When Does Personalization Pay Off?

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EXTENDED ABSTRACT

Personalized advertising is seen as THE mean to increase advertisement effectiveness and efficiency by selecting ad content being relevant to the customer and by answering the need for convenience of customers at the same time (Milne and Bahl, 2010). Especially regarding the depreciative opinion of many users on personalized advertisement it is important to know whether personalized advertisement is really worth the effort and costs it bears. Although in practice it seems to be common sense that personalization is more effective than standardization, little knowledge exists about circumstances that affect its performance outcomes. Therefore, this study questions the effectiveness of personalization in different conditions and attempts to identify success factors of personalized advertising. In particular we test the effect of personalization intensity, frequency of exposure, and the time since a customer’s last action on the probability of a click. Additionally we control for differences in customer history.

CONCEPTUAL BACKGROUND

Several studies report that personalization in general is more effective than standardized mass communication (e.g., Lambrecht and Tucker, 2011). Beneath this, other studies focus on negative impacts of personalization, especially on customer reactions regarding the use of personal information (e.g., Pavlou and Stewart, 2000). As to the authors best knowledge no research exists that analyzes different intensities of personalization and its effectiveness and, surprisingly, no elaborate research stream exists that concentrates on circumstances under which different levels of personalization are effective. Our study tries to fill this gap by analyzing various intensities of personalization as well as the influence of the advertising strategy on its effectiveness.

Personalized banners use information about a customer to choose banner content the customer is highly involved with and that fit his interests. Thus, banners showing complementary products to a formerly bought one are seen as highly personalized, while those banners referring to a category of formerly visited products are slightly personalized. So, generally personalized banners are expected to be clicked more often than standardized ones, that show randomly chosen products unrelated to the customer. Moreover, higher personalization goes along with higher likelihood of a click (H1a/b).

After the consideration of this general coherency we focus on the different circumstances that determine varying potential for personalization. Our conceptual model includes hypothesis (H2-H5) regarding advertising strategy and its interactions with personalization intensity: While it is without controversy that frequency of exposure is a crucial determinant of banner success, no consensus exists about the optimal number of ad impressions (e.g., Manchanda et al., 2006). A high frequency goes along with the fear of oversaturation but it is also a mean to avoid banner blindness (Chatterjee, 2005). But even more critical is whether the effect on click likelihood is really linear: there are two opposing psychological processes operating simultaneously in the case of banner exposures (Lee and Cho, 2010): “Positive habits” lead to increasing effects with diminishing returns of each additional exposure, while “tedium” starts as result of repetitive exposure and decreases the effects gradually (Berlyne 1970). Referring to this discordance whether frequency has a linear or non-linear effect, we formulate rivaling hypothesis (H2a1-H2b). Moreover, time since the customer’s last observed action is supposed to negatively influence click behavior. Structuration Theory sees interactions as recurring events that are embedded in a structure (Giddens, 1984). Hence past transactions influence future ones and are responsible for a decision to click (H3).

Furthermore, interactions between frequency of exposure and personalization are anticipated. As highly personalized advertising, using high involvement of a customer with banner content, is recognized faster, we expect that customers need to be contacted less often, to increase the likelihood of a click. (H4).

DATA AND METHOD

To answer our research questions, we used a real experimental design, that contained 1,939,939 ad impressions showed to 98.984 customers of whom 7,450 customers clicked on a banner. Five types of banners were sent out, including a standardized (click-through rate .1%), two slightly personalized (.3%) and two highly personalized banners (.2%).

We take a binary logistic regression approach for testing our conceptual model. An often overlooked characteristic of logistic regression is that in case of an imbalanced sample it produces biased logit coefficients that underestimate rare events (King and Zeng, 2001). To take this as well as the huge amount of data into account we used bootstrapping. Thus, 1000 control samples are taken to control for the stability of the estimates. To adress the class imbalance between clicks and non-clicks we used a stratified sampling is used to ensure a balanced sample of clicks and non-clicks (Nigam and Rao, 1996).

RESULTS

The analysis is separated in two steps: firstly the general advantageousness of personalization is tested, followed by a more detailed look on the differently personalized ads.

Personalized advertisement is clicked more often than standardized banners, confirming H1a. Surprisingly, with increasing levels of personalization the likelihood of clicking is reduced. Banners based on the product category of visited products had a stronger positive effect as those that contain products complementary to formerly bought ones. Hypothesis H2 and 3 could not be confirmed. Contrary to H4, sending out less personalized banners more frequently affects the probability of a click just slightly positive. But a slight increase of frequency for strongly personalized advertisement results in a con-
siderably higher click probability. Besides, controlling among others for number of prior purchases shows that with more past purchases more information about a customer can be collected and the more efficient is the advertising.

CONCLUSION AND IMPLICATIONS
First and foremost, companies need to realize that personalization is no universal remedy. Personalized banners are more effective than standardized while using high involvement content is not always the most effective personalization. Furthermore, weaker personalization is easier to realize and can be used with new customers that only visited a shop once. Regarding the frequency of exposure an increase is only effective in case of highly personalized banners. Although highly personalized banners seem to be inferior when considered isolated, in combination with a high frequency of exposure the probability of a click increases considerably.