



## Full length article

## Who avoids location-based advertising and why? Investigating the relationship between user perceptions and advertising avoidance

Wonsun Shin<sup>\*</sup>, Trisha Tsui-Chuan Lin

Wee Kim Wee School of Communication and Information, Nanyang Technological University, 31 Nanyang Link, Singapore 637718, Singapore

## ARTICLE INFO

## Article history:

Received 18 February 2016

Received in revised form

7 May 2016

Accepted 13 May 2016

Available online 31 May 2016

## Keywords:

Location-based advertising

Advertising avoidance

Mobile advertising

Perceived goal impediment

Perceived utility

Perceived sacrifice

Perceived entertainment

## ABSTRACT

This study investigates how perceptual factors are associated with mobile consumers' avoidance of location-based mobile advertising (LBA), and whether the relationships between the perceptual factors and LBA avoidance are influenced by consumers' mobile device usage levels. The results of a national web survey with 605 Singaporean mobile consumers show that those who find LBA impedes goals, requires sacrifice, and lacks utility are more likely to avoid it. When examining the differences of heavy, medium, and light mobile device users, the analyses reveal that the effects of perceived utility and entertainment on LBA avoidance are greater for medium and heavy users than for light users. Theoretical and practical implications of our findings are discussed, as are the limitations and suggestions for future research.

© 2016 Elsevier Ltd. All rights reserved.

## 1. Introduction

The rapid adoption of mobile devices by consumers and the emergence of various location-tracking technologies have allowed advertisers to identify the specific locations of their target consumers and to send customized promotional messages to different consumer segments (Bruner & Kumar, 2007; Dhar & Varshney, 2011). This new form of advertising, known as location-based mobile advertising (LBA), is one of the most innovative business opportunities available to advertisers today, as it enables them to send contextually relevant messages to consumers (Drossos, Giaglis, Lekakos, Kokkinaki, & Stavarakis, 2007; Lee & Hill, 2013). However, mobile consumers may perceive messages tailored to their current locations to be intrusive, and thus may avoid LBA (Lee & Hill, 2013).

Advertisements can hardly have effects on mobile consumers who avoid the advertising messages (Bellman, Schweda, & Varan, 2010). Nowadays consumers are exposed to a substantial amount of advertising messages on a daily basis. As a result, consumers

cannot, or may not be motivated to, pay attention to most advertisements they encounter. While the majority of advertising studies have focused on how advertising works once it has engaged consumers' attention, Duff and Faber (2011) argue that it is equally important to understand "the vast majority of advertising, which is intentionally or unintentionally ignored" (p. 51). The concept of advertising avoidance has been examined in a wide range of media contexts, including newspaper, magazine, radio, television, and the Internet (Baek & Morimoto, 2012; Cho & Cheon, 2004; Edwards, Li, & Lee, 2002; Morimoto & Chang, 2009; Speck & Elliott, 1997). However, few academic studies have specifically focused on the underlying perceptual and user factors that drive consumers away from LBA.

This study aims to identify key perceptual factors affecting consumers' avoidance of LBA messages delivered to their mobile devices based on their current locations, also known as "push LBA" (Lin, Paragas, Goh, & Bautista, 2016; Shin & Krabuanrant, 2007). This form of LBA is prevalent in the mobile advertising industry (Xu, Oh, & Teo, 2009). However, since consumers tend to view the use of mobile devices as personal activities (Jung, Sung, & Lee, 2013; Rice & Hagen, 2010), unexpected or uninvited LBA sent to their mobile devices is likely to be considered "intrusion," possibly resulting in a greater level of psychological reactance (Brehm, 1966) as compared to other forms of advertising messages delivered through less personal media (i.e., television).

<sup>\*</sup> Corresponding author. School of Culture and Communication, University of Melbourne, 141 John Medley Building, Parkville VIC 3010, Australia.

E-mail addresses: [wonsunshin16j@gmail.com](mailto:wonsunshin16j@gmail.com) (W. Shin), [TRISHALIN@ntu.edu.sg](mailto:TRISHALIN@ntu.edu.sg) (T.T.-C. Lin).

Scholars have identified and examined an array of predictors of advertising avoidance in both traditional and online media (see Baek & Morimoto, 2012). However, research on the avoidance of mobile and personalized advertising remains limited (Rau, Liao, & Chen, 2013). In this study, we theorize four types of perceptual factors (perceived goal impediment, perceived sacrifice, perceived utility, and perceived entertainment) affecting LBA avoidance. Our choice of those perceptual factors was guided by scholarly studies on advertising avoidance and technology acceptance, which highlight that consumers perceive and assess both losses (goal impediment and sacrifice) and gains (utility and entertainment) before responding to advertising and technology (Edwards et al., 2002; Khan & Allil, 2010; Merisavo et al., 2007). We postulate that the loss factors (goal impediment and sacrifice) are positively associated with LBA avoidance as they are likely to elicit psychological reactance against LBA messages. On the other hand, the gain factors (utility and entertainment) are expected to increase mobile consumers' acceptance of LBA messages, resulting in a lower level of LBA avoidance.

To provide deeper understanding of LBA avoidance, we also examine how individual differences in mobile device usage moderate the relationship between the four perceptual factors and LBA avoidance. Many past studies have examined the relationship between individuals' exposure to media messages (e.g., television genres and TV advertising) and outcomes relevant to cultivation (Morgan & Shanahan, 2010). Gerbner and Gross (1976) first found the cultivation differential effect that heavy users tended to be more susceptible to media content than light users. Based on the cultivation differential hypothesis, past research found that heavy and light media users respond to TV commercials or web advertisements differently (Jewell & Urinava, 2004; Kwak, Zinkhan, & DeLorme, 2002; Pleshko & Al-Houti, 2012). For instance, heavy media users tend to be less critical about media messages and more favorable toward TV and web advertising (Pleshko & Al-Houti, 2012). Research also shows that heavy and light media users differ in their preferences of advertising content with affective appeals and in their assessment of the quality of advertised brands (Jewell & Urinava, 2004). The current study examines how consumers' avoidance of LBA, a new type of mobile advertising, can be explained by the extent of users' mobile device usage. The findings of our study can fill the research gap by identifying key perceptual factors affecting LBA avoidance in relation to consumers' levels of mobile device use. From a practice point of view, understanding the role of individual differences in terms of mobile device usage will be important for advertisers and marketers to develop effective advertising strategies customized to different user segments.

This study is based on a national web survey of mobile device users in Singapore, a regional hub of LBA in Asia. Singapore is a crucial market for mobile advertisers due to its high mobile penetration rate and connection to 3G and 4G networks (Lin et al., 2016). Mobile device users in Singapore are increasingly targeted by various forms of LBA (Lin et al., 2016). Given that LBA is a growing mobile advertising worldwide, our findings are expected to offer useful insights on this practice. Specifically, the findings from this study will help advertising and marketing practitioners to understand the underlying mechanisms of consumer responses to LBA, and hence, to develop more effective LBA strategies to reach mobile consumers.

## 2. Literature review

### 2.1. Location-based advertising

As consumer locality has a great impact on product distribution, consumer lifestyles, and consumption behaviors (O'Guinn, Allen, &

Semenik 2012), advertisers often use local media and outdoor advertising to target consumers based on where they reside. Now, the emergence of various location-tracking technologies such as triangulation, cell-ID, and RFID, as well as the prevalent adoption of GPS- and Wi-Fi-enabled mobile devices, make it possible for advertisers to identify the specific location of their target consumers and to send personalized advertising messages to each target segment (Bruner & Kumar, 2007; Dhar & Varshney, 2011). The latest form of location-based advertising (LBA) that utilizes consumers' use of mobile devices allows advertisers to target specific groups of mobile consumers by using advanced positioning technologies to track the locations of mobile devices. While earlier studies of LBA primarily focused on SMS-based LBA (Drossos et al., 2007; Unni & Harmon, 2007; Xu et al., 2009), a few studies have taken into account of the latest application-based LBA. In addition, LBA can now be delivered through various mobile devices, including tablet computers. Accordingly, LBA is defined in this study as any advertising message sent to mobile phone or tablet users when they are located near advertisers' products or services; these messages may take the form of SMSs, MMSs, or mobile webs or apps.

LBA can include both push and pull approaches. Pull advertisements appear when a mobile consumer initiates information search on an advertiser or a brand, while advertisers push advertisements consisting of LBA messages to consumers' mobile devices simply based on their current locations. Push LBA is widely used and preferred by advertisers due to its reach and simplicity (Xu et al., 2009). However, consumers tend to have negative attitude towards push LBA which are considered more intrusive than the pull approach (Lin et al., 2016; Shin & Krabuanrant, 2007). Consumers may receive push-based LBA when they do not expect to receive advertising messages or when they do not want to share their current locations with advertisers. This may disrupt consumers, resulting in avoidance (Banerjee & Dholakia, 2008; Lee & Hill, 2013). As this survey study was conducted when pull LBA (e.g., app-based LBA) just emerged in Singapore, the majority of the mobile consumers experienced push-based LBA much more than pull-based LBA. This condition is likely to affect users' perceptions and attitudes towards LBA as a whole.

### 2.2. Advertising avoidance

Advertising avoidance refers to all actions taken by media users to reduce their exposure to advertising content (Speck & Elliott, 1997). Consumers use a wide range of strategies to avoid advertising because they tend to consider advertising a noise or distraction (Baek & Morimoto, 2012; Cho & Cheon, 2004; Dix & Phau, 2010; Duff & Faber, 2011; Speck & Elliott, 1997). They may leave the room to avoid TV commercials or scroll down a web page to avoid banner ads. They may also simply ignore advertising stimuli, turn out the ads, or shift focus.

The majority of advertisements are in fact avoided by consumers (Cho & Cheon, 2004; Duff & Faber, 2011). Push-based LBA appears to be particularly vulnerable to advertising avoidance because it is likely to be considered intrusive and disruptive (Lin et al., 2016). When a consumer avoids an ad, the message is less likely to affect the consumer (Bellman et al., 2010), so advertising avoidance constitutes one of the most challenging obstacles for advertisers (Baek & Morimoto, 2012). In order to reduce advertising avoidance, and hence to enhance advertising effectiveness, it is important to understand why consumers avoid advertising in the context of LBA.

As stated earlier, this study examines two loss factors (perceived goal impediment and perceived sacrifice) and two gain factors (perceived utility and perceived entertainment) as potential influencers of LBA avoidance. While these four perceptual factors have

been examined in other media contexts (e.g., television and internet), they are particularly pertinent to the context of LBA avoidance due to the unique characteristics of LBA and its audience (mobile device users) as described in the following sections.

### 2.2.1. Perceived goal impediment

If advertisements interfere with consumers' engagement in media activities, the ads are likely to be viewed as "noise" and thus ignored or discarded (Speck & Elliott, 1997). Edwards et al. (2002) argue that if advertising interrupts consumers' goals, it is likely to limit their choices of action, leading to negative responses to advertising such as avoidance. Speck and Elliott (1997) demonstrate that search hindrance (i.e., when an ad hinders a person's search for media content) predicts advertising avoidance in traditional media (newspaper, magazine, television, and radio). Similar insights have emerged from studies of Internet advertising (Cho & Cheon, 2004; Edwards et al., 2002; Morimoto & Chang, 2009).

Some scholars, particularly Baek and Morimoto (2012) and Edwards et al. (2002), use the theory of psychological reactance (Brehm, 1966) to explain consumer avoidance of advertising. This theory posits that people tend to be psychologically aroused when they perceive their freedom to be threatened by others. This tendency leads individuals to restore the threatened freedom by reacting to the threat. In the field of communication, the theory of psychological reactance offers an explanation for why persuasive messages, including advertising, can sometimes produce odds with their intent. Worchel and Brehm (1970) show that a person rejects or moves away from a persuasive message if the message threatens or attempts to reduce his or her personal freedom. Quick and Stephenson (2007) demonstrate that individuals first sense pressure from an advertising message that seeks to eliminate their freedom of choice. This leads the individuals to react to the advertisement in ways to restore their lost freedom (Quick & Stephenson, 2007). Edwards et al. (2002) suggest that one's rejection or avoidance of a message can be understood as his or her effort to restore freedom that has been threatened.

Mobile devices, especially mobile phones, are regarded not only as mass media that provide consumers with information and entertainment but also as personal media that allow consumers to engage in social interactions (Leung & Wei, 2000). In addition, when consumers use mobile devices to engage in activities such as information searching, gaming, and social networking, they are likely to be goal-directed, and hence, they are likely to feel annoyed when advertisements interrupt their flow of mobile activities and invade their personal space. Given the personal nature of mobile devices and the way consumers use the mobile devices, there is a high probability that consumers resist push LBA, feeling that their freedom to pursue a goal using their personal devices is threatened by unexpected and uninvited LBA messages. In an effort to restore personal freedom, consumers are likely to ignore or discard LBA.

### 2.2.2. Perceived sacrifice

For mobile device users who tend to be goal-oriented and resistant to disruptions, LBA can produce a feeling of sacrifice. Merisavo et al. (2007) defines sacrifice as problems or disadvantages that consumers associate with mobile advertising. Types of problems that consumers may associate with mobile advertising include feelings of irritation or annoyance and the risk of losing time, control, or privacy (Merisavo et al., 2007; Yang, Zhou, & Liu, 2010). Perceived sacrifice has been found to be negatively associated with acceptance of mobile advertising in general (Merisavo et al., 2007; Yang et al., 2010). However, little research has examined the direct association between perceived sacrifice and LBA avoidance in particular.

LBA messages, especially push-based ones, are likely to create

negative feelings such as irritation and annoyance since they are often delivered without consumers' explicit request or consent (Bruner & Kumar, 2007). Reading such ads may be viewed as a waste of time, especially if the ads are delivered in an inappropriate context (e.g., the workplace) (Lin et al., 2016). Furthermore, when consumers receive ads specifically tailored to their locations, they may feel that their control over their personal information has been violated (Lee & Hill, 2013). Guided by the aforementioned theory of psychological reactance (Brehm, 1966), consumers' lack of perceived control over LBA messages and their own information is likely to result in negative effects of LBA. Lin, Paragas, and Bautista (2016) also found that mobile consumers' perceived sacrifice of LBA negatively influenced their perceived value of this new form of mobile advertising. Following the literature, perceived sacrifice, which consists of feelings of irritation or annoyance and the risk of losing time, control, or privacy, is likely to lead to advertising avoidance.

### 2.2.3. Perceived utility

In the literature on technology acceptance and adaptation, perceived utility refers to the degree to which individuals believe that using a particular system will enhance their job performance (Davis, 1989). Applying this definition to the advertising context, we define perceived utility as the degree to which a consumer believes that there is a benefit to receiving a particular advertising message.

Although perceived utility is a crucial factor in explaining consumers' acceptance of new technologies, including mobile advertising (Khan & Allil, 2010), it has seldom been examined as a factor contributing to advertising avoidance. Bauer and colleagues (2005) find a strong association between consumers' perceived utility from mobile marketing and their acceptance of it. Choi, Hwang, and McMillan (2008) identify the perceived value of mobile advertising as one of the key drivers of consumers' purchase intentions. Merisavo et al. (2007) also note a strong path from the perceived utility of SMS-based mobile advertising to consumers' willingness to accept it. Findings from these studies suggest that the degree to which individuals perceive advantages from an advertisement determines their behavioral responses to it. However, if people see no value in an advertising message, they are likely to ignore or discard it. Lin, Paragas, and Bautista (2016) find that mobile consumers' perceived utility of LBA positively influenced their perceived value of this new form of mobile advertising.

This implies that consumers consciously decide which mobile advertising messages to read, keep, or avoid. This point of view (i.e., seeing consumers as active processors and decision makers) is in keeping with uses-and-gratifications (U&G) theory (Katz, Blumler, & Gurevitch, 1974), which suggests that consumers are goal-oriented and able to make conscious media choices to gratify their needs (Micu, 2007). Consumers will only approach or accept a medium or a message if they perceive potential benefits from using it. Otherwise, they will not be motivated to approach or accept a medium or a message. Applying this theoretical perspective to the LBA context, we expect that mobile consumers will avoid LBA if they do not think that using LBA will gratify their needs.

### 2.2.4. Perceived entertainment

The literature indicates that in addition to the utilitarian value of advertising, the hedonistic value of advertising, such as perceived entertainment, also plays an important role in consumers' responses to advertising (Tsang, Ho, & Liang, 2004; Xu et al., 2009). Studies find that the extent to which audiences are entertained by advertising is positively associated with attitudes toward mobile advertising (Choi et al., 2008; Tsang et al., 2004; Xu et al., 2009), perceived value of mobile advertising (Xu et al., 2009), and

intention to purchase products presented in mobile advertising (Choi et al., 2008). Regarding the impact of perceived entertainment on advertising avoidance, Edwards et al. (2002) demonstrate that those who perceive pop-up ads to be more entertaining are less likely to rate those ads as irritating or intrusive. This in turn leads to a lower level of advertising avoidance among consumers.

The latest LBA allow advertisers to adopt various formats (e.g., mobile apps) and interface designs, as well as incorporate diverse multimedia elements and heuristic cues into their advertising content. Such capacities enable advertisers to make their LBA messages more entertaining and interesting, and thus, help them attract target consumers' attention (Kaplan, 2015). As entertainment value appears to be as important as informational value in today's LBA practices, this study examines perceived entertainment as one of the factors influencing consumers' responses to LBA. Adopting Xu et al. (2009) conceptualization of entertainment in the location-based advertising context, perceived entertainment in this study refers to the degree to which an advertisement's audience finds LBA fun and entertaining. Following the literature, perceived entertainment is likely to lower consumers' resistance to advertisements, resulting in lower levels of advertising avoidance. Thus, we expect that mobile consumers are less likely to avoid LBA if they think that LBA is entertaining.

### 3. Method

#### 3.1. Procedure and participants

An online survey of mobile consumers (i.e., those who own a feature phone, smartphone, and/or table computer) was conducted in Singapore. The sample of mobile consumers was drawn from Nielsen's Media Mix panel, which uses demographic quotas (age, gender, education, and monthly income) to obtain a representative sample of adult mobile consumers. Invitation emails including the survey URL and detailed instructions were sent to selected panelists aged 18 and older. To ensure that survey participants shared a common understanding of LBA, the participants were asked to read

the aforementioned definition of LBA and watch a two-minute video about the latest forms of LBA before answering the questionnaire.

A total of 605 mobile device users completed the questionnaire. The mobile device user sample consists of 48.8% females and 51.2% males, and is predominantly Chinese (76.0%). About half of the respondents (45.7%) were aged 39 and younger. According to the Department of Statistics in Singapore (<http://www.singstat.gov.sg>), the Singapore population consists of 51% women and 74% Chinese in 2014. The median age of the Singapore population is 39. Overall, then, the mobile device users who participated in this study are similar to the Singapore population in terms of age, gender, and ethnicity. However, they are better educated than the population: while more than four out of ten respondents (41.7%) have at least a Bachelor's degree, only 27.3% of the adult population aged 25 years and older in Singapore falls into the same category (<http://www.singstat.gov.sg>). The median monthly income among the mobile consumer respondents falls into the S\$1000–S\$3000 category, which is slightly lower than the population's median monthly income (S\$ 3705) (Ministry of Manpower, 2014). Table 1 displays sample characteristics.

#### 3.2. Measures

LBA avoidance was measured with five items adopted from prior research on advertising avoidance (Cho & Cheon, 2004; Rau et al., 2013; Speck & Elliott, 1997) and responses to LBA (Wei, Hao, & Ji, 2010). Perceived goal impediment was measured by nine items derived from Cho and Cheon (2004), Edwards et al. (2002), and Speck and Elliott (1997). Perceived sacrifice were measured by four items adopted from Merisavo et al. (2007). Perceived utility of LBA was measured with nine items derived from Bauer et al. (2005), Merisavo et al. (2007), and Yang et al. (2010). Perceived entertainment was measured using three items adopted from Xu et al. (2009). The five key variables (LBA avoidance, perceived impediment, perceived sacrifice, perceived utility, and perceived entertainment) were measured using seven-point Likert scales

**Table 1**  
Sample characteristics ( $N = 605$ ).

		<i>n</i>	%
Gender	Male	310	51.2
	Female	295	48.8
Age	18–29	137	22.6
	30–39	140	23.1
	40–49	188	31.1
	50 and older	140	23.1
Ethnicity	Chinese	460	76.0
	Malay	61	10.1
	Indian	57	9.4
	Eurasian	8	1.3
	Others	19	3.1
Education	Primary level/PSLE and below	9	1.5
	Secondary level/'O' levels or equivalent	150	24.8
	Junior college/'A' levels or equivalent	28	4.6
	Polytechnic/Diploma	166	27.4
	College/University undergraduate	192	31.7
	Master's degree	53	8.8
	Doctoral degree	7	1.2
	Dependent/No income	74	12.2
Monthly income <sup>a</sup>	S\$ 1000 and below	46	7.6
	S\$ 1001–S\$3000	188	31.1
	S\$ 3001–S\$5000	162	26.8
	S\$ 5001–S\$7000	59	9.8
	S\$ 7001–S\$9000	33	5.5
	S\$ 9001–S\$10,000	12	2.0
	S\$ 10,000 and above	31	5.1

<sup>a</sup> Singapore\$ (S\$) is about US\$0.72 as of February 12, 2016.



(1 = strongly disagree; 7 = strongly agree). Finally, mobile device usage was measured using an open-ended question.

Before conducting the survey, we pretested the questionnaire with a convenient sample of 44 undergraduate students to refine the measurement instruments. Based on suggestions made by the pretest participants, some measurement items were rephrased to improve clarity.

Table 2 presents the measurement items and descriptive statistics.

#### 4. Results

To examine how the four aforementioned perceptual factors (perceived goal impediment, perceived sacrifice, perceived utility, and perceived entertainment) are associated with LBA avoidance, and whether the effect of those perceptual factors on LBA avoidance is moderated by a consumer's level of mobile device usage, we conducted a hierarchical regression for the total sample ( $N = 605$ ). Control (background) variables were entered into the first block, the main effect variables were entered into the second block, and

the interaction terms were entered into the third block. For this regression analysis, we obtained tolerance statistics to detect multicollinearity in the dataset. No issue of multicollinearity arose. Table 3 presents the results.

The results show that LBA avoidance is positively associated with perceived goal impediment ( $\beta = 0.35, p < 0.001$ ) and sacrifice ( $\beta = 0.12, p < 0.01$ ) and negatively associated with perceived utility ( $\beta = -0.23, p < 0.001$ ). However, perceived entertainment was not significantly associated with LBA avoidance ( $\beta = -0.07, p > 0.05$ ). Among the four perceptual variables, perceived goal impediment emerged as the strongest predictor of LBA avoidance.

There were interaction effects between the gain factors (perceived utility and entertainment) and mobile device usage. However, the interaction effects between the loss factors (perceived goal impediment and sacrifice) and mobile device usage were not significant. In order to decompose the interaction effects found in the regression analysis (Table 3) and ascertain the direction of the effects of the independent and moderating variables, the respondents were divided into three groups of equal size based on the extent of their mobile device use: Heavy (33%), medium (33%),

**Table 2**  
Measurement items and statistics.

##### **LBA avoidance ( $M = 4.24, SD = 1.12, \alpha = 0.87$ )**

1. I ignore LBA on the mobile device screen.
2. I don't read any LBA, even if some draw my attention.
3. If I receive too much LBA, I stop reading it.
4. I delete LBA without reading it.
5. I delete LBA immediately after reading it.

##### **Perceived goal impediment ( $M = 4.45, SD = 1.08, \alpha = 0.96$ )**

1. LBA makes it harder to read SMSs.
2. When texting halfway, incoming LBA disrupts the flow of texting.
3. LBA disrupts or hinders me from using other content/services (e.g. reading, playing, gaming, watching videos, calling)
4. LBA disrupts receiving desired incoming content.
5. LBA infringes on my control over mobile devices.
6. LBA makes it difficult to use my mobile devices.
7. LBA intrudes on my search for desired info.
8. When alerted of a new incoming content, finding it LBA distracts me.
9. When expecting a reply from someone, LBA is a distraction.

##### **Perceived sacrifice ( $M = 4.88, SD = 1.15, \alpha = 0.93$ )**

To what degree do you consider the following as a problem associated with LBA?

1. Loss of control
2. Loss of privacy
3. Time consuming
4. Feel annoyed or irritated
5. Blurring distinction between home, work, and leisure

##### **Perceived utility ( $M = 4.47, SD = 1.01, \alpha = 0.96$ )**

LBA can help in the following aspects ...

1. Raise our standard of living.
2. Find products that match my personality and interests.
3. Buy the best brand for a given price.
4. Save money.
5. Save time.
6. Provide entertaining experience.
7. Provide useful product/service/brand information.
8. Increase effectiveness in managing information.
9. Provide incentives for purchasing products or services.

##### **Perceived entertainment ( $M = 3.99, SD = 1.07, \alpha = 0.94$ )**

LBA is ...

1. Entertainment
2. Enjoyable
3. Pleasing

##### **Amount of time spent on mobile devices (Sum of 1, 2, and 3: $M = 172.50, SD = 234.20$ )**

How many minutes on average per day do you use the following ... ?

1. Talk to someone on a mobile device:  $M = 37.6, SD = 68.95$
2. Use mobile apps (for games, news, social networking, maps):  $M = 74.66, SD = 119.47$
3. Use mobile instant messaging apps:  $M = 60.29, SD = 118.48$

Note:  $M$  = Construct mean,  $SD$  = Standard deviation,  $\alpha$  = Cronbach's alpha.

or light (33%). Then, simple slopes for the associations between the gain factors and LBA avoidance were obtained for the three groups of mobile device users. Tables 4 and 5 provides descriptive statistics for the three groups of users, and Figs. 1 and 2 present the pattern of

interactions.

The results show that the relationships between the gain factors and LBA avoidance vary with consumers' level of mobile device usage. The effect of perceived utility on LBA avoidance was greater for medium ( $\beta = -0.43, p < 0.001$ ) and heavy mobile device users ( $\beta = -0.43, p < 0.001$ ) than for light users ( $\beta = -0.21, p < 0.01$ ) (Fig. 1). Fig. 2 presents a similar pattern. Specifically, entertainment was more strongly related to LBA avoidance for the moderate ( $\beta = -0.47, p < 0.001$ ) and high levels ( $\beta = -0.40, p < 0.001$ ) of mobile device usage than for the light levels of usage ( $\beta = -0.29, p < 0.001$ ).

## 5. Discussion

This study investigates how perceptual factors (perceived goal impediment, sacrifice, utility, and entertainment) are associated with mobile consumers' LBA avoidance, and whether the examined relationships are influenced by consumers' mobile device usage levels.

Perceived goal impediment was found to be the strongest predictor of mobile consumers' LBA avoidance. We also found a negative association between perceived sacrifice and LBA avoidance. This finding is consistent with findings from previous studies conducted in traditional and online media contexts (Cho & Cheon, 2004; Edwards et al., 2002; Morimoto & Chang, 2009; Speck & Elliott, 1997) and in keeping with the theory of psychological reactance (Brehm, 1966). In addition to infringing on the self-control of mobile device users, LBA can also be perceived as a goal impediment and sacrifice when ongoing mobile phone

**Table 3**

Hierarchical regression for predicting LBA avoidance (total sample:  $N = 605$ ).

	<i>B</i>	<i>SE(B)</i>	$\beta$
<b>Block 1</b>			
Age	−0.03	0.04	−0.03
Gender (1 = male, 2 = female)	−0.05	0.08	−0.02
Education	0.07	0.03	0.09*
Monthly income	−0.05	0.03	−0.08
$R^2 = 0.03, \text{Adj}R^2 = 0.02, F(4, 600) = 3.96, p < 0.01$			
<b>Block 2</b>			
Perceived goal impediment (PGI)	0.36	0.04	0.35***
Perceived sacrifice (PS)	0.12	0.04	0.12**
Perceived utility (PU)	−0.25	0.05	−0.23***
Perceived entertainment (PE)	−0.07	0.05	−0.07
Mobile device use (MDU)	0.00	0.00	0.01
$R^2 = 0.34 (\Delta R^2 = 0.32, p < 0.001, \text{Adj}R^2 = 0.33, F(9, 595) = 34.39, p < 0.001$			
<b>Block 3</b>			
PGI $\times$ MDU	0.07	0.05	0.07
PS $\times$ MDU	−0.02	0.05	−0.02
PU $\times$ MDU	−0.13	0.06	−0.11*
PE $\times$ MDU	0.12	0.51	0.13*
$R^2 = 0.35 (\Delta R^2 = 0.01, p = 0.08), \text{Adj}R^2 = 0.33, F(13, 591) = 24.63, p < 0.001$			

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

Note: *B*, *SE (B)*,  $\beta$ , and *p* are from the final regression equation with all blocks of variables in the model.

**Table 4**

Mobile device user segment profiles.

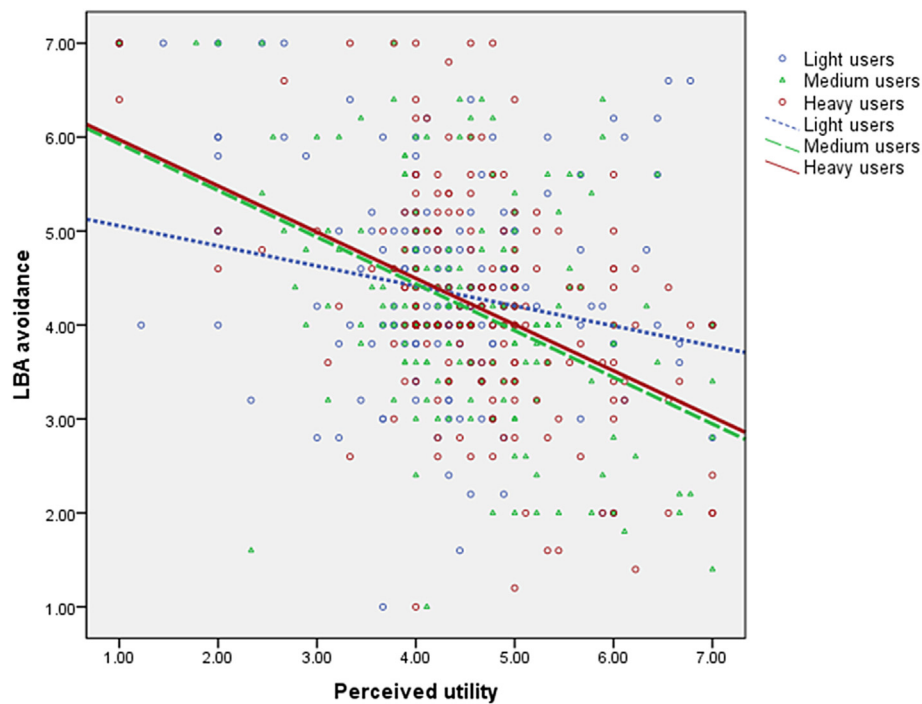
	Light users ( $n = 201$ )	Medium users ( $n = 202$ )	Heavy users ( $n = 202$ )
<b>Time spent on mobile devices (Total: Minutes)</b>			
Average	27.64	93.06	396.06
(Range)	(<60)	(60–149)	( $\geq 150$ )
<b>Gender (%)</b>			
Male	54.7	52.5	46.5
Female	45.3	47.5	53.5
<b>Age (%)</b>			
18–29	17.4	19.8	30.6
30–39	14.9	26.2	28.2
40–49	35.3	31.7	26.2
50 and older	32.3	22.3	14.9
<b>Ethnicity (%)</b>			
Chinese	75.1	78.2	74.8
Malay	9.5	6.9	13.9
Indian	9.5	11.9	6.9
Eurasian	1.5	1.5	1.0
Others	4.5	1.5	3.5
<b>Education (%)</b>			
Primary level/PSLE and below	3.5	1.0	0.0
Secondary level/'O' levels or equivalent	29.4	19.3	25.7
Junior college/'A' levels or equivalent	5.0	4.0	5.0
Polytechnic/Diploma	23.4	29.7	29.2
College/University undergraduate	28.9	35.6	30.7
Master's degree	8.5	8.9	8.9
Doctoral degree	1.5	1.5	0.5
<b>Monthly income<sup>a</sup> (%)</b>			
Dependent/No income	14.9	9.4	12.4
S\$ 1000 and below	8.5	5.4	8.9
S\$ 1001–S\$3000	35.3	22.8	35.1
S\$ 3001–S\$5000	24.4	34.2	21.8
S\$ 5001–S\$7000	6.5	10.9	11.9
S\$ 7001–S\$9000	4.5	6.9	5.0
S\$ 9001–S\$10,000	1.5	4.5	0.0
S\$ 10,001 and above	4.5	5.9	5.0

<sup>a</sup> Singapore\$ (S\$) is about US\$0.72 as of February 12, 2015.

**Table 5**

Mean differences in key variables across the three user segment groups: one-way analysis of variance (ANOVA) tests.

	Light users (1)	Medium users (2)	Heavy users (3)	<i>F</i>	<i>p</i>	Post hoc ( <i>Bonferroni</i> )
LBA avoidance	4.36	4.18	4.19	1.61	0.20	
Perceived impediment	4.54	4.31	4.50	2.65	0.07	
Perceived sacrifice	4.95	4.73	4.97	2.76	0.06	
Perceived utility	4.27	4.52	4.62	6.28	0.00	1 < 2, 3 <sup>a</sup>
Perceived entertainment	3.94	4.3	4.00	0.40	0.67	

<sup>a</sup> The mean difference is significant at  $p < 0.05$ .**Fig. 1.** Interaction of perceived utility and mobile device usage on LBA avoidance.

activities are disrupted or become difficult to maintain when LBA appears. Mobile consumers tend to be emotionally attached to their mobile devices, with some even maintaining a constant connection to social networks (Rice & Hagen, 2010). Thus, pervasive and targeted LBA messages that are sent without consumers' prior consent are likely to be regarded as an annoyance or an invasion of personal space, creating resistance to LBA. Thus, consumers' resistance to LBA may be greater than their resistance to advertising in traditional media or the Internet, and an unexpected appearance of LBA messages is likely to be viewed as particularly disruptive "noise." As the current study did not measure psychological reactance against LBA versus advertising in traditional media, however, our argument warrants future research. We suggest future research empirically assess consumer reactance to push LBA versus other forms of advertising and how psychological reactance elicited by LBA affects consumers' LBA avoidance.

One way to overcome the perceived goal impediment and sacrifice caused by LBA is to deliver an advertising message from which consumers can clearly benefit. Edwards et al. (2002) suggest that one of the best ways to reduce perceived goal impediment (intrusiveness) is to increase the value that consumers receive from an advertisement. If an ad is perceived as useful and beneficial, consumers are less likely to feel irritated by it, and thus are less likely to avoid it. Our results provide empirical support for the negative association between the perceived utility of LBA and consumers'

avoidance of it.

Another way to reduce the perceived impediment is to find a way to develop more context-congruent advertisements tailored to their target audience (Cho & Cheon, 2004). Unidirectional and obtrusive LBA could backfire, especially if a message is delivered to a consumer at the wrong time or in the wrong context. Therefore, more sophisticated and subtle approaches are required. For instance, consumers might perceive opt-in, permission-based LBA messages created based on user profiling and behavioral information to be more relevant because such advertising messages are likely to be more consistent with who they are and what they pursue. Future research is encouraged to examine the impact of the context-content congruency on LBA effects and effectiveness.

Based on the cultivation differential hypothesis, our study also examine how predictors affect LBA's avoidance in relation to three levels of mobile device usage. There has been little research applying cultivation theory to examine mobile advertising. Our analyses of the latest LBA reveal that the relationships between the user perceptions of this new form of mobile advertising and its avoidance vary with their degrees of mobile device usage. Because prior cultivation studies have not looked into the outcomes of media exposure to medium users, our research is one of the first to examine medium mobile consumers' LBA avoidance under the rubric of cultivation.

In our study, heavy, medium, and light users did not

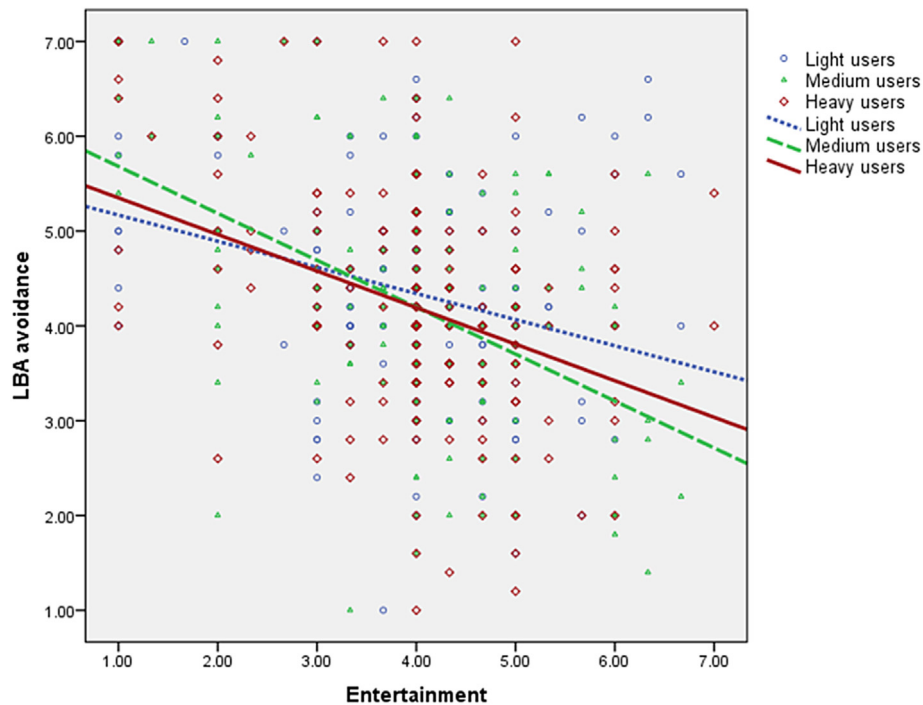


Fig. 2. Interaction of perceived entertainment and mobile device usage on LBA avoidance.

substantially differ in their level of LBA avoidance. Nonetheless, the effects of the gain factors (perceived utility and perceived entertainment) on LBA avoidance were greater for medium and heavy mobile device users than for light users, suggesting that medium and heavy users are less likely to avoid LBA when they find LBA messages to be useful and entertaining. Similar to prior studies' findings that heavy exposure to TV commercials could reduce negative attitudes toward advertising (Kwak et al., 2002), heavy and medium mobile consumers when being more exposed to LBA appear to feel more positive about receiving LBA and thus significantly reduce their LBA avoidance.

This study makes important contributions to the literature. By examining key perceptual factors that influence consumers' avoidance of a new form of advertising (LBA), we provide a framework for understanding one type of negative response to mobile advertising—avoidance. Our study examined the role of four perceptual factors that are particularly pertinent to current forms of LBA (e.g., goal impediment and entertainment) but have rarely been examined in advertising avoidance research in other media contexts (e.g., sacrifice and utility). We predicted negative associations between the loss factors (goal impediment and sacrifice) based on the theory of psychological reactance (Brehm, 1966) and our findings are in line with the theory. In addition to those perceptual factors, this study investigated a media usage factor (mobile device usage) as a moderator influencing the association between LBA perception and avoidance and explained the role of mobile device usage using the cultivation theory (Gerbner & Gross, 1976). We believe our theory-based approach provides a systematic understanding of how LBA works and makes meaningful contributions to advertising avoidance research.

With respect to practical implications, our findings of LBA avoidance in response to levels of mobile device use suggest that advertisers develop a deeper understanding of different segments of mobile consumers (heavy, medium, and light users). Our results suggest that heavy and medium users are likely to approach LBA if they think they can gain either utilitarian or hedonic benefits from it without interfering with their other mobile activities. Messages

that are congruent with their current needs can be considered especially useful.

It is critical that advertisers understand what different consumer segments want from LBA. To reduce consumers' avoidance of LBA, advertising messages should provide consumers with unique benefits. Our results also suggest that advertisers should carefully consider *context*—the time, place, and situation in which consumers receive LBA messages, as well as *target*—consumers' varying degrees of engagement with mobile devices.

A limitation of this study is that respondents were recruited using a non-probability sampling method. Although our quota sampling method constitutes a sound alternative to a probability sampling method for obtaining a reasonable representation of mobile consumers in Singapore, care must be exercised in generalizing these findings to other research contexts. With regard to emerging technologies like LBA, market situations and policy differences may play a particularly important role (Merisavo et al., 2007). Although Singapore's mobile penetration and smartphone ownership are both high, LBA that has been gradually diffused is not strictly regulated (Lin et al., 2016). Thus, the findings from this study might be less applicable to countries with lower mobile penetration rates or tighter LBA regulations.

## References

- Baek, T. H., & Morimoto, M. (2012). Stay away from me. *Journal of Advertising*, 41(1), 59–76.
- Banerjee, S. S., & Dholakia, R. R. (2008). Mobile advertising: does location based advertising work? *International Journal of Mobile Marketing*, 3(2), 68–75.
- Bauer, H. H., Barnes, S. J., Reichardt, T., & Neumann, M. M. (2005). Driving consumer acceptance of mobile marketing: a theoretical framework and empirical study. *Journal of Electronic Consumer Research*, 6(3), 181–192.
- Bellman, S., Schweda, A., & Varan, D. (2010). The residual impact of avoided television advertising. *Journal of advertising*, 39(1), 67–82.
- Brehm, J. W. (1966). *A theory of psychological reactance*. New York, NY: Academic Press.
- Bruner, G. C., & Kumar, A. (2007). Attitude toward location-based advertising. *Journal of Interactive Advertising*, 7(2), 3–15.
- Cho, C.-H., & Cheon, H. J. (2004). Why do people avoid advertising on the internet? *Journal of advertising*, 33(4), 89–97.



- Choi, Y. K., Hwang, J. S., & McMillan, S. J. (2008). Gearing up for mobile advertising: a cross-cultural examination of key factors that drive mobile messages home to consumers. *Psychology & Marketing*, 25(8), 756–768.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319–340.
- Dhar, S., & Varshney, U. (2011). Challenges and business models for mobile location-based services and advertising. *Communications of the ACM*, 54(5), 121–128.
- Dix, S., & Phau, I. (2010). Television advertising avoidance: advancing research methodology. *Journal of Promotion Management*, 16(1–2), 114–133.
- Drossos, D., Giaglis, G. M., Lekakos, G., Kokkinaki, F., & Stavrakaki, M. G. (2007). Determinants of effective SMS advertising: an experimental study. *Journal of Interactive Advertising*, 7(2), 16–27.
- Duff, B. R., & Faber, R. J. (2011). Missing the mark. *Journal of Advertising*, 40(2), 51–62.
- Edwards, S. M., Li, H., & Lee, J.-H. (2002). Forced exposure and psychological reactance: antecedents and consequences of the perceived intrusiveness of pop-up ads. *Journal of Advertising*, 31(3), 83–95.
- Gerbner, G., & Gross, L. (1976). Living with television: the violence profile. *Journal of Communication*, 26(2), 172–194.
- Jewell, R. D., & Urinava, H. R. (2004). Exploring differences in attitudes between light and heavy brand users. *Journal of Consumer Psychology*, 14(1/2), 75–80.
- Jung, J.-H., Sung, Y., & Lee, W.-N. (2013). Smart choice: smartphone users' intention to accept mobile advertising. *Online Journal of Communication and Media Technologies*, 3(2), 187–202.
- Kaplan, D. (2015). *10 top location-based marketing campaigns of 2015*. Street Fight. Retrieved 4 May 2016, from <http://streetfightmag.com/2015/12/22/10-top-location-based-marketing-campaigns-of-2015/>.
- Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of mass communication by the individual. In J. G. Blumler, & E. Katz (Eds.), *The uses of mass communications: Current perspective on gratifications research* (pp. 19–32). Beverly Hills, CA: Sage.
- Khan, M. N., & Allil, K. (2010). Determinants of mobile advertising adoption: a cross-country comparison of India and Syria. *International Journal of Mobile Marketing*, 5(1).
- Kwak, H., Zinkhan, G. M., & DeLorme, D. E. (2002). Effects of compulsive buying tendencies on attitudes toward advertising: The moderating role of exposure to TV commercials and TV shows. *Journal of Current Issues & Research in Advertising*, 24(2), 17–32.
- Lee, H.-H., & Hill, J. T. (2013). Moderating effect of privacy self-efficacy on location-based mobile marketing. *International Journal of Mobile Communications*, 11(4), 330–350.
- Leung, L., & Wei, R. (2000). More than just talk on the move: users and gratifications of the cellular phone. *Journal of Mass Communication Quarterly*, 77(2), 308–320.
- Lin, T. T. C., Paragas, F., & Bautista, J. R. (2016). Determinants of mobile consumers' perceived value of location-based mobile advertising and user responses. *International Journal of Mobile Communications*, 14(2), 99–117.
- Lin, T. T. C., Paragas, F., Goh, D., & Bautista, J. R. (2016). Developing location-based mobile advertising in Singapore: a socio-technical perspective. *Technological Forecasting and Social Change*, 103, 334–349.
- Merisavo, M., Kajalo, S., Karjalainen, H., Virtanen, V., Salmenkivi, S., Raulas, M., et al. (2007). An empirical study of the drivers of consumer acceptance of mobile advertising. *Journal of Interactive Advertising*, 7(2), 41–50.
- Micu, A. (2007). Theoretical approaches in internet advertising research. In D. Schmann, & E. Thorson (Eds.), *Internet advertising: Theory and research* (pp. 37–68). Psychology Press.
- Ministry of Manpower. (2014). *Summary Table: Income*. Retrieved 5 June 2014, from <http://stats.mom.gov.sg/Pages/Income-Summary-Table.aspx>.
- Morgan, M., & Shanahan, J. (2010). The state of cultivation. *Journal of Broadcast & Electronic Media*, 54(2), 337–355.
- Morimoto, M., & Chang, S. (2009). Psychological factors affecting perceptions of unsolicited commercial e-mail. *Journal of Current Issues & Research in Advertising*, 31(1), 63–73.
- O'Guinn, T. C., Allen, C. T., & Semenik, R. J. (2012). *Advertising and Integrated Brand Promotion* (6th ed.). Mason, OH: South-Western.
- Pleshko, L. P., & Al-Houti, S. (2012). Heavy versus light users: a preliminary study of behavior patterns in retail service. *Academy of Marketing Studies Journal*, 16(1), 61–74.
- Quick, B. L., & Stephenson, M. T. (2007). Further evidence that psychological reactance can be modelled as a combination of anger and negative cognitions. *Communication Research*, 34, 255–276.
- Rau, P.-L. P., Liao, Q., & Chen, C. (2013). Factors influencing mobile advertising avoidance. *International Journal of Mobile Communications*, 11(2), 123–139.
- Rice, R. E., & Hagen, I. (2010). Young adults' perpetual contact, social connection, and social control through the internet and mobile phones. In C. T. Salmon (Ed.), *Communication yearbook* (vol. 34, pp. 2–39). London, UK: Routledge.
- Shin, W., & Krabuanrant, T. (2007). On the future of location-based advertising. *SCMS Journal of Indian Management*, 4, 10–15.
- Speck, P. S., & Elliott, M. T. (1997). Predictors of advertising avoidance in print and broadcast media. *Journal of Advertising*, 26(3), 61–76.
- Tsang, M. M., Ho, S.-C., & Liang, T.-P. (2004). Consumer attitudes toward mobile advertising: an empirical study. *International Journal of Electronic Commerce*, 8(3), 65–78.
- Unni, R., & Harmon, R. (2007). Perceived effectiveness of push vs. pull mobile location based advertising. *Journal of Interactive Advertising*, 7(2), 28–40.
- Wei, R., Hao, X., & Ji, P. (2010). Examining user behavioral responses to SMS ads: implications for the evolution of the mobile phone as a bona-fide medium. *Telecommunications and Informatics*, 27(1), 32–41.
- Worchel, S., & Brehm, J. W. (1970). Effect of threats to attitudinal freedom as a function of agreement with the communicator. *Journal of Personality and Social Psychology*, 14(1), 18–22.
- Xu, H., Oh, L.-B., & Teo, H.-H. (2009). Perceived effectiveness of text vs. multimedia location-based advertising messaging. *International Journal of Mobile Communications*, 7(2), 154–177.
- Yang, H., Zhou, L., & Liu, H. (2010). A comparative study of American and Chinese young consumers' acceptance of mobile advertising: a structural equation modeling approach. *International Journal of Mobile Marketing*, 5(1), 60–76.