulness). One of the reasons for smartphone users' overall unfavorable attitude toward mobile advertising might be the unpleasant past experience with mobile advertising. Specifically, the past experience of receiving intrusive text-based mobile advertising could have led to lower overall negative perceptions and lower behavioral intention to receive mobile advertising on the smartphone.

Despite the exponential growth of smartphone users in the U.S., most smartphone users still receive intrusive unsolicited mobile advertising that is sent from marketers regardless of consumer request. In addition, of the 49.7% of smartphone users in the U.S. only a small fraction of those users are high-end smartphone users, who own an iPhone, newer version of a Blackberry, or Android phone. This means only a small number of smartphone users are able to receive more advanced pull type mobile advertising messages on their smartphones

that would enable them to view full Internet websites and multimedia content. The additional data analysis from this study also suggests that the majority of samples (78.9%, n = 153) in this study have been exposed to the unwanted push-type mobile advertising practices, such as SMS mobile advertising.

The study results suggest that two of the IDT variables were found to be significant predictors of acceptance of smartphone advertising (i.e., compatibility and observability). This implies that acceptance of mobile advertising among smartphone users is largely influenced by the personal and social benefits of the smartphone (e.g. increasing one's image in society and fitting in with one's lifestyle) rather than technological benefits (e.g., ease of use). This implies the importance of using emerging technology in mobile advertising because it helps marketers to infiltrate the consumer's daily life and better serve the consumers' needs. Especially important is the use of relevant mobile advertising messages to communicate with young consumers between the ages of 18 and 24 years old. Some marketers are encouraging consumers to respond to mobile advertising message by better matching their mobile advertising campaign with the consumer's lifestyle. For example, companies such as Gap and McDonalds encouraged young consumers to "check-in" at their locations in order to receive promotional discounts on items using social media such as Foursquare. According to JiWire's "Mobile Audience Insights Report", 50 % of mobile phone users are willing to share their location in exchange for location-specific advertising (Staas, 2010). With the increasing development of location-based content, services and applications, location data is a valuable tool for marketers in developing highly-targeted marketing campaigns that fit with smartphone users' lifestyles.

In addition, previous mobile advertising literature suggests the importance of social influence on consumers' acceptance of mobile advertising (Grant & O'Donohoe, 2007; Jun & Lee, 2007; Leung & Wei, 2000; Swallow, Blythe, & Wright, 2005; Wei et al., 2009). Mobile devices have generally been regarded not only as a platform of mass media, which provides entertainment and information, but also as a personal media device that enhances an individual's social interaction with others and improves one's image within society. Therefore, consumers may accept mobile advertising due to its perceived importance in terms of group membership or social status. For example, Grant and O'Donohoe (2007) found that social stimulation is the key motivation among young consumers to use mobile phones. This

implies that mobile marketers, who can offer mobile advertising as tokens of social exchange to smartphone users, are more likely to succeed in mobile marketing.

Limitations and Future Research

The empirical findings from this study suggest many practical and theoretical implications. However, as with any empirical investigation, this study has some limitations that should be noted. The first limitation of this study was in employing only smartphone users as a sampling population. Although using current smartphone users provides more accurate information about how they accept mobile advertising, it limits how smartphone users are different from feature phone users. This study intended to explore the underlying motives and acceptance of mobile advertising among smartphone users by tapping into technology related motives based on personal experience with mobile advertising. Specifically, it might be interesting to see how smartphone and feature phone users are similar or different in terms of their motivations to accept mobile advertising.

The second limitation of this study was the use of a limited number of technology related variables to explore the acceptance of mobile advertising. Consumer acceptance of advertising messages on a new media can be influenced not only by the technological benefits, but also by other factors, such as perceived value or relevancy of the message. Therefore future research must expand the scope of this research by including additional variables to understand the mobile advertising acceptance of smartphone users.

Lastly, this study collected data primarily from young consumers (i.e., college students). Although concerns regarding the merits of data yielded by college students in advertising research have been raised, such a sample is appropriate for this study because they are heavy users and quite a representative sample of the smartphone user population (Mintel, 2010). However, use of a homogeneous group limits insightful analysis of between-group differences, such as consumers' age, gender, and income. Accordingly, future studies need to use more diverse samples from all segments of the population to explore similarities and differences between groups, thereby increasing the external validity of the study.

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