A Thesis for the Degree of Master

Consumer Attitudes toward Location-based Advertising via Mobile Devices: An Empirical Study

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Information and Communications University
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by

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A thesis submitted to the faculty of Information and Communications University in partial fulfillment of the requirements for the degree of Master of Arts in the School of IT Business

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Approved by

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Committee Member
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Abstract

Mobile advertising is evolving rapidly and becoming the key mobile data and revenue drivers of the mobile contents market. More powerful mobile devices have made possible the creation of better and richer mobile advertising. Moreover, the integration of location-aware technologies such as Cell Identification and GPS (Global Positioning Systems) into mobile devices has inspired the development of location-based advertising (LBA). As location-based services (LBS) have the potential to become the first realizable example of ubiquitous computing, business opportunities from these appear quite feasible. LBA can provide relevant, targeted, and timely advertising information to consumers at the point of need.

The purpose of this study is to investigate consumer attitudes toward LBA, and the
relationship between permission, incentives and consumer profiles, and to test whether LBA has the ability to impact purchase intention. The research framework is based on the theory of consumer attitudes toward advertising and the theory of reasoned action. An online survey was conducted with 1000 respondents to verify our research model. The hypotheses were tested using reliability test, regression analysis, chi-square test, t-test and structural equation modeling.

The main results of this study are as follows.

First, consumers generally have positive attitudes toward location-based advertising if they have specifically consented to it. Second, there is a direct relationship between permission and incentives. Third, permission affects incentives positively. Fourth, people who have granted permission for mobile advertising spend more on telephone calls than those who have not. They also have more experience of using mobile Internet, sending text messages by short messaging service (SMS), and receiving SMS advertisements.

Lastly, an experimental study was conducted to test whether LBA effects purchase intention. We found that 73% of respondents had higher purchase intention after the exposure to LBA; while 67.6% of respondents with initially low purchase intention before LBA turned to have high purchase intention after viewing location-based advertisement.

Consequently, obtaining permission and clearly communicating the credibility of the product will be the main challenges faced by marketers to create a favorable consumer attitude toward LBA. If the system's technical feasibility is guaranteed, LBA with relevant, targeted, timely information has the potential to be a distinctive advertising channel realizing superior feedbacks from customers.
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I. Introduction

Advances in wireless communications and the rapid growth of mobile device users have facilitated marketing activities whereby advertisements are delivered to mobile phones and wirelessly connected personal digital assistants (PDAs). The advantages (accessibility, personalization, and location-awareness) of mobile devices allow for highly targeted, flexible, and dynamic mobile advertising [47], the proliferation of which has opened up numerous opportunities for mobile commerce allowing users to purchase goods anywhere and at any time. The mobile advertising market will grow to US$17.2 billion by 2007, and is already very large in Japan, Korea, and China. According to a Yankee Group study, the total available mobile advertising market in Asia will amount to over US$2.8 billion by 2009 [48].

Mobile advertising is expected to grow continuously with the emergence of more powerful mobile devices and third-generation wireless networks, wider and more vivid color screens and faster mobile Internet connection speeds. These improved features have raised mobile advertising from the level of simple messaging service (SMS) to the higher level of a more interactive multimedia messaging service (MMS). Moreover, the integration of location-aware technologies such as Cell Identification and Global Positioning Systems (GPS) into mobile devices has inspired the development of location-based advertising (LBA).

LBA can provide numerous opportunities to reach target consumers in a certain location with customized promotions and advertisements. One possible scenario is the
sends of advertisements of particular interest to users who pass a particular shop. As click-and-mortar Internet commerce has extended the presence of a product or a company into an additional channel, LBA has the ability to deliver a time and location-sensitive message by allowing companies with physical store locations to be aware of consumers’ presence at any time [7]. These robust messages can create higher click-through rates compared with basic mobile advertisements that lack location awareness. Furthermore, location-based services (LBS) are predicted to become the first real-world example of ubiquitous computing [28]. As location systems are increasing their real-time accuracy, coverage and economy, LBA will provide various business opportunities in ubiquitous commerce strategy.

Consumer attitudes toward advertising have been a focus of attention since the 1980s. Despite increasing interest in LBA, relatively little is known about consumer attitudes toward it. Previous studies [24, 43] have dealt with consumer attitudes toward both LBA and other mobile advertising. The study of Tsang et al. concluded that consumers generally hold negative attitudes toward mobile advertising. However, it is possible that these unfavorable attitudes were due to perception by those sampled of SMS spam without location awareness. Consequently, it is unclear whether the results accurately reflect all mobile users’ attitudes toward LBA.

This study presents a conceptual framework and empirical data that show consumer attitudes toward LBA. LBA can be probed through the use of a dual-delivery method—“push and pull”. In this study, LBA refers to push advertising that sends out messages to consumers alerting them of certain products and services. Of course, consumer privacy
concerns are an inevitable problem in the deployment of LBA. One solution to this problem is to gain permission before sending the advertisements. Thus, we also investigate factors that are related to gaining permission to receive location-based advertisements. Lastly, we include an experiment that tests how much LBA affects consumers’ purchase intention.

The research questions of our study are as follows.

1. What are consumer attitudes toward LBA?
2. Is providing incentives effective in obtaining permission?
3. If permission is obtained, how will it affect consumer attitudes toward LBA?
4. Which profiling information is related to gaining permission?
5. How much is LBA effective to increase consumer purchase intention?
II. Literature Review

An attitude is defined as “a person’s enduring favorable or unfavorable evaluations, emotional feelings, and action tendencies toward some object or idea” (p. 175) [28]. Aaker et al. state that “attitudes are mental states used by individuals to structure the way they perceive their environment and guide the way they respond to it” (p. 254) [10]. Attitude has been studied and confirmed as an important concept in numerous studies on marketing and information systems. The technology acceptance model by Davis [8], a powerful, robust, and commonly employed model for predicting and explaining user behavior and IT usage, consists of five major constructs: perceived usefulness, perceived ease-of-use, attitude, intention, and use [8, 9].

2.1 Attitudes toward Advertising in General

MacKenzie and Lutz defined the overall attitude toward advertising as “a learned predisposition to respond in a consistently favorable or unfavorable manner toward advertising in general” (p. 54) [31]. Bauer and Greyser found that favorable attitudes toward advertising are correlated with consumers’ evaluations of specific advertisements as being annoying, likeable, enjoyable, etc [5]. Many recent studies deal with the attitudes of respondents in much the same way, probing for their perceptions of advertising’s trustworthiness, offensiveness, informativeness, entertainment value, effect on product prices and value, and attitudes toward regulatory issues [e.g., 37, 40]. Early surveys of
advertising attitudes yielded positive results, showing that consumers liked advertising because it effectively passed on product information [20]. Bauer and Greyser found that most respondents felt advertising was essential and showed more favorable attitudes toward it. However, since the 1970s, attitudes toward advertising have turned negative. According to Harris and Associates, an international executive search organization, the majority of respondents considered most television advertising to be seriously misleading [39].

2.2 Attitudes toward Mobile Advertising

The model presented by Tsang et al. shown below represents a comprehensive research framework for understanding consumer attitudes toward mobile advertisements [43] (see Figure 1). It shows that incentives have a positive impact on consumer intention to receive mobile advertisements. Consumers also have favorable attitudes toward mobile advertisements if they grant permission to receive them. However, the model offers only a limited explanation of the attitudes toward the advertising construct. In this study, only the entertainment factor and the credibility factor affect attitudes to SMS-based advertisements in general. The privacy issue is critical in mobile marketing, but is not considered here.

The model presented by Haghirian et al. shows that privacy and frequency of exposure are significant factors influencing mobile advertising value [24] (see figure 1). Proposed antecedents that affect advertising value, with the exception of age, are proven to be significant. However, permission and the incentive effect are not considered here.
The previous two studies asked consumer attitudes and advertising value toward both LBA and non location-aware mobile advertising. As a result, it is possible that the results were affected by the sample’s perception of spamming SMS lacking location-
awareness. Spam SMS are untargeted, irrelevant and intrusive mobile ads, shown to have negative affect on consumer attitudes and advertising value. Consequently, it is doubtful whether the results accurately represent mobile users’ attitudes toward LBA, which is based on target marketing.

The present study focuses on consumer attitudes toward LBA implemented using a two-delivery method – “push and pull.” We cover LBA using the push approach. LBA in the pull approach sometimes blurs the boundary between advertising and general information service because consumers must pay to search and see the requested information via Wireless Access Protocol (WAP).

As a fifth perceptual antecedent of consumer attitudes, privacy concerns was added to our study because of its prevalence as a construct within other models related to location-aware services [21]. Instead of the incentive-intention relationship in the Tsang et al. model, we investigated the incentive-permission relationship because permission is a key issue in LBA. This will be explored in a latter section. Lastly, we added profiling variables to identify the characteristics of people who grant/refuse permission. Subjects were asked to estimate (1) the amount of monthly expenditure for mobile phone usage, (2) experience using the wireless Internet, and (3) the frequency of exposure to SMS-based advertising in a week and the frequency of sending text messages (SMS) in a day.

2.3. Antecedents of Attitudes toward Mobile Advertising

Advertising messages indicate the communication exchanges between advertisers
and consumers [15]. Bauer and Greyser found that favorable attitudes toward advertising are significantly related to the consumers’ evaluation of specific advertisements as being annoying, likeable, enjoyable etc [5]. Understanding the antecedents of consumer attitudes uncovers what these positive and negative influences on consumer attitudes toward LBA might be.

2.3.1 Entertainment

The value of entertainment is based on its absolute ability to fulfill the consumer gratification, such as escapism, diversion, aesthetic enjoyment or emotional release [32]. Pleasant or likeable advertising is thought to affect brand attitudes positively [31]. Haghiran et al. showed that the entertainment factor of mobile advertising information is significantly related to advertising value [24]. Essentially, consumers like text advertisement to be concise and either entertaining or informative [4]. Games and prizes provided via text messaging can stimulate people's natural playfulness to participate in advertising campaign [11]. Thus, delivering games and prizes to the cellular phones of target groups is a successful way to attract and retain customers [23]. Some companies are working on making their advertising message more pleasing. Pepsi Co. had created an advertisement using “Pepsi Foot,” a mobile soccer game sent via SMS where mobile users select a soccer team to challenge other virtual teams [7].

2.3.2 Informativeness
Receiving information is the main reason why consumers accept advertising [5]. Ducoffe stated that the informativeness of advertising is significantly related to advertising value in traditional advertising [14]. The information quality of advertising content placed on a company’s website directly influences customer attitudes toward web advertising [1, 39, 45]. Since the mobile phone is a very personal medium, consumers expect the advertising to be highly relevant to their interests [4].

2.3.3 Irritation

Ducoffe found that “When advertising employs techniques that annoy, offend, insult or are overly manipulative, consumers are likely to perceive it as an unwanted and irritating influence” (p. 3) [14]. The main reason why people criticize advertising lies in the annoyance or irritation it causes, which lowers advertising effectiveness [5]. The indignation people feel while advertisements are being delivered strongly influences their attitudes toward advertising [5].

2.3.4 Credibility

MacKenzie and Lutz define advertising credibility as “consumers’ perception of the truthfulness and believability of advertising in general” (p. 51) [31]. Credibility has been found to influence significantly the value of web advertising [40]. It is known that the
credibility of an advertisement not only has an affect on the company’s credibility but also on the credibility of the bearer of the message [22]. However, the advertising medium also affects the credibility. Marshall and WoonBong [30] found that a message in print has higher credibility than a message on the Internet unless the message is addressed by strong brands. The credibility of message content transferred via mobile devices is significantly related to consumer attitudes toward mobile advertising [43].

2.3.5 Privacy Concerns

Consumer privacy refers to personal information regarding an individual’s body, personal behavior, personal communication, and personal data [26]. In e-commerce, customer privacy and security concerns have grown in importance since these factors often deter people from shopping on the Internet [25]. In a survey of 1,123 advertising agencies and client organization decision-makers, Bush et al. found that “security/privacy issues are major barriers to utilizing the Internet as a marketing tool [6].”

2.3.6 Permission and Incentives

Permission is critical in mobile marketing. There is an increasing trend towards unauthorized “spamming” of cell-phone owners with text advertisements, when the recipient has not given permission for any text advertising to be sent [21]. Without permission, text adverts are at best ineffective, and even cause resentment because the
mobile phone is regarded as very much a part of the consumer’s personal space [4]. Thus, service providers should gain explicit user permission before “pushing” any advertising content: the so-called “opt in” policy [44]. A case study in the United Kingdom showed that adopting a policy of gaining explicit permission brought a high level of acceptance and satisfaction [4].

It has been demonstrated in many studies of mobile advertising that mobile users are willing to receive advertisements with incentives. Tsang et al. showed that incentives (e.g., free connection time) can increase intention to receive mobile advertisements [43].

2.4 Location-based Advertising

LBA can perform very accurately targeted advertising by keeping track of the users’ current locations and the history of their purchasing habits [45]. Most telecommunications carriers plan to pursue either network or handset-based location fixing technologies in networks. Mobile operators are forecasting major growth in revenues from high-accuracy LBSs. In particular, LBSs that are able to connect to a distinct location are highly relevant for local advertising. For example, a person might receive a text message including directions to the nearest Italian restaurant or to the train station. Companies can send advertisements to registered clients when they pass the point of purchase.

The current technical limitation of LBA is the degree of accuracy in targeting a user’s location. The accuracy of Cell Identification is quite low, especially in rural areas. Satellite techniques such as GPS are superior in accuracy, but the mobile devices require
expensive embedded chips to process satellite signals. However, short-range positioning conducted via the Wireless Fidelity (WiFi), Bluetooth, Radio Frequency Identification (RFID) or infrared can greatly improve the accuracy of pinpointing individual customers.

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**Figure 2. Type of Mobile Advertising**

LBA is performed using a push or pull approach. Push, the predominant wireless delivery method, saves time and money compared with surfing the Internet via WAP (see Figure 2). Push advertisements in LBA via an SMS alert usually operate on the assumption that a consumer profile reveals certain preferences, such as the kinds of movies they enjoy watching. LBA can send the nearest movie theater advertisement to the consumer’s cellular phone. For another example, in 2001 Aircross, a mobile marketing company in South Korea, implemented a successful location-based advertising campaign. The company sent out mobile advertisements to induce people to have lunch at the TGIF restaurant in the city of Seoul of South Korea for 10 days: the targeted customers’ time and locations were considered, and the targets had previously visited TGIF for lunch three
or more times. The result was amazing: 7% of the 112,323 people who received the advertisements visited the restaurants during the event period. However, the risk of this type of “push” approach is that it can be perceived as intrusive or irrelevant, leading to a negative reaction and a damaged brand image. Thus, gaining permission is essential in push advertising to reduce the negative impact.

Pull advertisements in LBA operate only when the customer requests advertising information. For example, the consumer browses for information on all the movie theaters within a certain radius of where he/she is located. If the advertisements are perceived as content, consumers often pay for wireless advertisements. Hence, the pull advertisements are perceived as less intrusive than the push advertisements. However, pull advertising requires more complicated systematic solutions such as WAP portals where people navigate to find information, which results in higher functional costs.

Ultimately, we expect that the LBA in the push approach will be more popular and more welcomed by advertisers because while pull advertisements must wait for permission to gain access to retained users, push advertisements can actively attract new customers by broadcasting wireless ads without tracking their receptions [47]. Companies hope to entice new consumers into buying their products even when they are not specifically intending to buy anything. Thus, the advertiser wants to push as many advertisements as possible towards the user, even though the consumer wants to receive only a few selected advertisements [35]. As automatic delivery technologies that send relevant advertisements at the point of need develop continuously, the push LBA will be highlighted in the future ubiquitous computing environment [35].
III. Research Framework & Hypothesis

The research framework of this study integrates existing literature on attitudes toward mobile advertising [24, 43], privacy concerns in information systems [26, 34], and theory of reasoned action (TRA) [19]. The framework shown in Figure 3 illustrates the antecedents of consumer attitudes toward LBA and the relationships between attitudes and intention to receive. Tsang et al. show that permission in mobile advertising is a major factor that affects attitudes [43]. Consumer characteristics and incentives (e.g., a free gift) are considered to affect the granting of permission. The model developed by Tsang et al. includes the intention-behavior relationship from the TRA proposed by Fishbein and Ajzen [19]. Since LBA is a newly emerging service and only a few people have
experienced it, we omitted the intention-behavior relationship.

Eight sets of hypotheses can be assumed from the above framework:

**Hypothesis 1:** Advertising entertainment has a positive influence on consumer attitudes toward LBA.

**Hypothesis 2:** Advertising informativeness has a positive influence on consumer attitudes toward LBA.

**Hypothesis 3:** Advertising irritation has a negative influence on consumer attitudes toward LBA.

**Hypothesis 4:** Advertising credibility has a positive influence on consumer attitudes toward LBA.

**Hypothesis 5:** Advertising privacy concerns have a positive influence on consumer attitudes toward LBA.

**Hypothesis 6:** Consumer attitudes toward LBA affect intention to receive location-based advertisements.

**Hypothesis 7:** Gaining permission has a positive influence on consumer attitudes toward
Hypothesis 8: Providing incentives has a positive influence on gaining permission.

3.1 Entertainment

Entertainment is defined as its ability to satisfy consumers’ wants for escapism, diversion, aesthetic enjoyment or emotional release [32]. As consumers like mobile text advertisement to be entertaining [4], entertainment is expected to play an important role in accounting for consumer attitudes towards LBA.

3.2 Informativeness

Supplying information to inform consumers of product alternative is consumers’ primary reason of the acceptance of advertising [5]. Ducoffe stated that the informativeness of advertising is significantly related to advertising value in traditional advertising [14]. Since the mobile phone is a very personal medium, consumers expect that the advertising should be highly relevant to their interests [4]. Location information is one of the most relevant parameters within the user profile. Thus, if LBA provides useful location-aware information to the user in special situations (e.g., in an unfamiliar environment), it could be perceived as a very valuable incentive for recipients to react positively.
3.3 Irritation

Ducoffe found that “When advertising employs techniques that annoy, offend, insult or are overly manipulative, consumers are likely to perceive it as unwanted and irritating influence” (p. 3) [14]. Moreover, people tend to refuse advertisements when they feel that the advertising employs intrusive techniques [16]. The perceived intrusiveness could be decreased if the received message provides valuable information [16]. In that respect, LBA in the push approach may risk causing irritation by sending irrelevant messages; it is extremely difficult to calculate the customer’s exact needs at a particular location in real time [36].

3.4 Credibility

Mackenzie and Lutz define advertising credibility as “consumers’ perception of the truthfulness and believability of advertising in general” (p. 51) [31]. Credibility has been found to influence significantly the value of web advertising [39]. The credibility of message content transferred via mobile device is also significantly related to consumer attitudes toward mobile advertising [43]. Thus, we expect that the credibility of an LBA message will have a positive influence on consumer attitudes toward LBA.

3.5 Privacy Concerns
Consumer privacy refers to personal information regarding an individual’s body, personal behavior, personal communication, and personal data [26]. Since LBA has greater potential than, say, a website, to become intrusive because of its ability to monitor and track a user’s daily activities, it brings with it a higher level of privacy concerns. If there are security leaks, third-party users might abuse personal information. These privacy concerns may slow the adoption of LBA. The Yankee Group, during the 2001 WAA (Wireless Advertising Association) conference indicated that more than 50% of consumers are concerned about their operators’ use of personal profiles and location information [38]. Thus, when users have the greater privacy concerns, it is more difficult to gain positive responses to LBA.

3.6 Permission and Incentives

Service providers should implement “opt in” policy to gain explicit user permission before “pushing” advertising content [44]. Many studies about mobile advertising have stated that mobile users are willing to receive advertisements with incentives. In-Stat Group found that giving special offers or discounts helps to change the preferences of people who initially reject mobile advertising [7]. Thus, in this study, incentives are considered to impact consumer willingness to grant permission.

3.7 Survey Instrument
The questionnaire consists of three parts. The first part shows the explanatory notes about the definition of LBA in the push approach and some LBA examples in words. The second part is to measure consumer attitudes toward LBA. Most questions in our questionnaire were taken from prior instruments that had proved their validity and reliability. Each item of the questionnaire was assessed using a nine-point Likert scale with the end points of “strongly disagree” and “strongly agree”. The questionnaire items for entertainment, informativeness, irritation, credibility, and overall attitudes were adapted from those developed and validated by Ducoffe and Schlosser et al. [4, 44]. Privacy concerns were measured using the three items used by Luo and Seyedian [34]. Intention to receive was developed from the item for behavioral intention created by Davis [10]. Slight modifications were made to fit the context of this study. The pilot tests were conducted on 10-30 October 2005 to examine the questionnaire for validity, completeness, and readability/understandability. Then, we incorporated several suggested changes to the questionnaire items.

In the third part, respondents were asked to estimate (1) the amount of monthly expenditure on mobile phone calls, (2) experience using wireless Internet, and (3) the frequency of exposure to SMS-based advertising in a week and the frequency of sending text messages (SMS) in a day.
IV. Analysis and Results

4.1 Sample and Data Collection Method

An online survey was conducted by a market research company to verify our research model on 7-11 November 2005. The respondents comprised 1000 cellular-phone users. As a result, a total of 1000 questionnaires were collected. The respondents are composed of 571 males and 429 females. Most of respondents were young and well educated: 82.4% of the respondents were under 30 years of age, 53.2% of them had at least a college degree, and 24.1% of them were college students. Table 1 show that 80% of total respondents had received mobile advertisements in the past. To enable LBA, users should have mobile devices that have large color screens and are packet based in order to download color maps. In our survey, 91% of respondents’ cellular phones had color screens accessing the wireless Internet, and 75.1% of them had experience using the wireless Internet. More than half of respondents were heavy SMS users who sent more than three text messages per day. One-third of the respondents had used LBS. Thus, they formed a good target group for LBA.

Table 1. Sample Demographic

<table>
<thead>
<tr>
<th>Measurement</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>571</td>
<td>57.1%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>429</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------</td>
<td>-----</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-21</td>
<td>131</td>
<td></td>
</tr>
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<td>22-25</td>
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<td></td>
</tr>
<tr>
<td>26-29</td>
<td>237</td>
<td></td>
</tr>
<tr>
<td>30-33</td>
<td>245</td>
<td></td>
</tr>
<tr>
<td>34-36</td>
<td>176</td>
<td></td>
</tr>
<tr>
<td>Experience of using</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mobile phones.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1 year</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>1- 2 year</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>2 - 3 year</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>3 - 5 year</td>
<td>204</td>
<td></td>
</tr>
<tr>
<td>More than 5 year</td>
<td>669</td>
<td></td>
</tr>
<tr>
<td>Monthly expenditure on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mobile phone calls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 30$</td>
<td>241</td>
<td></td>
</tr>
<tr>
<td>30$ - 50$</td>
<td>461</td>
<td></td>
</tr>
<tr>
<td>50$ - 70$</td>
<td>168</td>
<td></td>
</tr>
<tr>
<td>70$ - 100$</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>More than 100$</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Mobile device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black and White Screen</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Black and White Screen + Mobile Internet</td>
<td>51</td>
<td>5.1%</td>
</tr>
<tr>
<td>Color Screen + Mobile Internet</td>
<td>871</td>
<td>87.1%</td>
</tr>
<tr>
<td>Color Screen + Mobile Internet + GPS</td>
<td>41</td>
<td>4.1%</td>
</tr>
<tr>
<td>Experience using mobile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>249</td>
<td></td>
</tr>
<tr>
<td>1 – 6 month</td>
<td>198</td>
<td></td>
</tr>
<tr>
<td>6 – 12 month</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>1 – 2 year</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>2 – 3 year</td>
<td>142</td>
<td></td>
</tr>
<tr>
<td>3 – 4 year</td>
<td>122</td>
<td></td>
</tr>
<tr>
<td>More than 4 year</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td>Monthly expenditure using mobile Internet</td>
<td>Less than 5$</td>
<td>418</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>-------------</td>
<td>-----</td>
</tr>
<tr>
<td></td>
<td>5$ - 10$</td>
<td>171</td>
</tr>
<tr>
<td></td>
<td>10$ - 15$</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>15$ - $20$</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>20$ - 25$</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>More than 25$</td>
<td>33</td>
</tr>
<tr>
<td>Weekly experience of location-based service</td>
<td>None</td>
<td>651</td>
</tr>
<tr>
<td></td>
<td>Less than 1 time</td>
<td>248</td>
</tr>
<tr>
<td></td>
<td>1 – 3 times</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>3 – 5 times</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>5 – 7 times</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>More than 7 times</td>
<td>3</td>
</tr>
<tr>
<td>Weekly experience of receiving mobile advertisement</td>
<td>None</td>
<td>199</td>
</tr>
<tr>
<td></td>
<td>Less than 1 time</td>
<td>188</td>
</tr>
<tr>
<td></td>
<td>1 – 3 times</td>
<td>332</td>
</tr>
<tr>
<td></td>
<td>3 – 5 times</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>5 – 7 times</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>More than 7 times</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>199</td>
</tr>
<tr>
<td>Daily experience of sending SMS</td>
<td>Less than 1 time</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>1 – 3 times</td>
<td>316</td>
</tr>
<tr>
<td></td>
<td>3 – 5 times</td>
<td>175</td>
</tr>
<tr>
<td></td>
<td>5 – 7 times</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>More than 7 times</td>
<td>256</td>
</tr>
<tr>
<td>Education</td>
<td>Less than high school</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>High school graduate</td>
<td>210</td>
</tr>
<tr>
<td></td>
<td>Some college</td>
<td>242</td>
</tr>
<tr>
<td>Occupation</td>
<td>Percentage</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>College graduate</td>
<td>48.9%</td>
<td></td>
</tr>
<tr>
<td>Some graduate school</td>
<td>1.8%</td>
<td></td>
</tr>
<tr>
<td>Post graduate school</td>
<td>2.5%</td>
<td></td>
</tr>
<tr>
<td>High School Student</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>College Student</td>
<td>23.4%</td>
<td></td>
</tr>
<tr>
<td>Graduate School Student</td>
<td>1.2%</td>
<td></td>
</tr>
<tr>
<td>Company employee</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td>Service employee</td>
<td>6.8%</td>
<td></td>
</tr>
<tr>
<td>Specialists</td>
<td>6.5%</td>
<td></td>
</tr>
<tr>
<td>Researcher</td>
<td>1.9%</td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>8.8%</td>
<td></td>
</tr>
<tr>
<td>Self-Business</td>
<td>4.6%</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>4.7%</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>2.1%</td>
<td></td>
</tr>
<tr>
<td>Monthly income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1500$</td>
<td>28.9%</td>
<td></td>
</tr>
<tr>
<td>1500$ - 2000$</td>
<td>26.3%</td>
<td></td>
</tr>
<tr>
<td>2000$ - 3000$</td>
<td>25.7%</td>
<td></td>
</tr>
<tr>
<td>3000$ - 4000$</td>
<td>12.3%</td>
<td></td>
</tr>
<tr>
<td>4000$ - 6000$</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>More than 6000$</td>
<td>1.8%</td>
<td></td>
</tr>
</tbody>
</table>

### 4.2 Reliability Test

Our data analysis was conducted using SPSS 10.0 and AMOS 4.0. The attitudes data were first tested for reliability using Cronbach’s alpha to assess data reliability. The results were shown in Table 2. Most research method guides treat a value higher than 0.7
as acceptable. The computed Cronbach’s alpha coefficients for the seven constructs were above 0.7.

**Table 2. Reliability of Data**

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Overall Attitudes</th>
<th>Unauthorized</th>
<th>Permission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment</td>
<td>.9164</td>
<td>.9282</td>
<td>.8854</td>
</tr>
<tr>
<td>Informativeness</td>
<td>.8914</td>
<td>.9412</td>
<td>.8460</td>
</tr>
<tr>
<td>Irritation</td>
<td>.7811</td>
<td>.8350</td>
<td>.7668</td>
</tr>
<tr>
<td>Credibility</td>
<td>.8708</td>
<td>.9159</td>
<td>.8956</td>
</tr>
<tr>
<td>Privacy</td>
<td>.9462</td>
<td>.9686</td>
<td>.9380</td>
</tr>
<tr>
<td>Overall Attitudes</td>
<td>.8832</td>
<td>.9216</td>
<td>.8486</td>
</tr>
<tr>
<td>Intention</td>
<td>.9378</td>
<td>.9352</td>
<td>.9225</td>
</tr>
</tbody>
</table>

* 7 Items dropped: Ent4, Infor1, Infor4, Priv3, Att1, Att2, Att3

4.3 Hypothesis Test

We empirically tested the proposed hypothesized relationships to understand (1) relationship between permission and incentives, (2) relationship between permission and attitudes, (3) relationship between permission and consumer profiles, (4) relationship between antecedents and consumer attitudes toward LBA, and (5) relationship between LBA impact and consumer purchase intention. The hypotheses were tested using reliability test, regression analysis, chi-square test, t-test and structural equation modeling.
4.3.1  Relationship between Permission and Incentives

When the respondents were asked about their willingness to grant permission to LBA, 640 of them responded with “yes,” and 360 responded with “no”. Then, when the 360 people who answered “no” were again asked about their willingness to grant permission to LBA if certain incentives were provided, the answers were 170 “yes” and 190 “no” (see Table 3). We conducted a chi-square test between general permission and general permission plus incentive-based permission. The effect of providing incentives is statistically significant at \( p < .001 \). Hence, Hypothesis 8 is supported. Providing incentives can increase willingness to grant permission.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>640</td>
<td>360</td>
<td>1000</td>
</tr>
<tr>
<td>General</td>
<td>810</td>
<td>190</td>
<td>1000</td>
</tr>
</tbody>
</table>

\( \chi^2 = 72.47, p < 0.001 \)

4.3.2  Relationship between Permission and Attitudes

The average respondent score on overall attitudes was 5.18 on a nine-point Likert scale, with 1 representing “strongly disagree” and 9 “strongly agree”. Since this is above the neutral score of 5 \( (t = 3.74, p < 0.001) \), respondent attitudes toward mobile advertising
were shown to be positive. However, the standard deviation of the average respondent score is 1.48, which implies that the average respondent score might be negative within the confidence interval.

The data in Table 4 indicate that permission group results show a positive attitude \((t = 9.21, p < 0.001)\), whereas the no permission group results show a negative attitude \((t = -7.53, p < 0.001)\). The difference between these two groups is statistically significant \((t = 14.083, p < 0.001)\).

Table 4. Statistics on Consumer Attitudes

<table>
<thead>
<tr>
<th>Permission / Incentive</th>
<th>Mean of Attitude (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall attitude</td>
<td>5.18 (1.48)</td>
</tr>
<tr>
<td>Unauthorized</td>
<td></td>
</tr>
<tr>
<td>No permission even with incentive (n = 190)</td>
<td>4.37 (1.65)</td>
</tr>
<tr>
<td>Authorized</td>
<td></td>
</tr>
<tr>
<td>Permission without incentive (n = 640)</td>
<td>5.62 (1.20)</td>
</tr>
<tr>
<td>Permission with incentive (n = 170)</td>
<td>4.67 (1.48)</td>
</tr>
</tbody>
</table>

To investigate the influence of permission on attitudes, a regression analysis was conducted (see Table 5). The regression result supports the hypothesis. The regression result supports Hypothesis 7. Permission affects attitudes positively.

Table 5. Influence of Permission on Consumer Attitudes toward LBA
4.3.3  Relationship between Permission and Consumer Profiles

The identification of consumer profiles in the permission group and non-permission group will provide marketers with the opportunity to target consumers who have positive attitudes toward LBA. We tested for differences between the two groups for the profiling variables using an independent t-test. These results are shown in Table 6. Compared to the non-permission group, the permission group shows a higher frequency of exposure to SMS-based advertising, had a higher frequency of sending SMS, more experience in using the wireless Internet, and higher expenditure on mobile phone calls.

Table 6. Results of t-test Analysis

<table>
<thead>
<tr>
<th>Frequency of exposure to SMS-based advertising (per week)</th>
<th>Authorized Mean scores</th>
<th>Unauthorized Mean scores</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of exposure to SMS-based advertising (per week)</td>
<td>2.66</td>
<td>1.87</td>
<td>.000**</td>
</tr>
</tbody>
</table>
### Frequency of sending SMS

- **(per day)**
  - 4.23
  - 3.28
  - .000**

### Experience using wireless Internet

- **(month)**
  - 20.16
  - 14.21
  - .000**

### Expenditure on mobile phone calls

- **(per month)**
  - $44
  - $38
  - .002**

**indicates significance at 0.01 level.

#### 4.3.4 Relationship between Antecedents and Consumer Attitudes toward LBA

#### Table 7. Fit Indices for Structural Models

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Recommended Value</th>
<th>Obtained Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \chi^2 )</td>
<td>N/A</td>
<td>998.063</td>
</tr>
<tr>
<td>( P )</td>
<td>&gt; 0.05</td>
<td>0.00</td>
</tr>
<tr>
<td>Df</td>
<td>N/A</td>
<td>154</td>
</tr>
<tr>
<td>Goodness-of-fit (GFI)</td>
<td>&gt; 0.80</td>
<td>0.901</td>
</tr>
<tr>
<td>Adjusted goodness-of-fit (AGFI)</td>
<td>&gt; 0.80</td>
<td>0.865</td>
</tr>
<tr>
<td>Normalized fit index (NFI)</td>
<td>&gt; 0.90</td>
<td>0.945</td>
</tr>
<tr>
<td>Comparative fit index (CFI)</td>
<td>&gt; 0.90</td>
<td>0.953</td>
</tr>
<tr>
<td>Root mean square error of approximation (RMSEA)</td>
<td>&lt; 0.08</td>
<td>0.179</td>
</tr>
</tbody>
</table>
N/A means “not applicable”.

Structural equation modeling using AMOS 4.0 was conducted to test the casual model [27]. The research model test presented a good fit between the data and the proposed research model. The traditional chi-square test results are reported in Table 7. Because the chi-square test is inappropriate for large sample sizes, five other indices were included: GFI, AGFI, NFI, CFI, and RMSEA. The research model test presented a good fit between the data and the proposed research model. The goodness-of-fit statistics shown in Table 7 were within the accepted thresholds.

Table 8. Parameter Estimates of Model

<table>
<thead>
<tr>
<th>Independent construct</th>
<th>Dependent construct</th>
<th>Estimate</th>
<th>t</th>
<th>p</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment</td>
<td>Attitude</td>
<td>0.294</td>
<td>7.747</td>
<td>0**</td>
<td>Accepted</td>
</tr>
<tr>
<td>Informativeness</td>
<td>Attitude</td>
<td>0.185</td>
<td>4.112</td>
<td>0**</td>
<td>Accepted</td>
</tr>
<tr>
<td>Credibility</td>
<td>Attitude</td>
<td>0.557</td>
<td>12.378</td>
<td>0**</td>
<td>Accepted</td>
</tr>
<tr>
<td>Irritation</td>
<td>Attitude</td>
<td>-0.094</td>
<td>-3.129</td>
<td>0.002**</td>
<td>Accepted</td>
</tr>
<tr>
<td>Privacy</td>
<td>Attitude</td>
<td>-0.064</td>
<td>-3.537</td>
<td>0**</td>
<td>Accepted</td>
</tr>
<tr>
<td>Attitude</td>
<td>Intention</td>
<td>1.012</td>
<td>34.101</td>
<td>0**</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

**indicates significance at 0.01 level.
The data fully support the model, and all hypotheses were strongly supported (see Table 8). The positive attitude of users was largely attributed to their perceiving the service as credible. Credibility can guarantee competitive advantage over other advertising methods, such as non-location-based advertising. The positive influence of entertainment, and informativeness and the negative influence of irritation and privacy on attitude were also confirmed. Attitude was also found to affect intention positively, a result which corresponds to prior research findings. As a result, Hypotheses 1-6 are accepted.
V. An Experimental Study about Relationship between LBA Impact and Consumer Purchase Intention

We conducted a simple scenario experiment to measure the variation of consumers’ purchase intention after the exposure to LBA. The former survey result in this study looks quite promising for mobile marketing managers, as 81% of people granted permission for LBA. However, it is unclear whether their positive response will be linked to actual purchase behavior. Hence, to predict consumers’ purchase behavior, it is important to understand whether the LBA campaign can increase consumers’ purchase intention.

Since our experiment dealt with a situation on purpose and the technical limitations (e.g., mobile advertisements displayed on personal computer screens), it is difficult to generalize and include the result as a part of the main research framework. However, the result does imply the potential LBA’s influence on consumers’ purchase decisions.

**Hypothesis 9:** The relevant, targeted, timely location-based advertisement to consumers affects positively consumers’ purchase intention.

5.1 Stimulus

The survey indicates that 83.3% of company employees prefer Korean food when they eat out for lunch (July 28, 2000, www.salaryman.co.kr). This survey result is confirmed by Park and Chung [33]. The study indicated that 74.8% of Koreans prefer
Korean food when they dine out. A pretest with 19 graduate students showed that students were regular consumers of Korean food and recognized Bibimbap as the most preferred Korean food among 20 kinds listed. Bibimbap is one of the most famous Korean traditional foods, and is recommended by the Korean Tourism Organization. Hence, an advertisement for location promotion of a famous Bibimbap-restaurant was designed as the location-based advertisement stimulus (see Figure 4). The picture (A) says that “A famous BibimBap restaurant close to your location has sent an advertisement to you.” The next picture (B) shows the location of the restaurant by displaying a map with a small picture of Bibimbap. The written indication above the map says that “3m left from Burgerkin”.

5.2 Research Procedure

Purchase intention was chosen for behavior intention among the three items developed by Davis [10] in order to effectively measure the degree of willingness to
purchase. As mentioned in the previous section, our survey was undertaken online. Each participant had access to a computer linked to the Internet. After accessing the online questionnaire, participants read the first motivation scenario (Appendix).

In the first scenario, the respondents were asked to imagine that they were standing on the street looking for a place to have a lunch. They remembered that a very famous Bibimbap restaurant was somewhere in the area they are standing. After reading this, the participants answered the first question: “In this situation, what is the probability that you will visit the famous restaurant?” After answering the question, they read the second scenario in which the respondents were asked to imagine that they had received a location-based advertisement via their cellular phone. There was no incentive attached. After this, they answered the same question again: “In this situation, what is the probability that you will visit the famous Bibimbap restaurant?” After completing this section, they went on to read the explanatory notes on the definition of LBA and were given some LBA examples. They then moved to the next section of the questionnaire for measuring consumer attitudes toward LBA.

5.3. Result Analysis

When the respondents were asked about the probability to purchase Bibimbap before LBA, 287 of them responded with low purchase intention, 237 responded with moderate purchase intention, and 476 responded with high purchase intention (see table 9). After showing the stimulus about LBA, when the respondents were asked about the
probability to purchase *Bibimbap*, 75 of them responded with low purchase intention, 121 responded with moderate purchase intention, and 804 responded with high purchase intention. It is noticeable that 67.6% of respondents with low purchase intention before LBA showed high purchase intention after LBA.

Table 9. Statistics on LBA Response

<table>
<thead>
<tr>
<th></th>
<th>Before LBA</th>
<th>After LBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Purchase Intention (1 - 4)</td>
<td>287</td>
<td>75</td>
</tr>
<tr>
<td>Moderate (5)</td>
<td>237</td>
<td>121</td>
</tr>
<tr>
<td>High Purchase Intention (6 - 9)</td>
<td>476</td>
<td>804</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
<td>1000</td>
</tr>
</tbody>
</table>

Table 10 shows a significant difference between purchase intention before LBA and PI after LBA ($t=-20.29$, $p<0.01$). After the exposure to LBA, 73.5% of respondents felt more positively and only 8.8% felt less so (see figure 5). Given the personal nature of mobile phones, and the degree to which LBA could be seen as an intrusion of privacy, one might have expected a serious negative reaction. However, this case study proved that, in the case of well targeted, timely information given, LBA has a positive effect on purchase intention. Thus, H9 is supported.

Table 10. Statistics on Consumer Purchase Intention
Before LBA (n=1000) | M     | SD  |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.31</td>
<td>2.09</td>
</tr>
<tr>
<td>After LBA (n=1000)</td>
<td>7.11</td>
<td>1.86</td>
</tr>
</tbody>
</table>

**Figure 5. Change in Purchase Intention**
VI. Conclusion

6.1 Summary of the Study

As previously stated, the primary goal of this research was to understand consumer attitudes toward LBA. Credibility was the most significant of the factors positively affecting the respondents’ attitudes, followed by entertainment and informativeness. Irritation and privacy were shown to affect attitudes negatively. Moreover, attitudes
significantly affected intention to receive LBA, which is consistent with the TRA model and the literature on the subject. A survey was conducted to examine whether providing incentives is an effective method of gaining permission from consumers. Incentives were found to have a direct impact on obtaining permission, and permission was shown to affect consumer attitudes positively. Consequently, obtaining permission and clearly relating credibility to the consumer are the main challenges faced by marketers in creating a favorable consumer attitude toward LBA.

Lastly, compared with people who did not grant permission, we found that people who did had a higher level of expenditure on mobile phone calls. They also had more experience in using the wireless Internet, sending text messages (SMS), and receiving SMS advertisements. This implies that people who have higher level of experience in mobile data service usage have a more accepting attitude toward LBA.

Additionally, an experimental case study was conducted to test whether LBA affects purchase intention. It showed that 73% of respondents had higher purchase intention after the exposure to LBA. Specifically, 67.6% of respondents with low purchase intention before LBA showed high purchase intention after viewing LBA.

6.2 Managerial Implications

The study suggests that marketers should feel optimistic about deploying LBA if it can provide relevant information with precise location detection ability. Almost 80% of respondents in this survey agreed to “opt in” before they received location-based adverts.
The case study shows 73% of respondents showed increased purchase intention after the exposure to LBA. However, marketers should exercise caution around factors related to “opt in.” Providing incentives can increase the probability of gaining permission. People who have a relatively higher level of experience of sending SMS, receiving SMS-advertisements, and using the wireless Internet can be the primary target customers for LBA in that they are more willing to receive advertising messages. Sending incentives such as a cost deduction of SMS, Wireless internet, or phone-call usage fee can encourage them to keep the state of ‘opt in’ and favorable attitude toward LBA.

Credibility turns out to be the most influential factor on consumer attitudes toward LBA. To build customer trust in mobile commerce, technology trust and vendor trust are equally important [42]. In the early stage of LBA, the disappointing accuracy of location detection technology may make consumers doubt whether LBA will fulfill its promise. Thus, for LBA agencies, it is crucial to establish the overall LBA campaign plan to fit with its technical feasibility [13]. Customers will trust LBA if the marketer demonstrates the expertise and honesty to make an effective and reliable transaction. Engendering vendor trust is more challenging because the LBS industry is still unfamiliar to most potential consumers. In that respect, by using a recognized and trusted brand, co-branding can effectively ensure advertising credibility in LBA. Marshall and Woonbong stated that the credibility of the message of strong brands was the same regardless of the medium of communication, print or the Internet [25]. A good brand reputation suggests certainty and less risk in transactions [42]. Providing the mobile coupons for well-known brick-and-mortar stores will help attract potential users and foster vendor trust.
Entertainment turns out to be the second most influential factor on consumer attitudes toward LBA. Delivering sales messages within entertaining games can promote dialogues with customers and project product images [18]. Some mobile gaming vendors see wireless gaming as a new medium for advertising. This medium offers new opportunities for local or customized advertisements and the ability to pinpoint the target market audience by placing the brand within a relevant game [7]. Supafly from It’s Alive Mobile Games AB, a Stockholm, Sweden-based company, exploits a location-based game in which players pick up a virtual item in a real-world location. It is expected to generate commercial opportunities by leading people to real stores or restaurants to pick up the items within those places.

Informativeness also positively affects attitudes toward LBA. Location plays a key role in predicting consumer needs and the types of product and service choices [36]. However, knowledge of a user’s location is only part of a consumer’s contextual information: when, how, with whom, and why customers are navigating in physical space. To match various services offered to meet customer needs, more detailed information about customer profile, purchasing history and preferences is required. The telecom operators should shift their focus from simple distribution of mobile marketing to “classifying customer information along with criteria, such as location type, amount and type of time available, individual or group needs, the context of the immediate physical neighborhood, personal preferences, and time of day” (p. 63) [36].

In that respect, permission marketing, by encouraging people to participate in long-term mobile marketing campaigns [21], will provide a good opportunity to observe their
revealed purchasing patterns repeatedly. As our survey results show, providing incentives can increase the probability of gaining permission. People who have a relatively high level of experience in sending SMSs, receiving SMS advertisements, and using the wireless Internet can be the primary target customers for LBA in that they are more willing to receive advertising messages. Providing incentives such as a discount on SMS, wireless Internet, or phone-call usage fees can encourage them to continue to “opt in”. However, overwhelming volume of continuous requests for permission may interrupt user activities and cause irritation [17].

Irritation and privacy concerns negatively influence consumer attitudes toward LBA, but not as strong as the influence of the credibility, entertainment and informativeness variables. LBA in the push approach risks causing irritation by sending irrelevant messages because there is information asymmetry between LBA offerings and the customer’s exact needs at that location in real time. Siau and Shen suggested that mobile vendors should reduce information asymmetry by communicating clearly with customers [42]. Consequently, LBA agencies and telecom operators can create a good impression with consumers that they are taking greater care to ensure that campaigns offer more value and less irritation to the consumer.

Privacy concerns are inevitable obstacles to overcome in the location system’s deployment. Darrel and Weitzner found a trade-off between privacy intrusion and user benefit; if the perceived benefit from the advertisements is great enough, people accept some degree of privacy loss [2]. Identifying an end user’s exact location helps to target useful information. Siau and Shen made some suggestions for reducing privacy concerns:
posting a privacy policy, maximizing network security, and adopting external auditing to monitor operations [42]. Furthermore, telecom operators can provide an unconditional guarantee of security, as the online bookseller Amazon.com does.

### 6.3 Limitations and Further Studies

Although our findings have meaningful implications, our work has limitations. Firstly, it does not deal with the problem of inducing the non-permission group to “opt in”. Further research should explicitly account for the reason for refusing permission and what other kinds of incentives or policies are required to gain permission from that group. Secondly, even though LBA provides very relevant advertisements, there is always a danger that too many advertisements will cause irritation. Thus, further investigation into the maximum number of advertisements that a consumer can receive before irritation sets in would be beneficial when using client lists. Thirdly, longitudinal research investigating the factors that affects consumer attitudes toward LBA would be useful after location-based advertising grows in popularity. Only 64 out of 1000 respondents had experienced LBA: the size of the sample was not large enough to study real consumers’ attitudes toward LBA. Finally, we only investigated the antecedents of consumer attitudes toward LBA in the push approach. Consumer attitudes toward LBA in the pull approach can be studied in future research.
국문요약

휴대용 단말기를 이용한 위치기반 광고의
소비자 태도에 대한 실증적 연구

경영학부 한상열

이동통신 기술의 발전과 고성능 단말기의 빠른 보급으로 다양한 모바일 서비스들이 등장하고 있으며 이들 중에서 모바일 광고는 최근에 원-투-원 마케팅, 퍼미션 마케팅 등의 개념이 등장하면서 마케팅 도구로서의 그 중요성이 부각되고 있다. 마케팅 도구로서의 모바일 광고는 핸드폰을 통해 고객에게 마케팅 컨텐츠를 보내는 것을 말하며, 가격 효율성, 개인화된 정보의 제공, 대중성, 상호작용성, 측정 가능성, 그리고 편리성을 그 특징으로 한다. 이러한 모바일 광고 중 개인의 위치 정보를 응용한 위치기반 광고는 소비자의 정황을 고려하여 적합한 타겟 고객들에게 광고를 할 수 있어 높은 반응률을 기대할 수 있다.

본 연구의 목적은 이러한 위치기반 광고가 기존 비위치기반형 모바일 광고와 본질적으로 다르다는 사실에 주목하여, 광고에 관한 소비자 태도에서 기존 연구에서 사용된 요인들을 중심으로 위치기반 광고의 어떠한 특성이 소비자 태도에 영향을 미치는지를 실증적으로 연구하였다.
광고에 대한 소비자 태도에 영향을 미치는 요인으로 알려진 오락성 (Entertainment), 정보성 (Informativeness), 부정적 자극 (Irritation), 신뢰성 (Credibility), 프라이버시에 대한 우려 (Privacy concerns)를 본 연구에 포함시켰다. 태도나 규범 또는 행위 통제 등의 요인이 상품이나 서비스를 이용하고자 하는 인간의 의지 (Intention)에 영향을 미친다는 Fishbein과 Ajzen의 Theory of Reasoned Action (TRA)이론에 따라 태도 (attitude)와 광고수신의도 (Intention)와의 관계도 본 연구모형에 포함되었다 [19]. 이에 추가하여, 수신동의 (Permission)와 태도 (Attitude)와의 관계, 그리고 인센티브 (Incentives)와 수신동의의 관계를 알아 보았다. 마지막으로, 수신동의 그룹과 수신미동의 그룹 간 무선 인터넷 사용경험, 모바일 광고 수신경험, 단문 메세지(SMS) 발송경험과 월별 전화료 사용료의 차이가 있는지를 검증하였다. 실험적 검증을 위해 시장조사기관을 이용한 온라인 설문조사를 실시하였으며 1000명의 응답자가 설문에 응하였다. 설문 검증방법으로는 SPSS 10.0을 이용한 신뢰성 검증, 회귀분석, \( \chi^2 \) 분석, 독립 t검정, 그리고 AMOS 4.0을 이용한 경로분석을 실시하였다.

연구의 결과, 광고태도에 미치는 모든 요인들이 유의한 영향력을 나타내었다. 신뢰성이 긍정적인 영향력이 가장 큰 변수로 나타났으며, 다음으로 오락성, 정보성 순으로 긍정적인 영향력이 크게 나타났다. 부정적 자극과 프라이버시에 대한 우려는 광고태도에 부정적인 영향력을 끼쳤다. 수신동의 그룹은 수신미동의 그룹에 비해서 호의적인 광고태도를 보였다. 인센티브는 초기 수신미동의자의 수신동의 의향을 증진시킨 것으로 나타났다. 수신동의 그룹은 수신미동의 그룹에 비하여 무선 인터넷 사용경험, 모바일 광고 수신경험, 단문 메세지 발송경험, 월별
전화료 사용료의 정도가 더 높게 나타났다. 따라서, 위치기반광고에 대한 호의적인 반응을 이끌어내기 위해서는 소비자로부터 사전 수신동의를 얻어내야 하며, 광고매체의 신뢰성을 증진시키는 것이 가장 우선되어야 한다고 할 수 있다.

추가로, 위치기반기반광고물을 실험 제작하여 응답자가 개인용 컴퓨터로 실험 광고물을 보는 방식으로 위치기반광고가 구매의도에 미치는 영향력을 측정하였다. 실험 결과, 73%의 응답자가 광고 전에 비하여 구매의도가 향상된 것으로 나타났다. 또한, 구매의도가 부정적이었던 응답자 중 67.6%가 광고 후에 긍정적인 구매의도를 나타내었다. 본 연구의 실험결과상 실제 개인 휴대용 단말기로 자극을 제시하지 않았기 때문에 일반화에 제약이 있다.

이직 위치기반광고의 실용화가 초기단계에 있으며, 실제 구매행동을 측정하기 어려운 여건을 고려할 때 본 연구결과는 향후 실제 광고 태도와 구매행동에 대한 탐색적 연구라는 수준에서 그 의의를 갖는다고 하겠다. 또한, 본 연구는 새로운 마케팅 패러다임으로서의 위치기반광고의 소비자 태도에 대한 새로운 연구 가능성을 제시하였고, 위치기반광고의 효과를 소비자 측면에서 구체화시킬 수 있는 계기가 되었다고 할 수 있다.
References


Appendix

< 설 문 지 >

안녕하십니까?

본 설문조사는 위치기반 광고에 대한 여러분의 의견을 듣고자 기획되었습니다. 여러분의 소중한 의견은 맡은 두 번째 위치기반 광고 시스템을 만들기 위한 기본 연구 자료로서만 활용되니 안심하시고, 잠시 귀중한 시간을 내 주신다면, 대단히 감사하겠습니다. 귀하의 응답은 맞고 틀린 정답이 있는 것이 아니오니, 평소 생각하고 계신 바를 솔직하게 말씀해 주시면 됩니다.

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연구원 한 상 열 (016-9456-1988)

다음은 귀하의 의견을 묻는 질문입니다. 아래 주어진 상황을 고려하여, 각 문항에 대해 귀하의 생각과 가장 가까운 번호에 체크하여 주십시오.

- 첫 번째 상황 -
당신은 지금 바깥에 나와 점심을 먹으려고 합니다.
당신은 비빔밥을 잘하는 유명한 맛집이 근처에 있다는 것을 들었지만 지금은 그 위치를 모릅니다.

1. 현 상황에서 당신이 그 맛집을 찾아가 비빔밥을 사먹을 가능성이 얼마나 됩니까?

1. 매우 낮다  2. 보통  3. 매우 높다

51
 두 번째 상황

이 때 당신의 핸드폰에 음성문서와 함께 광고 메시지가 들어왔습니다.
광고 메시지에는 당신이 있는 위치를 중심으로
그 맛집 위치가 표시된 약도가 나와 있습니다.

2. 현 상황에서 당신이 그 맛집을 찾아가 비빔밥을 사먹을 가능성은 얼마나 됩니까?

    1------2------3------4------5------6------7------8------9
매우 낮다                          보통                          매우 높다
"위치기반광고"는 무엇인가요?

위의 두 번째 상황에서 주어진 광고는 핸드폰을 이용한 위치기반 광고의 한 예입니다.

위치기반 광고는 수신자의 현재 위치정보를 파악하여 지역특성에 맞는 다양한 정보형태의 광고를 제공하는 광고기법입니다.

다른 예로, 수신자가 특정 점포(예: 맛집, 패스트푸드점)를 지날 때 휴대폰으로 할인쿠폰이나 세일 정보가 수신되어 해당 점포에서 활용이 가능합니다.

3. 당신은 이와 비슷한 위치기반 광고를 받아보신 적이 있습니까?

(1) 예
(2) 아니오

4. 위치기반광고를 발송하기 이전에 수신 동의를 구한다면 귀하는 이를 승낙하시겠습니까?

(1) 예 (6번 문항으로)
(2) 아니오 (5번 문항으로)

5. 광고를 보면 경품, 통화료 할인 등의 혜택을 준다면 위치기반 광고의 수신동의를 승낙하시겠습니까?

(1) 예
(2) 아니오
다음은 위치기반 광고에 대한 귀하의 의견을 묻는 질문입니다. 각 문항에 대해 귀하의 생각과 가장 가까운 번호에 체크하여 주십시오.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>전혀 그렇지 않다</td>
<td>보통</td>
<td>매우 그렇다</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**<오락성>**

6. 위치기반 광고는 흥미롭다.  
   1-----2-----3-----4-----5-----6-----7-----8-----9

7. 위치기반 광고는 사용하기에 즐겁다.  
   1-----2-----3-----4-----5-----6-----7-----8-----9

8. 위치기반 광고는 재미있다.  
   1-----2-----3-----4-----5-----6-----7-----8-----9

9. 위치기반 광고는 기분이 좋다.  
   1-----2-----3-----4-----5-----6-----7-----8-----9

**<정보성>**

10. 위치기반 광고는 상품에 대한 좋은 정보원이다.  
    1-----2-----3-----4-----5-----6-----7-----8-----9

11. 위치기반 광고는 개인적으로 필요한 정보를 제공한다.  
    1-----2-----3-----4-----5-----6-----7-----8-----9

12. 위치기반 광고는 개인적으로 필요한 시기에 적절한 정보를 제공한다.  
    1-----2-----3-----4-----5-----6-----7-----8-----9

13. 위치기반 광고는 상품과 관련 있는 정보를 제공한다.  
    1-----2-----3-----4-----5-----6-----7-----8-----9

**<부정적 자극>**

14. 위치기반 광고는 내 이성적 판단을 방해한다.  
    1-----2-----3-----4-----5-----6-----7-----8-----9

15. 위치기반 광고는 짜증이 난다.
16. 위치기반 광고는 분명한 광고 내용을 알기 힘들다.
1------2------3------4------5------6------7------8------9

17. 상품을 구매하는데 위치기반 광고는 참고할 만하다.
1------2------3------4------5------6------7------8------9

18. 나는 위치기반 광고를 신뢰한다.
1------2------3------4------5------6------7------8------9

19. 나는 위치기반 광고를 믿는다.
1------2------3------4------5------6------7------8------9

<신뢰성>

20. 나는 개인정보(구매기록, 위치정보)의 보안이 우려된다.
1------2------3------4------5------6------7------8------9

21. 내 개인정보가 내 동의 없이 사용될까 우려된다.
1------2------3------4------5------6------7------8------9

22. 핸드폰에 쓸데없는 위치기반 광고가 너무 많아질까 우려된다.
1------2------3------4------5------6------7------8------9

23. 위치기반 광고를 사용할 때, 내 개인정보가 내가 모르는 사람에게 노출될까 우려된다.
1------2------3------4------5------6------7------8------9

<프라이버시>

24. 위치기반 광고가 중요하다.
1------2------3------4------5------6------7------8------9

25. 위치기반 광고는 도움이 된다.
1------2------3------4------5------6------7------8------9

26. 위치기반 광고는 유용한 정보를 제공한다.
1------2------3------4------5------6------7------8------9

<태도>

24. 위치기반 광고가 중요하다.
1------2------3------4------5------6------7------8------9

25. 위치기반 광고는 도움이 된다.
1------2------3------4------5------6------7------8------9

26. 위치기반 광고는 유용한 정보를 제공한다.
1------2------3------4------5------6------7------8------9
27. 전반적으로 나는 위치기반 광고에 대해 긍정적으로 생각한다.
   1------2------3------4------5------6------7------8------9
28. 전반적으로 나는 위치기반 광고를 좋아한다.
   1------2------3------4------5------6------7------8------9

<의도>

29. 나는 위치기반 광고를 다시 받아볼 가능성이 높다.
   1------2------3------4------5------6------7------8------9
30. 나는 위치기반 광고를 계속 받아볼 것이다.
   1------2------3------4------5------6------7------8------9

<응답자 성향 및 모바일 서비스 선호도 조사>

결과분석에 반드시 필요한 정보이므로 빠짐없이 기재해 주실 것을 부탁드립니다.

31. 이동전화서비스를 사용한지는 얼마나 되셨습니까?
   (1) 1년 미만
   (2) 1년~2년 미만
   (3) 2년~3년 미만
   (4) 3년~5년 미만
   (5) 5년 이상
32. 귀하의 월 평균 핸드폰 요금은?
   (1) 3만원 미만
   (2) 3만원 ~ 5만원 미만
   (3) 5만원 ~ 7만원 미만
   (4) 7만원 ~ 10만원 미만
   (5) 10만원 이상
33. 사용하고 계신 단말기는 어떤 종류인가요? (하나만 골라주세요.)
   (1) 무선 인터넷 불가한 흑백 휴대폰
   (2) 무선 인터넷 가능한 흑백 휴대폰 (Nate, MagicN, ez-i 서비스 사용자)
   (3) 무선 인터넷 가능한 컬러 휴대폰 (Nate, MagicN, ez-i 서비스 사용자)
   (4) 동영상 가능한 컬러 휴대폰 (June, Fimm서비스 사용자)
(5) GPS 장착 휴대폰

34. 무선 인터넷을 사용하셨다면 이용한 기간은 어느 정도 이십니까?

(1) 사용경험 없음
(2) 1~6개월 미만
(3) 6~12개월 미만
(4) 1~2년 미만
(5) 2~3년 미만
(6) 3~4년 미만
(7) 4년 이상

35. 월 무선 인터넷 사용료는 어느 정도이십니까?

(1) 5000원 미만
(2) 5000~10,000원
(3) 10,000~15,000원
(4) 15,000~20,000원
(5) 20,000~25,000원
(6) 25,000원 이상

36. 귀하는 휴대폰의 위치기반 서비스를 사용해보셨습니까?
   * 위치기반 서비스: 고객의 위치에 따라 여러가지 유용한 정보를 제공하는 서비스
     예) 친구 찾기, 길 안내, 교통 정보

(1) 사용 경험 없음
(2) 거의 사용 안함
(3) 일주일에 1회~3회
(4) 일주일에 3회~5회
(5) 일주일에 5회~7회
(6) 일주일에 7회 이상

37. 모바일 광고를 받아보셨습니까?
   * 모바일 광고: 핸드폰으로 받는 광고
     예) 광고용 SMS (단문 문자메시지 서비스)

(1) 받아본 경험 없음
(2) 거의 받아본 적 없음
(3) 일주일에 1회~3회
(4) 일주일에 3회~5회
(5) 일주일에 5회~7회
(6) 일주일에 7회 이상

38. SMS(단문 문자메시지 서비스)를 하루에 평균 몇 번 전송하실습니까?
(1) 거의 안함
(2) 하루에 1회~3회
(3) 하루에 3회~5회
(4) 하루에 5회~7회
(5) 하루에 7회 이상

39. 귀하의 성별은? (1) 남 (2) 여

40. 귀하의 나이는?
(1) 만 18 - 21세
(2) 만 22 - 25세
(3) 만 26 - 29세
(4) 만 30 - 33세
(5) 만 33 - 36세

41. 귀하의 최종학력은?
(1) 중졸
(2) 고졸
(3) 대재
(4) 대졸
(5) 대학원재
(6) 대학원졸

42. 귀하의 직업은?
(1) 고등학생 (2) 대학생 (3) 대학원생 (4) 회사원(일반사무원, 관리직)
(5) 서비스직 (6) 전문직(의사, 변호사, 디자이너 등) (7) 연구원 (8) 주부
(9) 자영업 (10) 무직 (11) 기타 (   )

43. 귀하(학생인 경우는 부모님)의 한 달 평균소득은 어느 정도 이십니까?
(1) 150만원 미만
(2) 150~200만원 미만
(3) 200만원~300만원 미만
(4) 300만원~400만원 미만
(5) 400만원~600만원 미만
(6) 600만원 이상

설문에 응답하여 주셔서 감사합니다.