Right Message at Right Place: Investigating the Effectiveness of Location-based Mobile Advertising on Consumers’ Redemption Responses

Research-in-Progress

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Abstract

Location-based mobile advertising is becoming an increasingly important marketing strategy in today’s business world. Despite the advances of mobile communication infrastructure and smart mobile devices, how to effectively reach consumers through mobile devices to promote products still remains a challenge. Grounded in psychological distance and construal level theories, we propose a study to investigate whether differentiating LMP messages based on consumers’ real time locations can increase their mobile coupon redemption tendency. Specifically, we posit that when consumers are close to the merchant, a LMP with high discount level is more effective than a LMP that promotes a product matching consumers’ consumption needs, whereas the reverse is true for consumers distant from the merchant. Accordingly, a 2*2*2 lab experimental study and a field experiment are designed. In addition, we also discuss the potential contributions, study implications and future research directions.

Keywords: mobile advertising, personalization, consumer behavior, mobile marketing, redemption responses, location-based advertising

Introduction

With the wide adoption of mobile devices, companies are increasingly using mobile marketing tactics to reach consumers and promote their products (Marketing Charts 2010). Mobile advertising is a rapidly growing form of advertising that transmits advertisements to consumers via mobile wireless communication devices such as mobile phones, and offers “consumers with time- and location-sensitive, personalized information that promotes goods, services and ideas” (Sharl et al. 2005, p. 165). According to mobile marketing association (2009), multiple mobile advertising channels including mobile websites, mobile applications, mobile messaging, and mobile videos and TVs are available to reach consumers. Analysts at Gartner forecast that the mobile advertising market will be more than double during the next two years and, by 2015, it is likely to increase to $20.6 billion worldwide, or around 4 percent of total ad expenditures.
Prior research (Zoller et al. 2001) has categorized mobile advertising into three different types: (1) permission-based advertising, targeted for consumers who are willing to receive targeted goods and service advertisements; (2) incentive-based advertising, targeted for consumers who agree to receive promotional event advertisements with incentives; (3) location-based advertising, closely associated with consumers’ current location. In the advent of today’s advanced broadband mobile communication systems and smart mobile devices, location-based mobile promotion (LMP) is becoming an increasingly important form of mobile advertising (Luo et al. 2014). It refers to the promotions customized for recipients’ geographic positions and received on mobile communication devices. LMP is delivered automatically to a consumer when he or she is within the vicinity of the promoting business.

Despite the well-developed mobile marketing infrastructure and fast adoption of LMP among retailers and merchants, how to increase the effectiveness of LMP is still a key challenge that practitioners are facing. Many well-known merchants such as McDonalds and L’Oreal are experimenting with LMP with an aim to glean better insights into how to translate the huge opportunity of real-time marketing into sales and profits (Advertising Age 2013, Dickinger and Kleijnen 2008). While extant literature reveals a number of factors influencing consumers’ responses to LMP, little is known about the strategies and tactics that can unleash the true potential of LMP for delivering targeted, relevant and personalized promotion messages that incentivize consumers to make the consumption. Luo et al. (2013) have encouraged studies examining the effects of location variables on consumers’ decision-making as well as individual-level decision-making processes that can shed light on how to develop individualized marketing strategy. Similarly, based on the identification of six key design attributes for personalized mobile advertising including price, preference, promotion, interest, brand, and type of mobile devices, Chen and Hsieh (2012) have proposed that consumer preferences can be pre-defined and mobile promotions can be delivered to consumers at the right place with the right message. Given the lack of insights into how to design the right LMP messages that are targeted, relevant, and personalized (White et al. 2011), we propose a research project aiming at increasing the effectiveness of LMP responses through differentiating LMP messages based on consumers’ real time location. Therefore, our main research question is:

How can a LMP be personalized based on a consumer’s real time location to increase his/her redemption tendency?

This paper is organized as follows. Following the above introduction, theoretical background for this research is presented. Then we propose research hypotheses and describe our experiment plan with identified key constructs. Finally we discuss the potential study contributions and implications.

**Theoretical Background**

**Construal Level Theory and Spatial Distance**

The construal level theory (CLT) indicates that any action can be mentally construed at a high or low level (Trope and Liberman 2003; Trope and Liberman 2010). People with a high construal level mental state think abstractly and focus on general and decontextualized features of the action whereas people with a low construal level think concretely and emphasize on contextualized information, including incidental or peripheral features of the event. The distinct construal level drives people to rely on different considerations to make decisions. A high construal level increases one’s attention to aspects with implications for the central meaning of an action (Trope and Liberman 2003), leading one to attach more weight on the desirability of an action and focus on ends-related “why” considerations (e.g., “why should I attend the lecture?”). In contrast, a low construal level drives one’s attention to specific details of an action, leading one to rely on means-related “how” considerations to make decisions (e.g., “how am I getting to the lecture?”).

The construal level that people use to mentally represent actions is malleable and often affected by their psychological distance from the action. A psychological distant (proximate) stimulus is associated with a high (low) construal level (Trope and Liberman 2010). Mental construal functions as to traverse different dimensions of psychological distance and to switch between proximate and distant perspectives on actions. When psychological distance from an action decreases, lower levels of construal are formed to more concretely represent the action.
What we can directly experience ourselves are here and now. Anything indirectly perceived causes psychological distance, which inherently relates to mental construal in our mental system (Liberman and Trope 2008; Trope and Liberman 2010). According to CLT, psychological distance is regarded as the subjective distance between an actor and event in the actor’s psychological space. Spatial distance, which is regarded as the distance between the individual and the focal place (Mischel et al. 1972), is an important stimuli giving rise to psychological distance, and consequently affecting construal level (Kim et al. 2012).

**Product Features and Construal Levels**

Considerable research using the construal level perspective has documented that people evaluate products and make consumption decisions differently when their construal levels vary. While a high construal level increases one’s focus on desirability and how meaningful of the consumption of a product would be, people at a low construal level are more affected by secondary feature of the consumption.

Among various product features, whether the consumption of the product meets one’s need is often related to the primary one associated with a high construal level whereas the costs associated with purchasing and using the product is viewed as a secondary one associated with a low construal level (Trope et al. 2007). For instance, Liberman and Trope (1998) found that when considering whether to attend a concert, participants at lower construal levels were more influenced by the feasibility of the event (i.e., the ticket price) than its desirability (i.e., whether they liked the band), whereas those at higher construal levels were more influenced by desirability than by feasibility.

In the LMP context, location is an important attributes for designing a mobile advertising message (Lee et al. 2006; Leppaniemi and Karjaluoto 2005; Venkatesh et al. 2003). Customers can receive mobile promotions anywhere on the go. A unique characteristic of mobile technology is its location sensitivity, which refers to its ability to identify the user’s geographical location based on a global positioning system (Xu et al. 2010). Depending on the precision level of mobile technologies and the number of consumers merchants intend to target, the mobile promotions can be delivered to a relatively small area close to the merchants or a large area distal to the merchants. Luo et al. (2013) document that a mobile promotion receives more than doubled redemptions from consumers receiving it at a place close to the consumption location (200m, 10.1% redemption rate) than distant (2000m, 4.9% redemption rate). Their findings indicate users’ distance to the merchant plays an important role in influencing consumers' consumption decisions. In a similar vein, Ping (2013) also reports that mobile coupon redemption decreases when the consumer’s distance from the merchant increases.

**Consumption Needs Congruence and Discount in Mobile Promotions**

Providing a deep discount and promoting a product that meets consumers’ consumption needs are two options that merchants generally employ to entice positive response to their LMPs (Dickinger and Kleijnen 2008; Haig 2002). Discounts stimulate impulsive unplanned buying behavior. Presumably, the larger discount, the more positive response merchants can expect. Alternatively, merchants can understand consumers’ shopping habits and product preferences by explicitly asking consumers to provide them when they subscribe to certain mobile services or through analyzing their historical consumption or redemption records (Luo et al. 2013). This understanding enables merchants to match LMP product offers with consumers’ personal needs. In practice, merchants can implement the two options together to create a LMP promotion mix. To illustrate, suppose a cinema is planning to advertise a movie via LMP. Without the understanding of the effect of a consumer’s location on his/her focus on the discount or the movie, the cinema may either give a relatively high discount (e.g., buy one get one free) to those audiences when the cinema operator is not sure whether they are interested in the movie, or give a moderate discount to those audiences whom the cinema operator knows are interested in the film genre.

Our study attempts to reveal how a consumer’s distance to the merchant (distant vs. close) would affect his/her sensitivity to promotion discount and product-need congruence. It will enable the merchant to understand that, given consumers’ distance to the merchant, who will be more interested in the promotion discount so that a LMP with a relatively high discount would be more effective and who will be more focused on whether the offered product meets the personal consumption need so that a LMP matching their interests would be more effective. Thus, our research can shed light on how to strategize.
the implementation of the two options in LMP, so that they can derive the optimal value at the minimum costs given the understanding of consumers’ locations.

**Research Hypotheses**

Level of construal is argued to be a type of mental representation invoked by distance (Liberman et al. 2007). Consumers’ psychological distance is associated with how they make a decision, but it is contextualized. Earlier studies (Fiedler 2007 & 2012) suggest that correlations exist between psychological distance and decision making. Moreover, the impact of distance on decision quality is on whether the utility is from feasibility (low-level construal) or desirability (high-level construal) features. In the location-based mobile advertising context, CLT maintains that individuals with a high construal level tend to engage in a top-down goal-directed information processing (Liu 2008) and focus on primary features and desirability when choosing products (Wan and Agrawal 2011). In contrast, individuals with a low construal level tend to engage in bottom-up data-driven information processing (Liu 2008) and focus on concrete, secondary features and feasibility when choosing products (Wan and Agrawal 2011). Research documents that when a high (low) construal level is elicited, one tends to choose a product that is desirable (feasible) and meets the primary (secondary) consumption goal and to be less (more) sensitive to price variations.

H1: Consumers would be more focused on whether the product featured in the LMP matches their consumption needs when they are distant, as opposed to close, to the merchant.

H2: Consumers would show greater redemption responses to the LMP featuring a product that matches their consumption needs when they are distant, as opposed to close, to the merchant.

In microeconomics, modern consumer theory (Silberberg, 2001) indicates some essential factors affect consumers’ decision making choices, such as the consumption set, budget constraint and preference. In particular, consumer's choice is often constrained by their wealth (available budget). Therefore, the real size of discount matters. In the LMP context, when consumers receive the promotion message at a distal location, they would be more likely to engage in a high-level goal-directed information processing and think “why should I bother to go there to buy?” If the product is highly congruent with their consumption needs, they would have a good justification to travel to redemption location while still considering whether it is worthwhile due to additional travel costs given the discount size. On the contrary, if consumers are close to the merchant when receiving the LMP message, they are more likely to actively engage in low-level data-driven information processing. Compared with distant consumers who have more travel costs to the merchant, they would be more attentive to the offer itself (e.g., whether the discount is attractive enough) than their consumption needs. Thus, the effect of the magnitude of the discount size would be more pronounced.

H3: Consumers would be more focused on the discount size when they are close, as opposed to distant, to the merchant.

H4: Consumers would show greater redemption responses to the LMP offering a high discount when they are close, as opposed to distant, to the merchant.

**Experiment 1**

**Design**

We have designed a lab experiment to test our hypotheses empirically. In the experiment, we present subjects with a mobile advertising scenario and ask them to indicate their likely response. Specifically, subjects are told that one of their friends recommended them a milkshake drink from a coffee shop. On a Sunday afternoon, when they are shopping, they receive a mobile advertisement in their smartphone which offers discount for the drink in that coffee shop.

The study involves a 2 (distance: close vs. distant) x 2 (consumption need congruence: congruent vs. incongruent) x 2 (discount: low vs. high) between-subjects experimental design. We manipulate the location where the subject receives the mobile advertisement to be either near or distant from the coffee shop. In the near condition, subjects are told that they are 250m away from the coffee shop. In the distant
condition, they are 1800m away from the coffee shop. In addition to the description of the distance between their current location and the coffee shop, we also provide them a map to strengthen the distance manipulation. We differentiate the drink offered in the mobile advertising to be either congruent or incongruent with the drink that they are told and they are interested in. The product that they are interested in is strawberry yogurt milkshake. In the congruence condition, the mobile promotion offers the exactly the same drink whereas in the incongruence condition, the offered product is hazelnut chocolate latte. The discount is manipulated to be either 12% or 40%, representing low vs. high discount level, respectively.

The recruitment and experiment are conducted online. Subjects who express interest in the study will be first asked to register online by answering some questions collecting their demographic information and responses to some control variables. Then they are given the link to the main study and randomly assigned one of the eight experiment conditions. After reading the description the mobile advertising scenario, they are directed to a post-questionnaire to indicate their responses to the mobile advertisement and answer some other related questions.

**Construct Operationalization**

Table 1 presents the instruments we plan to measure research constructs and control variables.

<table>
<thead>
<tr>
<th>Constructs for Making Decision</th>
<th>Scale</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redemption Response</td>
<td>Given your current location, how likely are you to use the mobile coupon? (1 = unlikely at all; 7 = extremely likely)</td>
<td>self-generated</td>
</tr>
<tr>
<td></td>
<td>Given your current location, how inclined are you to use the mobile coupon? (1 = not inclined at all; 7 = inclined very much)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Given your current location, how willing are you to use the mobile coupon? (1 = unwilling at all; 7 = willing very much)</td>
<td></td>
</tr>
<tr>
<td>Considerations for Making Decision</td>
<td>My mobile coupon redemption decision was based on whether the product offered was the product that I wanted to buy. (1 = strongly disagree, 7 = strongly agree)</td>
<td>Wan and Agrawal (2011)</td>
</tr>
<tr>
<td></td>
<td>In making your decision of redeeming the mobile coupon, how important was it for your decision whether or not the offered product was exactly the one you wanted to buy? (1 = not important at all, 7 = extremely important)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>My mobile coupon redemption decision was based on whether the discount was deep. (1 = strongly disagree, 7 = strongly agree)</td>
<td></td>
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<tr>
<td></td>
<td>In making your decision of redeeming the mobile coupon, how important was it for your decision whether or not the offer discount was attractive? (1 = not important at all, 7 = extremely important)</td>
<td></td>
</tr>
<tr>
<td>Intrusiveness</td>
<td>In general, when I receive a coupon specific to my real time location through mobile applications, I feel it is</td>
<td>Li et al. (2002)</td>
</tr>
<tr>
<td></td>
<td>• intrusive</td>
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<td></td>
<td>• invasive</td>
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<td></td>
<td>• disturbing</td>
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<tr>
<td></td>
<td>• breach of my privacy</td>
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<tr>
<td>Coupon Proneness</td>
<td>Redeeming coupons makes me feel good. (1 = strongly disagree, 7 = strongly agree, same for subsequent items)</td>
<td>Lichtenstein et al. (1990)</td>
</tr>
<tr>
<td></td>
<td>I enjoy clipping coupons out of the newspaper.</td>
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<td>When I use coupons, I feel that I am getting a good deal.</td>
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<td>I enjoy using coupons, regardless of the amount I save by doing so.</td>
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<tr>
<td></td>
<td>I have favorite brands, but most of the time I buy the brand I have a coupon for.</td>
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</tbody>
</table>
I am more likely to buy brands for which I have a coupon.  
Coupons have caused me to buy products I normally would not buy.  
Beyond the money I save, redeeming coupons give me a sense of joy.

| Price Consciousness | I shop a lot for specials. (1 = strongly disagree, 7 = strongly agree, same for subsequent items)  
I find myself checking the prices in the grocery store even for small items.  
I usually watch the advertisements for announcements of sales.  
A person can save a lot of money by shopping around for bargains.  | Wells and Tigert (1971) |
|---------------------|-------------------------------------------------------------------------------------------------|----------------------|
| Attitude toward the Act of Redeeming Coupons | The act of using coupons is  
- 1 = foolish; 7 = wise  
- 1 = useful; 7 = useless  
- 1 = waste of time; 7 = wise use of time  
- 1 = valuable; 7 = worthless  
- 1 = good; 7 = bad | Shimp and Kavas (1984) |
| Perceived Distance | The location where I received the mobile coupon is close to the outlet for redemption (1 = strongly disagree, 7 = strongly agree).  
I needed to travel a long distance to redeem the mobile coupon (1 = strongly disagree, 7 = strongly agree).  
In your opinion, how far was the location where you received the mobile coupon from the redemption location? (1 = very distant, 7 = very close) | Self-developed |

Table 1. Construct Instruments

**Experiment 2**

A field experiment with real consumers is also under design to further validate our theorizing. We will collaborate with a cafeteria to conduct the field experiment. First, we will recruit subjects and obtain their mobile numbers. Then, we will send subjects mobile coupons of a product from the cafeteria with either a low or high discount. When subjects come to redeem the coupon, they will be requested to complete a questionnaire. The questionnaire contains questions about their locations when they received the coupon and the attractiveness of the product to them as well as a set of control variables such as coupon proneness, attitude toward the act of redeeming coupons, perceive intrusiveness of mobile advertising, etc. The questions about subjects’ locations where they received the coupon and the attractiveness of the product to them are used to gauge subjects’ distance from the coupon redemption location and the congruence of the product with subjects’ consumption needs. We will then be able to examine the interplay among distance, discount, and consumption need congruence on actual redemption behavior.

**Study Contributions, Implications and Future Research**

This proposed research has the potential to contribute to the information systems and marketing fields in multiple ways. First, this study focuses on investigating different personalization mechanisms to customize existing location-based mobile marketing messages that can be delivered to consumers’ mobile devices. In particular, we examine how to entice consumers based on their current locations through personalized and relevant mobile advertisements for promoting products. Moreover, we aim to increase consumers’ redemption responses through the personalized LMPs, which are meaningful to merchants to increase their sales, profits and customer satisfaction wherever customers are. Second, this study is grounded in psychological distance and construal level theories, which may enrich our knowledge about consumers’ decision-making processes. Third, this study has a great potential to provide useful guidelines to practitioners to improve the effectiveness of their mobile advertising strategies and offer practical options and insights how to more effectively reach consumers to promote products through personalized LMPs.
Consumers’ decision making is driven by product features, so it is mainly logical and objective based on functional facts (Vaughn, 1980). Underlying decision processes take place based on product utilitarian and cognitive evaluations to inform consumers' rational decisions. In the future studies, we plan to design a few more rounds of field experiments with more types of products, such as functional vs. expressive products (Ratchford 1987) to see whether different types of products affect mobile consumers’ decision making processes in distant vs. close distances.

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