

“Too Close for Comfort”: The Negative Effects of Location-Based Advertising

Martina Čaić
Dominik Mahr
Elizabeth Aguirre
Ko de Ruyter
Martin Wetzels

1 Study Purpose

The expanding presence of mobile devices offers marketers a new advertising channel for reaching consumers. Whereas both real-world practice and academia hail the advantages of personalizing advertising messages with location information, this research probes its negative effects. An exploratory field study that places ads on a social network reveals a sharp drop in advertising effectiveness when an online ad includes location information. To explain these results, a subsequent experimental study demonstrates how location-based personalization can trigger feelings of vulnerability, which hamper online advertising effectiveness.

2 Introduction

The number of people accessing the Internet via a mobile device, such as a smartphone or tablet, has surpassed the number using fixed devices, such as PCs (Gartner, 2012). The time consumers spend using mobile devices also has multiplied, at the expense of traditional media channels such as radio and television. These rapid shifts have been echoed by advertisers, who have shifted their expenditures such that mobile advertising captured 22% of U.S. digital advertising expenses in 2013 and is likely to surpass desktop advertising by 2017 (eMarketer, 2013). The differences between fixed and mobile devices create some new opportunities for marketers, but they also prevent them from easily generalizing the research findings from fixed to mobile online settings (MSI, 2012). Anecdotal evidence suggests that typical online advertising strategies are either not applicable or at least demand modification to be effective (Shankar and Balasubramanian, 2009).

Most advertising research assumes that the effectiveness of online ads depends on their benefits for individual consumers. Tailoring advertisements and purchase experiences to individual tastes, on the basis of people's needs, interests, and preferences, is personalization (Chellappa and Sin, 2005). It provides various customer benefits, including better preference matching (Vesanen,

2007), reduced cognitive overload, and greater convenience (Ansari and Mela, 2003; Kleijnen, de Ruyter, and Wetzels, 2007), though recent research also notes its potentially negative effects (van Doorn and Hoekstra, 2013; White et al., 2008). For example, personalization can evoke feelings of vulnerability, in that consumers perceive the use of private data as a privacy violation and respond by rejecting online ads (i.e., personalization paradox; Aguirre et al., 2012). Extant research on fixed online devices informs understanding of these effects of mobile advertising, yet mobile devices still offer fundamentally different features.

In particular, smartphones and tablets are truly resourceful devices: They guarantee both mobility and connectivity, while also providing convenient, entertaining experiences (Shankar and Balasubramanian, 2009). Personalization efforts linked to these devices can access data about a user's current location, which represents a novel form of information about consumers for companies. By combining this information with personal data (e.g., demographics, prior purchases), firms can build extended consumer profiles to improve their market segmentation and tailor their promotions (King and Jessen, 2010). However, mobile devices also are considered very personal, as extensions of users' selves (Shu and Peck, 2011). Location-based advertising using GPS functions to track people's locations raises privacy concerns; ads tailored to individual locations also may provoke feelings of intrusion.

Despite increasing popular reports of location-based advertising campaigns, evidence of their actual effects remains rare. To provide initial empirical evidence, this article reports on an exploratory field study that involved placing personalized ads on a social network site. Two online ads for a cat food brand were posted for five days each, one ad with only interest personalization ("Dear cat lover!") and another ad that featured both interest and location personalization ("Dear cat lover in [city X]!"). The baseline ad achieved a click rate of .12% (with 78,444 impressions), whereas the click rate for the ad that also featured location personalization dropped to only .04% (with 49,186 impressions). The mechanism underlying this negative effect remains unclear though.

This research therefore aims to shed light on this issue and enrich understanding of personalization for mobile advertising and its adoption by consumers. By probing the effectiveness of location-based personalization and the reasons for some potential negative effects, this study makes the several contributions to advertising literature. First, it operationalizes and validates location-based personalization and demonstrates its positive effect on attitude toward the ad and usage intentions toward an advertised service. Second, the proposed conceptualization of perceived vulnerability offers an alternative to the typically used notion of privacy concerns to explain the negative effects of location-based advertisements. Third, an experimental study provides empirical evidence of how location-based personalization triggers consumers' sense of

vulnerability and hampers advertising effectiveness, even when controlling for privacy concerns.

3 Conceptual Framework and Hypothesis Development

3.1 Personalization in Advertising

Personalization is a customer-oriented marketing strategy that aims to deliver the right content to the right person at the right time, to maximize business opportunities (Tam and Ho, 2006). Its applicability increases significantly in online environments, prompting its use in various online contexts. Online advertisers provide behaviorally targeted advertisements, based on a user's behavior on the Internet over time (Goldfarb and Tucker, 2011). Customers thus benefit from a better preference match (Vesanen, 2007) and reduced cognitive overload (Ansari and Mela, 2003); firms benefit from greater recall, higher content evaluations, and more purchases (Tam and Ho, 2006), such that personalized ads are approximately twice as effective as non-personalized versions of similar ads (Aguirre et al., 2012).

3.2 Personalization on Mobile Devices

The unique features of mobile devices (always on and available) arguably should increase the success and acceptance of mobile advertising. Echoing commercial success of mobile services, researchers have recently dedicated more attention to the impact of mobile device features on the value creation of mobile services (Kleijnen, de Ruyter, and Wetzels, 2007; Mahr and Lievens, 2012). Heinonen (2004) cites the importance of spatial value dimensions for evaluating offerings; accordingly, this study investigates mobile ads, whose delivery reflects the consumer's current physical location. Gratton (2002) argues that such location personalization is an extension of common interest personalization; it depends on a mobile device's position and context and seeks to add utility for the mobile user (Unni and Harmon, 2007). That is, companies provide mobile device bearers with relevant promotional information, based on their activities and their location. Therefore, the predicted impacts of location personalization on advertising outcomes are as follows:

H1: Location-based personalization has positive effects on (a) consumers' attitude toward the ad and (b) intentions to use the advertised offer.

To obtain these benefits, customers must disclose personal information. An ad that reveals some knowledge of their location information (as presented in the initial empirical evidence presented above) may surprise or remind users of data collection tactics, increasing their perceptions of privacy violations (Aguirre

re et al., 2012; van Doorn and Hoekstra, 2013). Those perceptions even might be amplified in mobile settings, which place intimate data on personal devices. People's emotional attachment to their personal data likely reflects their strong psychological ownership of private information, which they consider as an integral part of their selves (Shu and Peck, 2011). Intrusive advertisements violate this sense, invoking negative emotional responses, such that the consumer senses a lack of control over the data. Baker et al. (2005) define such consumer *vulnerability* as a state of powerlessness, experienced when they lack control over the situation. This feeling of vulnerability could be triggered by location information displayed by an ad. Such an affective mechanism differs from the general privacy concerns that appear in prior studies on privacy though (Aguirre et al., 2012). Formally, regarding the negative impact of location-based ads on outcomes, this study hypothesizes:

H2: Perceived vulnerability stemming from location-based personalization has negative effects on (a) consumers' attitude toward the ad and (b) intentions to use the advertised offer.

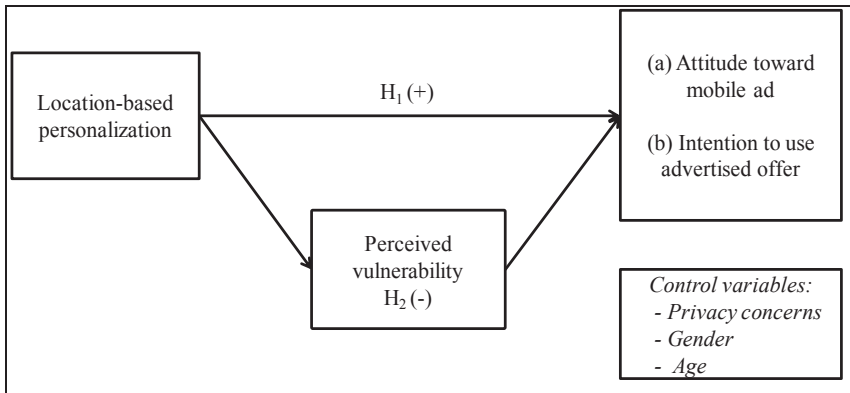


Figure 1: Hypothesized relationships

4 Experimental Study

The study tests whether location-based ads lead to positive effects (H_1) and if perceived vulnerability triggered by the ads hampers their effectiveness (H_2). In scenarios, respondents received a promotion, redeemable at either their present location or a distant location.

4.1 Method

To test the hypotheses, this study manipulates the degree to which the advertisement is personalized to the consumer's location (low vs. high; Table 1). The manipulation check confirmed the effectiveness of this manipulation (95% of respondents correctly reported the location mentioned). The sample consists of 79 participants.

Table 1: Experimental manipulations

<i>Degree of personalization based on user location</i>	
<i>Low (n = 41)</i>	<i>High (n = 38)</i>
"You receive a message delivering a 50% discount coupon on your smartphone for a restaurant in Y."	"You receive a message delivering a 50% discount coupon on your smartphone for the restaurant you are in front of."

You are walking in the city center of X, it is time to have lunch (around 12:30), and you are very hungry. You receive a message on your smartphone.

*X and Y are cities in a Western European country, approximately 200 km distant from each other.

The study relied on a convenience sample of respondents who were in average 25 years old, 53% of whom were men. After reading a scenario, respondents answered questions pertaining to the key measures: *attitude* toward the advertisement, which measured their evaluative affect about the ad (Bauer et al., 2005; Jong Woo and Sangmi, 2007; Nysveen et al., 2005); *intention* to use the advertised offer (Edwards et al., 2012); *privacy* concerns (Chellappa and Sin, 2005); and a feeling of *vulnerability* (Aguirre et al., 2012). Table 2 contains the item list, means, standard deviations, and reliabilities.

Table 2: Items in the questionnaire

<i>Construct (seven-point Likert scale)</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Cronbach's Alpha</i>
<i>Attitude toward the ad</i>	4.23	1.47	0.92
Please rate your attitude toward the advertisement you just received on your smartphone: Bad → Good Negative → Positive Undesirable → Desirable Unfavorable → Favorable How much did you like receiving the offer on your smartphone? Not at all → Very Much Please indicate how much you agree or disagree with the following statements: I find the ad... Convenient			

Beneficial Relevant			
<i>Intention to use advertised offer</i>	4.05	1.62	0.83
I would use the coupon provided on my smartphone. Based on this experience, I really like the ad. I would recommend the service (e.g., receiving this type of message on my smartphone).			
<i>Privacy concerns</i>	5.15	1.37	0.84
I am sensitive about giving out information regarding my location. When the "Location Services" option of my phone settings is turned on, I have the feeling of being watched. When the "Location Services" option of my phone settings is turned on, I have the feeling that all my movements are being tracked and monitored. I am concerned that a person can find information about my past and real-time location.			
<i>Feeling of vulnerability</i>	3.93	1.20	0.90
Please indicate the extent that receiving the advertisement on your smartphone made you feel... Unprotected Helpless Exposed Powerless Manipulated Unsafe Susceptible Vulnerable			

4.2 Results

The PROCESS model, as suggested by Hayes (2013), served to test the hypotheses. In support of H_1 , the main effect of location-based personalization was significant; greater personalization led to stronger attitudes toward the ad ($M_{low} = 3.70$, $M_{high} = 4.81$; $\beta = .62$; $t = 3.97$; $p < .01$) and greater intentions to use the service ($M_{low} = 3.72$, $M_{high} = 4.39$; $\beta = .44$; $t = 2.50$; $p < .05$). Regarding the mediation predicted in H_2 , perceived vulnerability showed partial mediation, with negative effects on attitude toward the ad (effect = $-.06$, $SE = .05$; bootstrap confidence interval: $LLCI = -.18$, $ULCI = -.01$, 90% significance level) and usage intentions (effect = $-.10$, $SE = .07$; bootstrap confidence interval: $LLCI = -.23$, $ULCI = -.01$, 90% significance level). General privacy concerns, gender, and age also appeared in the analysis as control variables, to rule them out as explanations for the results.

5 Discussion and Implications

This study has sought to analyze the impact of location-based personalization on consumer behavior and its influence on consumers' perceived vulnerability. In line with the predictions, matching the location cited in the ads with consumers' current positions produces superior advertising outcomes. However, this match simultaneously can trigger a feeling of intrusion into consumers' private sphere, which impedes ad effectiveness.

By investigating this phenomenon, the study offers several implications for research and practice. First, it enriches research on mobile advertising and services by operationalizing location-based personalization and distinguishing it from other personalization dimensions, such as interest or demographics. A location match has positive effects for attitude toward the ad that also spill over to the advertised offers. These findings suggest that firms should increase their investments in efforts to localize their offers on mobile devices, such as promotions and coupons; location personalization can increase the utility of an offer while also overcoming the limitations of smaller screen sizes, compared with non-mobile devices. Second, perceived vulnerability offers an alternative explanation, rather than the typically used privacy concerns, which ties in with recent literature pertaining to privacy and ownership and effectively explicates the negative effects of location-based advertisements. Just as Aguirre et al. (2012) indicated, perceived vulnerability is situational and might be triggered by the firm's use of data, such as location data in this study. In practice, consumers occasionally report surprise when online ads provide offers based on their recent online browsing behavior or online communication. Firms thus should use vulnerability measures to test the extent of an ad's intrusiveness, to reduce the risk of negative reactions from consumers. Third, the experimental study affirms that location-based personalization simultaneously increases advertising effectiveness and triggers consumers' vulnerability, which hampers advertising effectiveness. The findings reveal the underlying mechanism. Firms using online advertising thus must recognize this simultaneity and balance the effects when using location-based advertising.

This research also suggests interesting opportunities for research. Whereas the present study focuses on location information, additional research might disentangle the effects of interest, location, and time information to establish their relative influences. The utility and effectiveness of location-based personalization might also depend on the situation and the relationship which a consumer has towards the firm and offered service. For example, help seeking consumers might be more receptive for location-based offers matching their immediate needs (Moeller et al. 2013). Finally, a large-scale study using actual location tracking would offer more generalizable insights and clearer recommendations for managers.

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6 References

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