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ATTITUDE TOWARD LOCATION-BASED ADVERTISING

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Abstract

Location-based advertising (LBA) is not new but being able to access it through one's mobile communication device is. Description of this revolutionary advertising medium is provided as well as some opportunities and challenges that come with it. Desperately needed is more scholarly research since in-depth examination of the topic has barely begun. To assist researchers in their investigations, a scale is provided here that is likely to become central to many studies: *attitude toward location-based advertising* (A_{lba}). Support for the scale's psychometric quality comes from a preliminary study and a two-stage analysis of a large, national sample.

ATTITUDE TOWARD LOCATION-BASED ADVERTISING

We are approaching a time when the ability will exist to contact individuals at any time, at any place. This is due to the ubiquity of mobile devices, particularly mobile phones with GPS functionality. The technology holds the potential for marketers to send information and offers to consumers based on their proximity to places where the marketers' products are available.

Given the growing ability to reach people in a much more targeted manner than was possible in the past, the next question one must ask is, what do consumers think about it? If consumers have generally positive attitudes toward such advertising, then this could be the very technology that allows m-commerce to kick into high gear. If consumers are generally negative about it then advertisers will have to sell the medium first before they can successfully use it to sell other things.

Mobile advertising in general is only beginning to receive scholarly examination. A specific type of mobile advertising, location-based advertising (LBA), has received even less scholarly attention. One purpose of this paper is to describe LBA. To facilitate future studies by academic and industry researchers, a second purpose of this paper is to provide a multi-item scale for measuring the construct. The results of a preliminary study and a two-stage process of refining and testing the scale are reported along with the implications for future research.

Background

What is LBA?

In a general sense, LBA refers to marketer-controlled information specially tailored for the place where users access an advertising medium. Described this way, LBA is not

new. For example, a key feature for decades of many roadside billboards is that their content is specific to where they are placed, e.g., *STOP!!! Exit here to see Alligator Rodeo.* This description of LBA is broad enough to include transit-related advertising as well. In the case of advertising in terminals, the medium is fixed but its content can be tailored for the people who are mobile and in contact with it for only a brief period of time. It is also possible for the medium to be mobile by being placed on transportation vehicles (taxis, buses, and trains) and the ad content to be tailored somewhat for the areas they travel.

In contrast, there is a new medium that allows consumers to be exposed to advertising on the communication devices they carry with them, primarily in the form of mobile phones. The consumer is mobile and, by consequence, so is the device. It is this variety of LBA that is focused on in this paper and is specifically defined as *marketer-controlled information customized for recipients' geographic positions and received on mobile communication devices* (adapted from Fields 2005). Defined this way, LBA could become an important part of what Oliver, Rust, and Varki (1998) called *real-time marketing*, meeting customer needs at the time and place they want it.

An important distinction to make is between LBA and mobile advertising. Mobile advertising is the broader of the two concepts and is used primarily to refer to ads that are sent to individual's cell phones. A somewhat broader phrase being introduced is *mobile channel* (Nysveen et al. 2005). It refers to a multi-faceted interactive network by which companies communicate with individuals via various mobile delivery technologies (adapted from Becker 2005). In contrast, LBA is a very specific type of mobile

advertising. Thus, all mobile advertising is not LBA; it depends on whether or not the ad is determined by the recipient's (or more technically, the device's) location.

LBA can also be viewed as part of a larger form of innovative communication technology called *location-based services* (LBS). LBS includes emergency notification, assistance services, location/directions to places of interest, traffic information, community services, and payment services (Driscoll 2001; Küpper 2005). When these services are made available in personal vehicles, such as with *OnStar,* it is called *telematics* (Clements 2004). Peer-to-peer services are also being introduced that can enable such things as "geo-tags," comments attached to specific geographic locations (restaurants, shops, museums) that are left by previous consumers (Blackwell 2005). The notes are received by those who enter the vicinity of the tag at a later time, have the needed software, and have properly configured their devices (Navizon 2006).

The opportunity for marketers to utilize LBA is going to increase tremendously in the next few years. In Europe, several forms of LBA have already been demonstrated (Koelmel, Duong, and Maier 2004). In the U.S., one of the key forms the technology will take involves the GPS component (Global Positioning System) within mobile phones. Driving this capability is the FCC's E911 ruling that mobile phone operators must have the ability to locate subscribers in emergency circumstances (FCC 2001). Other technologies enabling LBA involve the use of Bluetooth or RFID attached to such things as store fronts, vending machines, and poster boards to broadcast to people with properly enabled devices who pass near them (Bostrom 2005; Klassen 2005). At the very least, users themselves can enter locations into their devices (zip codes, area codes, city names) which can trigger a rudimentary level of location specificity. The implication is that as

we move forward, the technology will increasingly be in place to enable marketers to reach mobile phone subscribers with messages customized for the user's location. However, the manner in which marketers decide to use this channel in their promotion strategies should depend upon users' attitudes about LBA.

Push vs. Pull

Two approaches to LBA are possible: the push approach and the pull approach. (See Figure 1.) Although these concepts are well-known in the context of traditional marketing communications, they are defined a little differently with regard to LBA. These alternative strategies are usually viewed as differing in the *type* of promotion being used and *whom* it is aimed at (e.g., Shimp 2003, p. 472). However, in the context of LBA the meaning is much more limited since it refers purely to advertising and sales promotion (not personal selling) aimed at the ultimate consumer (not intermediaries) (e.g., Carat Interactive 2002; Kölmel and Alexakis 2002).

The LBA push approach amounts to the advertiser working with the carriers and delivery networks to send (*push*) ads to the user, determined by the device's location. Hypothetically, it could be targeted even more finely if other information is available about users (context, demographics, psychographics, etc.) Within the push approach, there are two further possibilities with which we have become familiar in recent years as they pertain to e-mail advertising: opt-out and opt-in. Opt-out suggests that advertisers would send ads to whomever they wanted to until users ask that they not be sent ads anymore. In contrast, the opt-in approach involves users authorizing that messages be sent to them, a type of *permission marketing* (Godin 1999). As an example, the push approach was used when moviegoers walked near a kiosk at some theaters and received

text messages letting them know they could download free content related to recent movie releases (Parry 2005). In this case, opt-in would mean recipients would have previously indicated their interest in receiving messages from the theaters whereas opt-out means they would not have done so.

The other approach to LBA is called *pull* and it occurs when consumers request some information or use some service on a one-time basis and in the process are exposed to commercial messages (MMA 2005a). In essence, they are seeking information (*pulling*) rather than the information seeking them (*pushing*). For example, a salesman visiting San Francisco could use his device to access a portal where one of the choices is *Local Restaurants*. After selecting that, the next alternative he may choose to pick is *Chinese*. Five restaurants are shown, all indicated to be within a half-mile of his location. He selects one of them and a map is provided as well as an offer of a free appetizer, good for the next hour. Because the user chooses the time and place to access the information in the pull approach, it is by definition opt-in.

Regulation of LBA

Getting permission before sending someone a mobile message is now a legal requirement in Europe (EC 2002). As for the U.S., sending commercial messages to wireless devices is prohibited both under the Telephone Consumer Protection Act (TCPA) and the Controlling the Assault of Non-Solicited Pornography and Marketing Act (CAN-SPAM), unless the recipients have opted-in (Kimball 2004). This should mean that in both Europe and the U.S. if not elsewhere in the world, the opt-out push approach to LBA is generally illegal. But, vagaries in legality persist. For example, the issue of "soft" opt-in must be eventually resolved. This occurs when marketers *assume* that consumers have opted-in

based upon behaviors they have engaged in (e.g., entering a certain space, De Reyck and DeGraeve 2003) or information gathered from them in the course of sales negotiations, even if purchases did not ultimately take place (MMA 2005b). Hence, the reality is that due to legal loopholes and lax enforcement, receiving commercial messages from parties to whom consent has not been explicitly given will be a fact of life for the near term. Despite this, the point is that opt-out push LBA is not a viable strategy for responsible marketers.

Consumer Attitudes Regarding Mobile Advertising

Because we carry these devices with us all of the time and use them frequently, they are becoming part of us. This is exactly the sort of thing Marshall McLuhan (1964) was referring to when he coined the phrase *gadget lovers*. We are so dependent on the devices that we may feel we can not function well without them. They have become a fashion statement for many (Katz and Sugiyama 2005) with their usage being related to personality (Love and Kewley 2005) and becoming "addictive" for some people (Park 2005). It is no wonder then that the personal nature of these devices can lead us to being even more unreceptive towards those who infiltrate this space than we have been towards e-mail spam (James 2000). This leads to the "location paradox" whereby we want to remain anonymous while at the same time having the context sensitive information that LBA can provide us (Rimkus 2000). Even with well crafted, relevant ads, it could be bothersome if we receive too many messages from marketers we have opted-in with. To add insult to injury, consumers may have to pay each time it occurs since in many payment plans currently employed in the U.S., the user is financially responsible for the transmission and reception of messages (Fattah 2003)!

As a result of all of this, consumers could easily view mobile advertising, including LBA, as yet another form of spam (Fuller 2005). Indeed, a collaborative effort between academia and industry recently documented on a worldwide level the uphill battle marketers face in using the mobile channel (Brodt 2005). The term "spam" was used in the study and was defined rather broadly to include a variety of unsolicited messages. Among the key findings was that consumers saw mobile spam as having a negative impact on the brand image of the mobile network operator. Respondents said they would rather change their operators than apply for a new cell phone number. In addition, mobile users do not differentiate between third-party messages or messages from their operator; to them, it's all spam. Consumers expect mobile spam to become more of a problem in the future.

With regard to LBA in particular, scholarly studies are still extremely rare. The few that have been done were more technically focused and/or the consumer data were qualitative in nature (Aalto et al. 2004; De Reyck and Degraeve 2003; Häkkilä and Mäntyjärvi 2004; Kaasinen 2003). As consumer behavior and communication scholars enter this field of study they will need well developed measures of the key constructs, particularly those related to consumer attitudes towards LBA as discussed below.

The Hierarchy of Effects & Need for Alba Scale

In one sense, the survey results mentioned above are not surprising since consumer attitudes toward advertising in general have long been found to be negative and seem to have worsened over time (Zanot 1981). However, we also know that the results can vary depending upon the medium (Elliot and Speck 1998; Shavitt, Vargas, and Lowrey 2004). Consequently, there are at least three key attitudes related to advertising that must be

distinguished as research of advertising effects on intentions and behaviors moves forward: attitude-toward-advertising-in-general (A_{adv}), attitude-toward-the-medium (A_m), and attitude-toward-the-ad (A_{ad}). At least as far back as Lutz (1985) it was recognized that one of the primary determinants of A_{ad} is A_{adv}. Yet, it has been suggested that A_m, as an intervening variable between the two, could have a more immediate and powerful effect on A_{ad} (Elliot and Speck 1998; Stewart and Ward 1994). Clearly, these are three different levels of abstraction and, therefore, are different constructs. As different constructs, they require distinct measures.

As scholars begin to explore these topics, more sophisticated measurement of attitude constructs has begun. Nysveen, Pedersen, and Thorbjørnsen along with other colleagues have conducted numerous studies of mobile services and have developed a variety of useful scales (e.g., Nysveen, Pedersen, and Thorbjørnsen 2005; Nysveen et al. 2005; Pedersen, Nysveen, and Thorbjørnsen 2002.) However, none have to do with location-based advertising *per se.* Several recent studies have examined the antecedents of attitude toward mobile advertising (Bauer et al. 2005; Haghirian and Madlberger 2005; Tsang, Ho, and Liang 2004). Yet, knowing one's attitude toward mobile advertising in all its various forms and uses is not synonymous with knowing the person's attitude about personally receiving LBA.

Therefore, what is missing from all known studies at this time is a multi-item scale to measure one's attitude toward location-based advertising, hereafter referred to as A_{lba}. It is defined as *a person's general predisposition toward commercial messages that are received on a personal mobile communication device and customized for one's geographic position.* It is important to stress again that A_{lba} is viewed as more specific

than A_{adv} yet not as specific as A_{ad}. Further, the construct is not the same as one's attitude toward the mobile advertising (A_m) because ads can be received on cell phones that have nothing to do with one's location.

One possibility for measuring A_{lba} is to use the same items as have been used to measure A_{adv} or A_m. However, it seems quite likely that in many studies, certainly the ones testing theory, that two or more of the constructs in the hierarchy will be included in the study. This introduces a methodological problem because critics have long noted that when constructs are operationalized the same way in a study it may inflate the apparent relationship due to their shared method variance (Bagozzi and Yi 1991). To reduce that possibility, researchers have been urged to conduct research using multiple-method, multiple measure approaches (Campbell and Fiske 1959). As a practical matter, however, there is a limit to what researchers can and will do, especially when working within the confines of the typical questionnaire format and dealing with respondent fatigue. One of the simple things that can be done to reduce method bias in studies is to not use the same items to measure related constructs. Further, even if one were not concerned about shared method variance, it can not be assumed that a scale that performed well with traditional media would work well with a brand new medium, one that people are just learning about and experiencing.

What is needed now as industry and scholarly researchers begin to rigorously study location-specific communication with consumers is a multi-item scale to measure A_{lba}. The next section of the paper will describe the development and testing of such a scale.

Methodology

A preliminary study was carried out to identify the different facets of the domain of the A_{lba} construct. As LBA is a relatively new phenomenon, we chose to sample students from a university that was introducing a text-messaging service with rudimentary location-based advertising capabilities. With the program being promoted to the campus community, many students were developing a basic level of familiarity with the concept of location-based-advertising.

Preliminary Study

One hundred and twenty undergraduate students enrolled in a basic business course completed an open-ended survey. The study described the concepts of LBA and the opt-in option for consumers. After reading a short description of LBA, participants were asked to list whatever thoughts came to their mind about it. (See Muehling 1987 for a similar approach used to identify the domain for $A_{adv.}$) The main instructions were "We are interested in your thoughts and views about this kind of advertising, i.e., location-based advertising. Any thoughts you have will be of interest to us. So, please take a few minutes to list any and all thoughts that come to your mind as you think about location-based advertising." Two judges coded the responses to identify the different facets relevant to the new construct. Several different aspects of A_{lba} emerged from the responses, e.g., *usefulness*, *informative*, overall *favorability*, et cetera. Most of these facets had also been identified in prior research on advertising research related to A_{adv}, A_m, and/or A_{ad}. However, *intrusiveness* and *novelty* emerged as relevant facets of the domain of A_{lba} and the nuances of this facet appeared to be more important with this

medium than traditional media. For example, several participants who had experienced LBA described how bothersome these communications were when they interrupted what one was doing even if the information was useful. The irritation factor was also hinted at by participants who said sometimes they received the same communication repeatedly and, hence, they stopped paying any attention to it. Some participants noted that they did not know LBA was possible, some thought this new technology was cool and that this would be our future in a technology driven world, while some others felt uneasy about this new ability of advertisers to reach them.

Based on these comments, a literature review, and an understanding of measures used with other advertising media, scale items were generated for examination in the main study.

Main Study

Data were collected from 789 members of a national panel maintained by NFO Worldgroup, now part of TNS (Taylor Nelson Sofres) who filled out the survey instrument online. The sample was nearly evenly split on gender (51% male), 63% were 40 years or older, 87% were white, 79% were married, 61% worked full-time, 47% were college graduates, 52% lived in large metropolitan areas (CMSA of 2,000,000+), and over 61% reported household incomes greater than $60,000.

The questionnaire included many constructs related to technology usage but the focus here is only on those items used in the process of testing and validating the A_{lba} scale. Ten items were included that were expected to measure A_{lba}. The items incorporated key terms that were used in studies of traditional media (e.g., Ducoffe 1995; Muehling 1987) and that were also used in early studies of web advertising (Cho 1999;

Donthu and Garcia 1999; Ducoffe 1996). Based on the feedback from the preliminary study, a few more items were added to reflect the fact that LBA is an innovative new medium but one that could be especially annoying. The items were preceded by a description and examples of LBA so all respondents would have a basic understanding of what it was.

To help establish the unidimensionality of the A_{lba} scale as well as its discriminant and nomological validities, several other constructs expected to have varying degrees of relationship with it were also included. As discussed already, A_{lba} was assumed to have a moderately positive relationship with A_{adv} (e.g., Lutz 1985; Mehta 2000). Also, as noted above, modern consumers have the tendency to become "gadget lovers" (McLuhan 1964) and some have a greater motivation than others (Bruner and Kumar 2007; Park 2005). Based on this, A_{lba} was expected to have a positive relationship with being a gadget lover since cutting-edge technology plays a key role in making LBA a reality. A_{lba} was also expected to have a positive relationship with materialism such that the more a person believes that happiness comes from owning things then the media that provide the information about those things would be generally viewed in favorable terms (Sirgy et al. 1998). Opinion leadership has been found in many cultures to be associated with innovative behaviors and greater exposure to mass media (Rogers 2003). In addition, opinion leaders have been found to have more positive attitudes towards advertising media than followers (Vernette 2004). Accordingly, opinion leadership scores in the technology domain should be positively correlated with more favorable attitudes towards LBA. Finally, despite the wonder and excitement that technology holds for many consumers, it is viewed more pessimistically by others (Mick and Fournier 1998).

Negative attitudes about advertising have also been found to be related to alienation (Durand and Lambert 1985). Given this, it was expected that those who tend to be pessimistic about life were more likely to have negative attitudes about LBA.

Scales to measure all of these other constructs were borrowed or adapted from previous research. (Items and sources for all scales are provided in the Appendix.) Except for A_{adv}, all of the scales were composed of multi-items with seven-point formats. A_{adv} was measured by an index formed by the summation of a six-item ordinal scale.

The study also examined the extent to which the A_{lba} scale might be susceptible to response bias, particularly the tendency to respond in a socially desirable manner. Testing for such bias is recommended when it is possible that people might respond to scale items in a way they think would make them popular or as they think others would expect them to (Netemeyer, Bearden, and Sharma 2003, p. 83). Over the past four decades the construct has primarily been measured using a scale by Crowne and Marlowe (1960). Due to that instrument's length, an abbreviated version recommended by Ballard, Crino, and Reubenfeld (1988) was used in this study.

To avoid using the same set of responses to develop the scale and test its psychometric quality, the large national sample was randomly split into two sub-samples, a procedure used in previous research (e.g., Srinivasan, Anderson, and Ponnavolu 2002). In addition, a two-step procedure recommended by Anderson and Gerbing (1988) was followed. Specifically, in the first step, responses to the items composing A_{lba} and the other scales from the first sub-sample were examined using exploratory factor analysis. Based on this, items could be deleted that did not load strongly on the expected constructs or that had high cross-loadings on multiple constructs. In a separate analysis, the A_{lba}

items were tested individually for their sensitivity to social desirability bias. If correlations were moderate to high then there was justification for removing the items. If, on the other hand, correlations were low then they could remain. In the second of the two steps, confirmatory factor analysis was performed on the remaining items using the responses from the second sub-sample. In that step, the final scales were tested more rigorously for their unidimensionality, reliability, as well as for their convergent and discriminant validities.

Finally, respondents were also asked two more related questions. After describing opt-in and opt-out systems of location-based advertising, respondents were asked to indicate which of the two systems they preferred the Federal Government to legally authorize. A second question asked if they thought the choice should be left up to each individual or if one of the two systems should be legally determined by the government for every advertiser to comply with.

Results

To test the A_{lba} scale's dimensionality, the items developed to measure that construct along with the items measuring five other constructs used in the study were examined using principal axis factor analysis and varimax rotation with data from the first sub-sample (n = 394). The items intended to measure A_{lba} indeed had strong loadings on the same factor (all λ's > .5). There were no substantial cross-loadings between A_{lba} and the other multi-item scales.

The quality of the A_{lba} items was also tested by examining the degree to which they were sensitive to socially desirable responding. This was done by correlating each of the ten items with the social desirability bias scale. Each of the ten items had very low

correlations with the social desirability scale, ranging from .02 to .12. Given that none of the items showed evidence of substantial sensitivity to socially desirable responding, each of the items was considered to be acceptable for further testing with the second subsample.

In the second stage of the process, the psychometric properties of the A_{lba} scale were assessed by performing a confirmatory factor analysis (CFA) using data from the second subsample (n = 395). The analysis used the same items measuring A_{lba} and the five other constructs as used in the previous stage since no items were deleted. As A_{adv} was represented by an index score in the model, it was treated like a single item measure of a latent construct. Accordingly, as suggested in prior literature, a conservative estimate of measurement error was assigned to the construct and measurement error for A_{adv} was fixed at 10% of the variance of the index score (Hayduk 1987). Based on an examination of the overall model fit, modification indices, largest standardized residuals and item reliabilities, four items from the total set were dropped one at a time. (See items without asterisks in Appendix.) The model was re-estimated after each item was dropped. The four items dropped included one item that was part of the initial A_{lba} scale. (See Table 1 for loadings of items on A_{lba}.)

Based on an examination of Mardia's coefficient, it was evident that the data did not meet the multivariate normality assumption, hence, the Satorra-Bentler robust statistics are reported here as it takes into account deviations from the normality assumptions. The overall fit of the revised model was excellent as indicated by several different overall model fit indices (e.g., $NNFI_{S\text{-}B\chi^2}$, $CFI_{S\text{-}B\chi^2}$ and $IFI_{S\text{-}B\chi^2}$ were ≥ 0.94, RMSEA < 0.05). The convergent and discriminant validities of the A_{lba} scale were

established per criteria suggested by Fornell and Larcker (1981). All items except one had standardized factor loadings greater than 0.65 ($p < .001$). (The only exception had a standardized loading of 0.48). The standardized loadings were used to calculate the average variance extracted (AVE). The AVE for A_{lba} (0.63) was well above 0.50, which suggests good convergent validity. It was also above the squared correlation between A_{lba} and every other construct in the study which indicated good discriminant validity. (See Table 2.)

The lone item that had a standardized loading of 0.48 was part of the A_{lba} scale ("I think LBA will be deceptive"). Although the item reliability (0.23) was well below the recommended value of 0.50, it was decided to retain the item as part of the overall A_{lba} scale as the item was capturing a facet not captured by any of the other eight items in the scale and was mentioned in several protocols in the preliminary study.

Most of the expectations regarding A_{lba}'s relationships with the other constructs were confirmed. A_{lba} had its strongest relationship with A_{adv} ($r = .37$). Beyond that, it also had significant positive (though modest) relationships with technology opinion leadership ($r = .11$), materialism ($r = .14$), and being a gadget lover ($r = .16$). Although A_{lba}'s correlation with pessimism was in the direction expected (negative), it did not rise to the level of significance. In retrospect, this could have been due to the measure of pessimism we used being general to life rather than specific to technology.

Lastly, as reflected in Table 3, the results showed that those who choose the opt-out system as the better approach for the country to take had significantly more positive attitudes toward LBA (3.85) compared to those who choose the opt-in approach (4.51). As for leaving the opt-in/opt-out decision up to the individual versus the Federal

Government, the overwhelming majority (95%) thought it should be left to the individual. In addition, there was no significant difference between those groups in their attitude about LBA.

Discussion

The purpose of this paper has been to describe an innovative new medium, location-based advertising (LBA), and to provide a scale for measuring consumers' attitudes about it (A_{lba}). There will undoubtedly be many studies of this new medium in the foreseeable future and having a validated scale to measure users' attitudes about LBA will be useful. Scholars will likely examine the variables that affect A_{lba} as well as the relative importance it plays along with other factors in determining various behaviors. Practitioners will no doubt be most concerned about the openness of their markets to LBA. It may make wonderful sense to use LBA in some cases and not in others but critical to the decision is having valid metrics and models for gauging a market's willingness to accept and respond to it.

The scale developed in this two stage study was found to be unidimensional and to have a very high internal consistency ($\alpha = .94$). This level is high enough that consideration could be given to removing an item or two with minor affect on reliability if a shorter version of the scale is desired. Items #4 and #6 are the most likely candidates at this point (Table 1). The analyses also provided evidence of the scale's convergent and discriminant validities. Finally, the scale was shown to have very low sensitivity to social desirable response tendencies.

The full sample in our study had a mean score of 3.65 (sd = 1.45) on the A_{lba} scale. On a seven-point scale, this score can be interpreted as meaning the sample as a

whole was slightly negative about the prospects of receiving LBA. This scale average may be useful as a benchmark since the study was conducted at a time before much if any LBA was actually being used. As people hear more about it and have their own personal experiences with it, their attitudes could change. No doubt some will have good experiences, finding that they seem to receive valuable offers at just the right time and place. Others, however, are likely to have all sorts of reasons to dislike it such as receiving too many irrelevant messages. Hence, depending upon a company's target market and their experiences, the average score may rise or fall indicating a segment's acceptance/resistance to LBA. This, in turn, will help a company understand the viability of LBA in an overall communication strategy.

Although nearly all of the people in our sample preferred an opt-in system, it does not imply a blank check is available for marketers to send as much as they want whenever they want. Users should be given the ability to indicate exactly what they are willing to accept from the marketer and when. Some of this has been implemented in normal desktop e-mail applications but we envision it going much further. For example, imagine a travel-related site where a person driving across country by car could indicate that a family is interested in a room for the night at a motel. Location could be determined automatically or input by the user. Being able to indicate that this is a one time, time-sensitive need (e.g., the next hour) would also be important so the user is not inundated for weeks by lodging offers.

Based on preferences for integrated promotion strategies, LBA is unlikely to be a good tool by itself. Instead, it should be a component of a well integrated promotion strategy (Carat Interactive 2002). Also, unlike the web of the late 1990s that spawned the

pureplays and seemed to have less benefit for local retailers, LBA makes most sense for brick-and-mortar businesses that users frequently pass in their daily activities (Ditlea 2000). Manufacturers and national marketers will want to work with the local retailers to capitalize on this. In particular, cooperative advertising arrangements may encourage this form of the mobile channel.

Yet, the usefulness may not be limited to local retailers. Marketers without a local presence may eventually find uses for it as well. For example, imagine a musician who has opted-in for messages from an online musical instrument supplier (without a local presence) who receives offers from that vendor when he approaches a local musical instrument retailer. Hence, knowing when consumers are near certain locations not only has value for retailers in those areas but it also has value for their competitors and complementary businesses that are not physically represented there.

As for the industry, it should be proactive in order to preempt or minimize more crippling laws than now exist. As an effort in that area, the Mobile Marketing Association has developed a Code of Conduct for the industry to follow and is reviewing potential methods of enforcement (Fuller 2005). For example, a certification program may be used to certify brands, carriers, advertisers, content providers, and technology partners that agree to comply with the Code of Conduct. In addition, the creation of national opt-in and opt-out databases for mobile marketing committee are being considered. Gratton (2002) has discussed issues that service providers must face as they proceed towards collecting location data from wireless users and obtain consent from them to use LBA.

Future Research

The items used in the A_{lba} scale were stated hypothetically since most people were

unlikely to have experienced LBA at the time when the survey was conducted. Once LBA is widely used and generally understood by consumers, the phrasing should be changed to present tense and retested. For example, instead of "*location-based advertising will provide useful information*" the statement could be "*location-based advertising provides useful information.*"

A thorough examination of the antecedents of A_{lba} would be a natural follow-up to this study. Because LBA is a subtype of mobile advertising, research can build upon the recent studies of the antecedents of attitude-toward-mobile-advertising. In doing that, the role of A_{adv} must be accounted for. In our own study as well as much previous research with other media, A_{adv} appears to play an important role. However, the work of Bauer et al. (2005) suggests that, at least in the mobile channel, other variables may play much bigger roles in explaining attitudes.

A larger issue of interest is determining within which model A_{lba} is best examined. The Theory of Reasoned Action (e.g., Fishbein and Ajzen 1975) has been used in several studies of attitude-toward-mobile-adverting and is an obvious candidate (Bauer et al. 2005; Nysveen, Pedersen, and Thorbjørnsen 2005; Tsang et al. 2004). However, the set of constructs used in those studies are so different that it is not immediately obvious what exact form the model should take when testing A_{lba}. Some suggestions are possible, however, based on the relationships that were found to be significant in those studies. As antecedents of A_{lba}, the following should receive strong consideration for inclusion: enjoyment, credibility, and perceived usefulness. As for consequences, it is rather clear that attitudes have a strong positive effect on intentions (Nysveen, Pedersen, and Thorbjørnsen 2005; Tsang et al. 2004) but the extent to which A_{lba} totally mediates the

effects of its antecedents on Intentions is not clear. In other words, the antecedents of A_{lba} may not only affect Intentions indirectly (through A_{lba}) but also directly (Nysveen, Pedersen, and Thorbjørnsen 2005).

As for consequences worthy of study, the most obvious one is purchase behavior. But, there are other outcomes which should be investigated soon. For example, one involves the quantity of LBA messages people are willing to receive in a period of time without it negatively affecting their attitude. In other words, even if consumers have opted-in with several marketers whom they do not mind hearing from, receiving messages from all of them in a short period of time could be overwhelming. This situation could easily happen when entering a mall where there are many stores and brands one has consented to hear from. This suggests that the total number of messages received should be rationalized in some way. If it is not, what party will the user blame? Is it the carrier (as in the Brodt 2005 study) or is the blame more specific (e.g., the store/brand)? Further, when consumers develop negative attitudes, what behaviors follow? One very real possibility is for them to disable the location functionality on their phones. If this is done in mass it would severely impact the viability of LBA. Given this, investigation is needed of the conditions under which users would turn off the ability of their devices to be located.

Regarding media strategy, what goods and services are most relevant for promotion via LBA? As stated previously, it seems most appropriate for those that are to be purchased on a local level from brick-and-mortar retail stores and vending machines. But, more specifically, marketers of which products are likely to find this to be most useful? Will LBA be most effective when used with small ticket items that consumers

tend to buy impulsively or could it be just as effective with large ticket items that usually require more pre-purchase search activity?

As for message strategy, the thinking up to now regarding mobile advertising is that the nature of the offer is very important (e.g., Tsang 2004). Some sort of special deal is assumed to be necessary to motivate consumers. But, what about those retailers who have lost interest in constantly using coupons; are there other types of offers that consumers could find valuable and would have a significant impact on their behavior? For example, what is the relative effect of non-price offers, such as those related to limited supply? Imagine a retailer sending this message to its science fiction patrons as they walk past the store a few days before Christmas: *It's an hour before closing and only 3 copies of The Ultimate Star Wars Collection are left.* Or, consider a busy downtown area restaurant sending this message to passersby who have previously opted-in: *No waiting for tables of 4 in next 15 minutes!* The point is that the range of offer-types needs to be thoughtfully expanded for marketers to choose from. They would also benefit greatly from empirically tested insights on the type of offer(s) to use in particular situations.

Study is needed of the opt-in process as well. This behavior is central to the success of LBA. Some issues have been well discussed from a legal point of view by Gratton (2002) but they now should be tested for their viability with consumers. Specifically, opting-in is not likely to be a simple yes/no proposition. Instead, much personal data could be needed by marketers in order to cover themselves legally as well as to efficiently target customers so that messages are sent when it is most appropriate. That requires knowing who consumers are (demographic and lifestyle profiles), as well

as other preferences (what, when, how much, and where to receive LBA messages). The irony is that more personal information is needed in order to send fewer messages. Yet, this could make the opt-in process quite tedious and, as we already know from their recent years of interaction with dot.coms, consumers are very reluctant to provide much personal information. If LBA depends upon having the very data and permission that consumers are reluctant to provide then understanding how to motivate them to opt-in could become as important an issue to study as is media and message strategy.

Appendix

Items For Scales Used In the Study*

Attitude Toward Location-Based Advertising (original, this study)

1. I would like being able to receive location-based advertising.*
2. In general, location-based advertising would probably be irritating. (r)*
3. In general, location-based advertising would be entertaining.*
4. Location-based advertising will become necessary.*
5. Location-based advertising will provide useful information.*
6. I think that location-based advertising will be deceptive. (r)*
7. I feel that location-based advertising would be an exciting improvement in wireless communication.*
8. In general, I would be favorable towards location-based advertising.*
9. I will probably not pay attention to location-based advertising. (r)*
10. I think location-based advertising will eventually become part of our daily lives.

Gadget Lover (Bruner and Kumar, 2007)

1. Despite their age, I love to play around with technological gadgets.*
2. Even if they aren't the newest thing on the market, learning how to operate technological products is interesting to me.*
3. Old or new, playing with technological products brings me a lot of enjoyment.*
4. Others may <u>not</u> understand it but it's kind of a thrill to play with products that have high tech components.*
5. If I was alone for several hours I could entertain myself easily if I had lots of gadgets to play with.*
6. Leafing through catalogs from high tech vendors such as ***Sharper Image*** and ***Dell*** is something I like to do.*
7. It is easy for me to spend a lot of time playing around with almost any kind of technological device.*
8. Some people find it irritating but I enjoy figuring out how to get technological goods and services to work.*

Technology Opinion Leadership (adapted from Flynn, Goldsmith, and Eastman 1996)

1. When they choose a technological goods and services, other people do <u>not</u> turn to me for advice. (r)*
2. Other people rarely come to me for advice about choosing technological products. (r)
3. People that I know pick technological gadgets and services based on what I have told them.*
4. I often persuade other people to buy the technology products that I like.*
5. I often influence people's opinions about technological goods and services.*

Materialism (short form of happiness subscale, Richins 2004)

1. My life would be better if I owned certain things I don't have.*
2. I'd be happier if I could afford to buy more things.
3. It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like.*

Pessimism (subscale of Life Orientation Test, Scheier, Carver, and Bridges 1994)

1. If something can go wrong for me, it will.*
2. I hardly ever expect things to go my way.*
3. I rarely count on good things happening to me.

Attitude toward Advertising in general (Grossbart, Muehling, and Kangun 1986; Muehling 1987)

In general, I think advertising is:

1. bad / good*
2. useless / useful*
3. negative / positive*
4. unhelpful / helpful*
5. unfavorable / favorable*
6. unbelievable / believable*

***** All items used in the EFA with subsample 1 are listed. Items ultimately used to form the constructs in the CFA with subsample 2 are shown with an asterisk.

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Table 1. Factor Loadings of Scales Items*	
Scale Item	**Loadings**
Alba	
1. I would like being able to receive location-based advertising.	.92
2. In general, location-based advertising would probably be irritating. (r)	.76
3. In general, location-based advertising would be entertaining.	.89
4. Location-based advertising will become necessary.	.67
5. Location-based advertising will provide useful information.	.78
6. I think that location-based advertising will be deceptive. (r)	.48
7. I feel that location-based advertising would be an exciting improvement in wireless communication.	.89
8. In general, I would be favorable towards location-based advertising.	.91
9. I will probably not pay attention to location-based advertising. (r)	.74
Gadget Lover	
1. Despite their age, I love to play around with technological gadgets.	.84
2. Even if they aren't the newest thing on the market, learning how to operate technological products is interesting to me.	.76
3. Old or new, playing with technological products brings me a lot of enjoyment.	.89
4. Others may not understand it but it's kind of a thrill to play with products that have high tech components.	.87
5. If I was alone for several hours I could entertain myself easily if I had lots of gadgets to play with.	.78
6. Leafing through catalogs from high tech vendors such as *Sharper Image* and *Dell* is something I like to do.	.70
7. It is easy for me to spend a lot of time playing around with almost any kind of technological device.	.86
8. Some people find it irritating but I enjoy figuring out how to get technological goods and services to work.	.81
Technology Opinion Leadership	
1. When they choose a technological goods and services, other people do not turn to me for advice. (r)	.67
2. People that I know pick technological gadgets and services based on what I have told them.	.87
3. I often persuade other people to buy the technology products that I like.	.77
4. I often influence people's opinions about technological goods and services.	.86
Materialism (Happiness)	
1. My life would be better if I owned certain things I don't have.	.72
2. It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like.	.81

Pessimism	
1. If something can go wrong for me, it will.	.90
2. I hardly ever expect things to go my way.	.81
A_{adv} index**	.95

* The final standardized loadings are shown in the table from the confirmatory factor analysis conducted on six constructs using data from subsample 2.

** Scores on six ordinal measures were summed to create an index measure of A_{adv}.

Table 2. Correlations, Means, Standard Deviations, & Reliability of Scales**

	A_{lba}	GL	A_{adv}	TOL	M (H)	Pess.
Attitude toward location-based advertising	.94					
Gadget Lover	.16*	.94				
Attitude toward Advertising	.37*	.16*	.90			
Technology Opinion Leadership	.11*	.75*	.12*	.87		
Materialism (Happiness)	.14*	.18*	.07	.14*	.74	
Pessimism	-.08	-.05	-.10*	-.06	.38*	.84
mean	3.46	4.62	1.78	4.05	3.74	3.15
Std. dev.	1.46	1.49	0.33	1.52	1.58	1.60

** Statistics are based on the versions of the scales finalized with subsample 2. Alphas for each scale are listed along the diagonal. An asterisk indicates that the correlation is significant at the .05 level.

Table 3. Opt-in vs. Opt-out

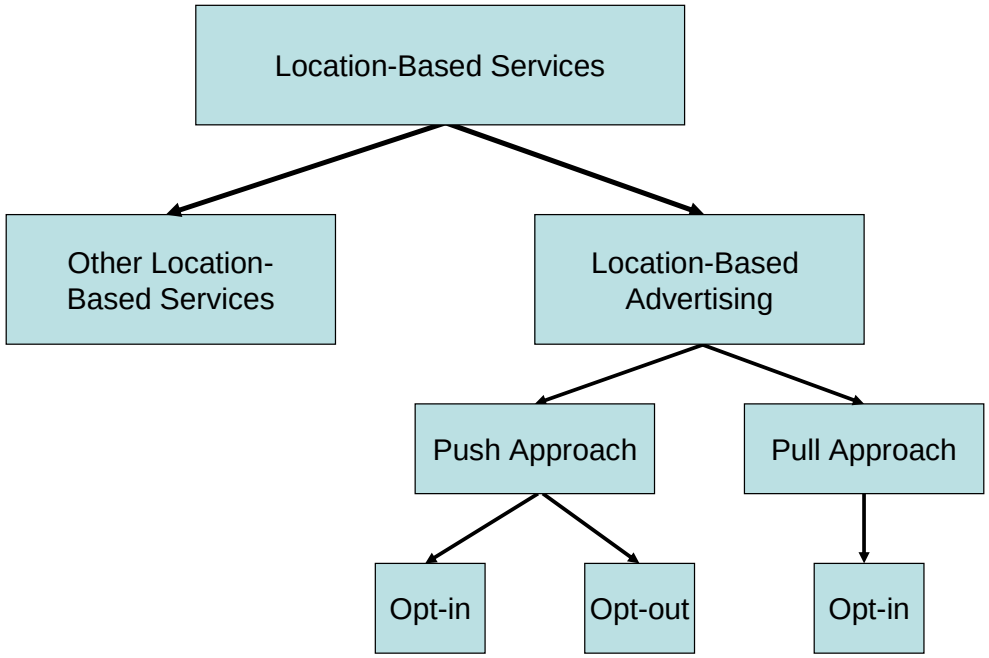
If I had to choose how the country should legally handle location-based advertising, I would prefer it be an:

	N	Mean	F	Sig.
			31.57	<.01
Opt-in system	595	4.51		
Opt-out system	194	3.85		

I would prefer the choice of opting-in or opting-out of location-specific advertising be:

	N	Mean	F	Sig.
			1.1	.29
Left up to owners	746	4.34		
Decided by gov't.	43	4.57		

Figure 1. Types of Location-Based Advertising



Adapted from Kölmel and Alexakis (2002) and Carat Interactive (2002).