



An Exploratory Study on Customer Responses to Personalized Banner Messages in the Online Banking Context

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Abstract:

In the twenty-first century the quantity of research on personalization has grown exponentially. New technologies enable efficient interaction with customers, even on a one-to-one basis, providing the right content in the right format to the right person at the right time. The latest developments with "big data" analytics promise unprecedented opportunities for personalization, even in real-time. Although the technological advances allow fancy enhancements in personalization, it is imperative that the context-specific customer attitudes toward online personalization are taken into account by businesses. Customers are increasingly aware of their privacy, which improper personalization may intrude. This article presents the results of a two-phase study. Focus group interviews uncovered first the perceptions of bank customers regarding personalized marketing communication on online banking. A subsequent exploratory study investigated the online behavior of customers, that is, their genuine responses to personalized messages. In this phase, bank customers were shown personalized banner advertisements when they logged in to their bank service. We studied, among others, the click-through rates and navigational behavior and compared the effectiveness of personalized banners to default banners, and to traditional direct-mail messages. The personalized banners attracted more attention than default banners. In two of the three cases, the actual sales were also higher than in the case of direct-mail promotion. The results offer implications both for research and practice.

Keywords: personalization, online bank, online marketing, persuasion, response, exploratory online study, click-stream data

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INTRODUCTION

Personalization is lauded as a solution for information overload and the commoditization of offerings. It refers to the tailoring of products and purchase experiences to the tastes of individual consumers based on their personal and preference information—therefore, being critically dependent on the vendors' ability to acquire and process consumer information, and on the consumers' willingness to share information and use personalization services (Chellappa and Sin 2005). Several studies by marketing scholars emphasize personalization as the main tool of attracting customer attention and convincing them to purchase (Ansari and Mela 2003; Goldsmith 1999; Kalyanam and McIntyre 2002; Wind and Rangaswamy 2001). The roots of personalization are in relationship marketing and management (Crosby et al. 1990; Dwyer et al. 1987). In the same manner as a helpful sales clerk, the seller greets the customer by name, remembers what s/he has purchased or browsed previously, and recommends products or services s/he might be interested in the future.

In the twenty-first century the advances of information and communication technologies have made personalization a more versatile and affordable strategy for implementing interactive relationships with customers. Tam and Ho (2005) explain that Web personalization leverages technologies to provide the right content in the right format to the right person and the right time. In other words, the personalization technologies empower the firms to persuade customers to attend to Web content or behave in ways that fit with the firm's objectives (Tam and Ho 2005). Kim and Lee (2009) add that the ability of a company's website to provide individual customer care and attention (components of e-service quality) is mostly determined by that company's efforts in terms of personalization.

Technologies have proliferated both at determining personalization (the engine-side) and at implementing it online (the delivery-side). The latest developments regarding big data analytics (Kiron et al. 2011; Manyika et al. 2011) promise giant leaps forward in the engine-side. However, although there seems to be unlimited technological possibilities, it is essential for companies to study customer attitudes toward personalization, especially the boundaries for personalization: what is still accepted and appreciated. Otherwise the companies are at risk of losing their customers and their competitiveness.

The focus of this study is on online personalization and, in particular, how personalized online promotions in the form of banner advertisements are perceived by bank customers. The study was conducted in one of the Nordic countries, where online banking and other e-services are widely adopted (Meyer 2010). For example, in Finland, over 76 percent of the population aged sixteen to seventy-four use online banking services, making it the second-most popular application on the Internet after sending or receiving email (Statistics Finland 2010). However, to date, the online banking applications have emphasized the goal-directed transactions of customers (Hoffman and Novak 1996; Moe 2003), and they are perceived as utilitarian information systems (van der Heijden 2004). The business opportunity—and challenge—for banks is to catch their customers' attention, e.g., for cross-selling purposes, when the customers are conducting their typical financial tasks on the online bank.

The online banking context presents a unique platform for personalized communication since it removes many costs normally associated with messages in other websites: the connection is secure, there is no need for information

CONTRIBUTION

This paper makes several contributions to IS, as well as to marketing research. First, the focus group interviews uncover the attitudes of customers toward personalization and their opinions on the acceptable ways of receiving personalized marketing messages on online bank. We found that the appreciated aspects of personalized promotional messages are services that suit the online environment (relatively simple digital services) and the tactful use of self-referent information. Second, based on the results gained from the focus groups, the responses to different types of personalized marketing messages are explored in a genuine online bank environment with almost 900 retail bank customers.

We compare the effectiveness of three different types of messages to each other, to default (non-personalized) banner messages, and to corresponding direct-mail campaigns. Based on our results, online customers respond to personalized banners by changing their navigational behavior and elaborating in length the content when accessing the banner. In addition, personalized banners in the online banking context received more click-throughs than the default promotional messages. Furthermore, the actual sales based on personalized messages were higher than in the case of direct-mail promotions in two of the three online study groups. We are not aware of similar personalization research conducted in the online banking context, which is a particularly delicate business setting. Our paper should be of interest to personalization, online service, and multichannel researchers, as well as to retail bank executives and marketing managers.

disclosure since the bank already has access to the financial and other information of their customers, and there is no competition for the attention of the customers by other marketers. Aspirations have risen to mold this environment into a sales channel, in addition to a well-functioning information and transaction channel. This trend is more general as companies add interactive touch points in their marketing assortment (Shankar and Malthouse 2007).

In this study both the attitudes and behavior of online banking customers are examined. In particular, we are interested at finding answers to the following research questions: (1) What aspects of personalized online banners appeal to bank customers? (2) What is the response of bank customers to personalized online banners? and (3) How effective are personalized online banners in comparison to non-personalized online banners and to traditional direct mail in the banking context?

For this research we collaborated with a Nordic bank to conduct both qualitative focus group interviews and a nine-week exploratory study at its online bank with genuine customers. For the online study, almost 900 customers were randomly selected from three different customer segments (stratified sampling) to be targeted with three personalized banner messages (unique for each segment), without giving the customers any advance notice of the research endeavor.

Despite the technology-induced proliferation of Web personalization, Tam and Ho (2005) have been surprised by how little behavioral research there exists on the topic. Their information systems science research (e.g., Tam and Ho 2005, 2006) on electronic commerce sites (a ringtone and a gift shop) forms a foundation for the field. Tam and Ho develop theoretically and test empirically models of Web personalization based on well-known social cognition and consumer research theories. Following their steps, we apply many of the same theoretical concepts in our research. Furthermore, we adopt their view that the interaction between a personalizing company and its customers “is one of communicating a persuasive message to the customers driven by business objectives” (Tam and Ho 2005, p. 271).

The remainder of this study is structured as follows. First, the prior research on personalization, online advertising, and persuasion is reviewed. The article continues with the methodology section, after which the responses to personalized online banners is analyzed with the help of click-stream data. The effectiveness of online personalization is compared to default banners and direct-mail marketing. Finally, we discuss the results and implications and conclude with the limitations of our research and suggestions for further research.

PRIOR RESEARCH

Personalization

Personalization is a concept that has attracted a multiplicity of definitions (see Sunikka and Bragge 2012 for a review). According to Peppers and Rogers (1997), personalization is the customizing of some feature of a product or service so that the customer enjoys more convenience, lower cost, or some other benefit. Personalization can be initiated by the customer, but it is more typically initiated by the firm. Arora et al. (2008) see personalization as a firm’s decision on the marketing mix, based on previously collected customer data. Montgomery and Smith (2009) define *personalization* as the adaptation of products and services by the producer for the customer, using information that has been inferred from customers’ behavior or transactions. Closest to our study, Tam and Ho (2005) define Web personalization so that it leverages technologies to provide the right content in the right format to the right person at the right time. Thereby it empowers companies to persuade customers to attend to Web content (such as banners) or behave (e.g., make purchases) in ways that fit with the company’s objectives (Tam and Ho 2005). The latest technical developments have made it possible to infer personalization based even on third-party data, which is drawn from the recipient’s social network online. This has recently ignited upheaval among the customers, as this type of social personalization may infringe privacy and deteriorate the quality of the original service (see, e.g., Swartz 2012).

Research conducted on personalization has shown remarkable growth in the twenty-first century. A simple search of articles containing the term *personalization* (or *personalisation*) in the Thomson Reuters’ Web of Science database shows an almost threefold increase between the five-year periods of 1999–2003 (343 journal articles) and 2004–2008 (842 journal articles). The research stream has continued strong ever since, with an average of 214 journal articles per year in 2009–2011. It can be speculated that the phenomenal buzz around big data analytics will result in a new jump in personalization research activity in the near future. Besides, in the fields of marketing and information systems science, personalization has drawn increasing research attention also in various other academic fields, such as computer science, management, and economics (Kwon, Cho, and Park 2010).

Based on an analysis of the most frequent keywords used, Sunikka and Bragge (2012) found that personalization research is conducted mainly in the online environment (especially related to e-commerce), focusing on personalization technologies and techniques such as recommender systems, user models, collaborative filtering, Web usage mining, and user profiles. Since personalization depends on the gathering and usage of user information, privacy issues also represent a major research stream in this area. A few researchers (e.g., Moon, Chadee, and Tikoo 2008; Tam and Ho 2005, 2006) have examined how online personalization affects the attitudes and purchase intentions and behavior of consumers.

The object of personalization can be any part of the marketing mix: product, promotion, placement, or price (Arora et al. 2008; Vesanen and Raulas 2006). In addition, communication can be personalized in several ways—according to the frequency or timing, and by designing websites, newsletters, or emails with various types of greetings, or by using pictures and videos. Furthermore, the content of messages may be preference personalized, that is, the future interests and needs of customers are inferred from the previous behavior of customers, or self-referent personalized, whereby the personal information, such as name of customer, is used in the messages. Quite often, both preference personalization and self-referent personalization are combined in the same message.

Personalization on online banking

With the proliferation of online banking, banking services are perceived to be more like an impersonal service; the speedy and efficient service compensates for what is lost in face-to-face service (Joseph et al. 2005; O'Loughlin and Szmigin 2006). If customers perceive online banking as impersonal and regard e-services offered by different financial institutions as very similar, one way of differentiating the service is to personalize the content to customers. Embedded marketing messages are examples of such content. We acknowledge the multichannel nature of banking, although the focus of this research is on the potential to transform the transaction-focused electronic channel into a more supportive and sales-oriented channel via personalization.

We are not aware of other academic research that focuses on personalized messages on online banks. However, there are a few consultancy papers on personalization in the banking context. For example, Hesse et al. (2009) report that the Dutch ING bank has increased average campaign response rates and expects to reduce its direct marketing costs through the implementation of a centralized campaign management program that creates personalized offers in real-time and can deliver such offers through multiple channels. Another Dutch bank—SNS Bank—calculates customer profiles and their click behavior in real-time, and provides their customers with personalized commercial offers. For example, if a customer searches for “high deposit rates” in a search engine, the search results within SNS Bank’s website present a personalized banner advertisement referring to their best deposit rates (Unica 2009).

Online advertising and persuasion

In general, two complementary paradigms examine the response to online advertising (Hollis 2005). The “brand building” paradigm focuses on measuring brand recall and attitude toward the brand or an advertisement. The “direct response” paradigm treats online advertising much like direct marketing, and the click-through rate is seen as a suitable measure of advertising success (Chandon et al. 2003; Hollis 2005). The click-through rate is typically calculated as the proportion of banner clicks to the total number of displays (Chandon et al. 2003, p. 220). The number of displays refers to the number of times the banner advertisement is shown (also called *impressions* or *page views* by online marketers). White et al. (2008) have recently stated that research is needed to study whether personalized messages increase click-through intentions in comparison to default messages that are not personalized. Our study sheds light on this issue.

A typical information processing model used in consumer research is comprised of a number of stages that reflect attention, elaboration, and behavior, although every persuasive message detected may not go through all these stages (Tam and Ho 2005). Some messages may not get attention at all, and some messages leave traces in the memory, although they would not result in any particular behavior (Tam and Ho 2005).

The Elaboration Likelihood Model (ELM) of persuasion (Petty et al. 1983; Petty and Cacioppo 1986) is one of the most influential social cognition models that examine how persuasive messages influence changes in attitudes (Bargh 2002). Attitudes, on their part, influence people’s intention to perform or not to perform a behavior, which is the immediate determinant of action (Ajzen and Fishbein 1980, p. 41). As the name tells, ELM focuses especially on the second stage—elaboration—of information processing, and especially on the conditions under which people do, or do not, engage in careful processing of the information contained in persuasive messages (Bargh 2002). The model postulates that either a central or a peripheral route of information processing influences attitude change. The route taken depends on the motivation and ability of the recipient of the message to elaborate on the messages.

ELM research has found that when the motivation and ability exist (i.e., the elaboration likelihood is high), the message recipients are assumed to use the central route characterized by considerable cognitive elaboration. The recipients focus in-depth on the central features of messages and carefully evaluate their arguments and implications. With a low likelihood of elaboration the peripheral route is taken, and the recipients examine the message quickly or focus on simple cues and apply simple decision-making rules or heuristics. For example, a rule “Personalized recommendations are tailored for me and, therefore, can be trusted” might be invoked in e-commerce sites by simply greeting the message recipient by his or her first name (Tam and Ho 2005). However, if the content (advertised product or service) of the message matches the preferences of a consumer, the user is more likely to process the message to a greater extent (Tam and Ho 2005). Central processing with a heightened level of elaboration is supposed to have a more profound impact on attitude (and behavior) than peripheral processing. That is why marketers should aim at finding an optimal combination of preference and self-referent personalization in their online communication to customers in order to stimulate central processing. The insights from ELM guided our analysis of the data collected in the focus group interviews, as presented in the following section.

RESEARCH DESIGN AND METHODS

The data for this study were gathered in two stages. First, we conducted qualitative focus group interviews, and, based on their analysis, we designed the exploratory online study that was implemented on a Nordic bank’s website.

Focus Group Interviews

The purpose of the focus-group interviews was to gain insight into how customers react to and value personalized promotional messages in the online banking context. Four focus groups were conducted following an interview mode (instead of a more free-flowing discussion mode, cf. Boddy 2005) via computers in a face-to-face setting (see, e.g., Kontio et al. 2007 for the technique). A pilot group and three customer groups of a Nordic retail bank were interviewed, each with eleven to fourteen randomly selected participants. The purpose of the pilot group was to test the computer-mediated procedure and see whether it was possible to go through all interview questions planned in the time allocated. The pilot group participants were university students and also customers of the client bank or a similar bank. The three actual customer groups represented customers from three important segments of the bank: mortgage loan owners, investors, and “active-rationals.”

Every focus group session lasted 2.5 hours and was administered by three facilitators and followed the same predefined agenda. We collaborated closely with three representatives from the bank’s marketing and development personnel regarding the recruitment of the focus group participants and the design of the focus group agenda.

The banner messages used in the focus groups were personalized from two angles: (i) they were targeted to the specific segment of customers (preference personalization), and (ii) they included personal information (e.g., account information, information on credit card usage), so-called self-referent information (Tam and Ho 2006) in the messages. The messages were presented to the respondents in glossy color print copies, representing several complete screenshots of the authentic online bank Web pages. The respondents were told that the messages are positioned in the part of the website that requires user authentication. In addition, we asked the respondents to imagine that the context of use and the self-referent information in the messages were their own. The purpose of this stage of data gathering was to uncover what aspects of the personalized promotional messages were perceived as acceptable in the online banking context. Figure 1 presents a few examples of the banners that were employed in the focus groups.

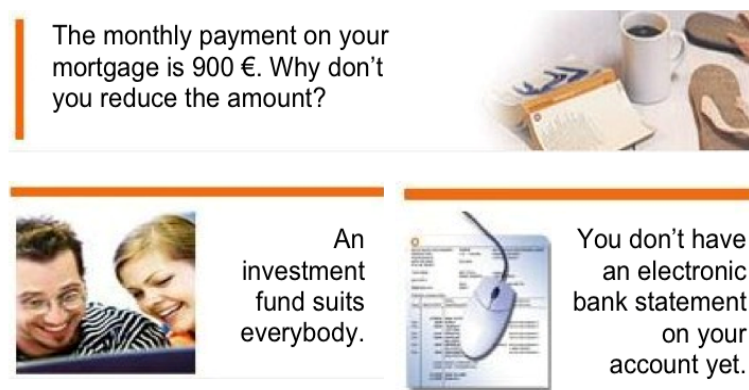





Figure 1: Examples of banners employed in the focus groups.

Exploratory Online Study

The subsequent online study was conducted on the bank's website in late 2006–early 2007, spanning nine weeks. Also, this phase was designed in close collaboration with the same bank representatives. Because we conducted the exploratory study on the live online bank website, we were faced with some restrictions: we could not use control groups as in full-fledged experiments, but we had to rely on the data gathered in the bank's archives on the general measures of default online banner promotions (i.e., banners with no personalization). Three different online customer groups were formed from the bank's customer base using stratified sampling. Each group was shown a different personalized message in the form of a banner advertisement when they logged into the online bank. In no phase were the participants informed about being selected to a study group, which enabled gathering their genuine responses to personalization. Table 1 depicts the different messages and the selection criteria for the groups. The selection criteria for groups 1 and 3 were more straightforward, whereas the bank used predictive analytics in selecting the customers for the second group. This was done in order to target the message to those customers whom the bank believed were likely buyers of a certain type of loan product.

Table 1: Three Online Study Groups

	Group 1. Net bank statement (NBS)	Group 2: Loan	Group 3: X-card
Promotional message	Message 1 (M1): Problems with archiving? Switch your bank account statement to the Net.	M2: Have you considered that credit loans from banks are less expensive?	M3: Your X-card is about to expire. You can switch easily to Y-card on the Net.
Number of customers	281	300	293
Criterion for customer selection	Customers had no electronic bank account statement service.	Customers had only mortgage loans from the bank.	The bank card that the customers were using was about to be withdrawn from the market.
Picture used in the personalized banner			

Each customer was permitted to belong to one group only. The direct online purchase of the promoted product or service was possible in the first group (NBS). For the other two cases, the application process could be initiated online, but a personal visit to the branch office at a later stage was required. Thus, these cases linked online and offline services and emphasized the need for a frictionless multichannel service delivery.

Click-stream data was collected and analyzed during the online study. The term *click-stream* denotes the electronic records of Internet usage recorded by company Web servers and indicates the path a visitor takes through one or more pages or websites (Bucklin et al. 2002). The data measured the observable behavior at a group level in order not to infringe on the confidentiality of the participants and the data.

Measures for the personalized banner study

According to a typical information processing model, consumers go through attention, elaboration, and behavior phases when exposed to persuasive messages (see, e.g., Tam and Ho 2005). With only click-stream data, there is only partial knowledge regarding attention, since the number of customers who noticed the messages, but decided not to click the banner, is not known. However, we used three different click-throughs as indicative measures of attention: the click-through amount (both as the number of times the personalized banner was clicked and as the number of unique sessions that clicked the banner) and the proportional click-through rate (CTR). In our study the CTR was operationalized as the number of personalized banner clicks in relation to the total hits collected, based on the earlier click-stream statistics calculated by the bank for default (non-personalized) banners that we used for comparison in our study. The amount-based measures for attention were adopted from Tam and Ho (2006). We believe, however, that CTR as a proportional measure is more valid, as it better captures possible differences in the



realized sizes of the exploratory group samples. Although the initial sizes of the exploratory study groups are practically equal, there might be uncontrollable differences in the online service visit activity rates during the nine-week study period.

Stickiness was used as the elaboration measure. *Stickiness* refers to the amount of time a person spends on a website during a visiting session (session stickiness) or over a specified time period (site stickiness) (Lin et al. 2010). According to Lin (2007) stickiness is the website's ability to retain online customers and prolong the duration of each stay. Bucklin and Sismeiro (2003) employ the number of pages requested during a session as a proxy of stickiness. The stickiness measures employed in this study were adopted from the bank with whom we collaborated in this research. The overall stickiness (durations of sessions both in pages and in seconds) and page stickiness (the average time spent per page) were calculated and compared between the sessions that accessed the personalized banner and those that did not. The results between the three study groups were also compared.

Behavior (using the term *choice*) was measured with the number of the products purchased by the time the online study was over. Additionally, behavior was calculated in relation to the total amount of visitors in the respective group (denoting the pull-% of the group).

Finally, the effectiveness of the personalized messages was measured. The proportion of default banner clicks (banner of equal size in the same location on the website) to total number of hits was first measured and then compared to the proportion of personalized banner clicks to total hits in order to receive the lift of the personalized message. In addition, the pull-percentages of the online study groups were compared with comparable personalized direct-mail promotions that had been launched in temporal proximity of the online study.

RESULTS

Results of the Focus Group Interviews

We used the insights provided by ELM (Petty et al. 1983; Petty and Cacioppo 1986) to guide the analysis of the promotional messages in order to uncover what aspects of messages attracted attention among the customers. Even though the model is typically employed with numerical data, we found it helpful in the interpretation of qualitative data. We discovered that certain peripheral cues were so powerful that customers paid less attention to the actual contents of the message. Fancy pictures, provocative question-format in the messages, use of sensitive self-referent information (e.g., duration of mortgage, amount of funds on account) were more easily attached to pushy advertising instead of being perceived as informative customer service.

Overall, the attitudes toward the use of self-referent information in promotional messages were rather negative, and the irritation of seeing personal information in banner advertisements even prevented the participants from deliberating on the messages in detail. Despite this, almost all participants stated that they would prefer targeted messages to more general approaches, but the self-referent information must not occupy a too prominent status in messages, but rather to be in the background (cf. discussion in Sunikka and Bragge 2009; White et al. 2008). Since the provocative use of self-referent information clearly irritated the participants, the representatives of the bank removed such messages from the subsequent online study. Preference personalization was used in all messages, whereas self-referent personalization was applied in only one study group, and in a modest form (Message 3 regarding the expiring credit card of the customer).

Results of the exploratory online study

Descriptive results of personalized banner study groups

The data collected from the online study spanned nine weeks in late 2006 and early 2007. During this period, 714 different visitors carried out 8988 sessions. Thus, 81.7 percent of the customers from the study groups visited the website at least once during the time-period. This constituted over 124,000 lines of page-view data (hits). Table 2 presents the basic numerical data. The average age of the visitors was forty years (the customer population for the bank is an average of forty-three years of age). The proportion of females was 40.5 percent of the visitors, whereas their proportion in the whole population is 48.6 percent. We examined the measures of session durations (in pages or in seconds), and there were no significant differences between the genders.

We categorized pages to basic usage (basic transactions) and other pages. The quantity of the basic usage pages varied from 81.1 to 84.4 percent, and these were filtered out of the analyses. The Net bank statement (NBS) group had the highest proportion of banner-generated pages (4.13 percent) and sessions that contained banner usage (8.36 percent). Loans group was the most active group measured by percentage of visits, total hits, total sessions, and number of sessions per unique visitor. Since nearly 95 percent of the loans group visited the online bank during

the study period (compared to 61 percent and 88 percent with the other groups), the larger numbers of hits and sessions are partially explained by this higher activity rate. Taken as an average, the X-card group opened the most pages per session, and the duration of their average sessions in seconds was also higher than in the loans group, which was almost as high as in the group that had no Net bank statement (see Table 2).

Table 2: Basic Data Summary

	1. NBS	2. Loan	3. X-card	Total of online study	Whole population
No. of customers in the group	281	300	293	874	
Visit—%	61.2%	94.7%	88.1%	81.7%	
No. of unique visitors	172	284	258	714	
Average age of visitors	46	39	43	42	43
Gender of visitors: females	53.4%	37.3%	55.6%	40.5%	48.6%
Total hits	14 584	65 245	44 641	124 470	
Total sessions	1 100	5 040	2 848	8988	
Avg. sessions (in pages)	13.3	12.9	15.7	13.8	
Avg. sessions (in seconds)	370 s	265 s	363 s	309 s	
Avg. no. of sessions/unique visitor	6.4	17.7	11.0	12.6	
Basic pages, usage—%	81.1%	83.1%	84.4%		
Banner-generated pages (as a proportion from other than basic pages)	4.13%	0.74%	1.13%		
Sessions containing banner—usage)	8.36%	0.24%	0.67%	1.37%	

Results of the personalized banner study groups

Regarding the attention measures, the click-through rates for the personalized banners were 0.8 (NBS), 0.13 (loan), and 0.2 (X-card) percent (see Table 3). The click-through amounts were 117, 85, and 89 for all personalized banner hits, and 92, 12, and 19 for the number of unique sessions that accessed the banner.

Table 3: Attention Measures

	1. NBS	2. Loan	3. X-card
Click-through rate (personalized banner clicks/total hits)	0.8 %	0.13 %	0.2 %
Click-through amount 1 (personalized banner clicks)	117	85	89
Click-through amount 2 (no. of unique sessions that accessed the banner)	92	12	19

We operationalized elaboration as the amount of time the customers spent examining the banner (stickiness). Table 4 depicts elaboration measures and compares the length of elaboration in pages and in seconds between the groups. The average durations both in pages and seconds were the greatest in the loan group—45.2 pages (895 seconds), and the figures were the lowest for the X-card group—18.3 pages (489 s). Furthermore, comparisons were made regarding page stickiness between those sessions that accessed the banner and those that did not access the banner-generated pages. The equality of variance tests indicated a change in the navigational behavior of the customers who accessed a personalized banner in loan and X-card groups, compared to those who did not access banners. By studying the equality of variance tests (instead of the equality of means), we determined to specifically test possible differences in the deviation from the mean duration, as we think that variance better measures the (dis)similarity of the navigational behaviors than the mean.

Table 4: Elaboration Measures

	1. NBS	2. Loan	3. X-card
Avg. duration of sessions (in pages) banner accessed	21.9	45.2	18.3
Avg. duration of sessions (in pages) banner not accessed	12.5	12.9	15.7
Difference of stickiness regarding session duration in pages	9.4	32.3	2.6
Equality of variance test of the durations (in pages) H ₀ : The variances are equal	p = 0.3999 F = 1.13	p = 0.3944 F = 1.58	p = 0.1205 F = 1.85
Avg. duration of sessions (in seconds) banner accessed	704	895	489
Avg. duration of sessions (in seconds) banner not accessed	340	263	363
Difference of stickiness regarding session duration in seconds	364	632	126



Equality of variance test of the durations (in seconds) H ₀ : The variances are equal	p < 0.001* F = 2.44	p = 0.7461 F = 1.08	p = 0.4721 F = 1.34
Avg. duration of visit in seconds/page (banner accessed)	32.10	19.80	26.70
Avg. duration of visit in seconds/page (banner not accessed)	27.20	20.40	23.10
Difference in page stickiness	4.90	-0.60	3.60
Equality of variance test of the durations (in seconds/page) H ₀ : The variances are equal	p = 0.6252 F = 1.06	p = 0.0284* F = 3.32	p = 0.0052* F = 2.19
An asterisk* after the p-value denotes a statistically significant result			

We next examined the choice behavior of consumers regarding the promoted offerings (Table 5). The pull-percentages included the number of customers who had applied or signed the contracts for the respective products or services. The pull-% was the highest for X-card and NBS (ca. 19 percent for both) and the lowest for the loan group (6.3 percent). Interestingly, the final purchases (first row in Table 5) were higher than the click-throughs (measured as unique sessions, see Table 3 earlier) in the loan group (eighteen purchases vs. twelve unique click-through sessions) and in the X-card group (fifty vs. nineteen).

Table 5: Choice Measures			
	1. NBS	2. Loan	3. X-card
Purchases by participants (in number of products)	33	18	50
Pull-% of the personalized group (no. of purchases/ no. of visitors from the online study group)	19.2%	6.3%	19.4%

We then compared the effectiveness of the personalized banner messages with the general click-through rate of a default message (Table 6). The default data provided by the bank were interpreted as the control group data. The default banner was positioned at the same place on the website and was of equal size as the personalized banner, but the content of the message was not personalized to the recipient. The results show that the lift of a personalized banner compared to the default banner was about 120 for NBS, twelve for loans, and fifty-seven for the X-card group. These figures have to be considered in the context of the level of banner exposure that websites currently experience, as the click-through rates are, in general, very low (below 0.1 percent), and, therefore, the lift-measures may look too positive. However, they are still an indication of the way personalized banners are received by the customers.

The bank had previously conducted direct-mail campaigns with the same products and services that were promoted in the online study. These had resulted in a general pull-% of 9.5–10.0 percent for the NBS, 5 percent for loan, and about 35 percent for the X-card. When we compared the pull-%'s of the personalized messages to the pull-%'s of comparable direct-mail marketing promotions, the results showed that the pull-%'s of personalized NBS and loan messages were higher than the pull-%'s of direct mail promotions.

Table 6: Effectiveness Measures			
	1. NBS	2. Loan	3. X-card
Lift compared to default (non-personalized) banner	120	12	57
Pull-% of the personalized group (no. of purchases/no. of visitors from the online study group)	19.2%	6.3%	19.4%
Direct-mail marketing pull-% of comparable campaigns	9.5–10%	4.5–5%	35%

DISCUSSION

There is an established body of research in the field of online advertising (see Ha 2008 for a review). However, the behavioral response to online advertising and personalization has received little attention in the academic literature (Tam and Ho 2005, 2006). Most online advertising studies deal with e-commerce (retailing) sites or with contexts in which customers are first persuaded to enter the seller's site for online purchasing. Our case website represents a context in which the visitors of the e-service are already customers of the company and most have a regular need to revisit the site in order to conduct financial transactions. Furthermore, there is no competition for the attention of customers from other parties. Our study thus contributes to the existing online personalization literature by presenting a delicate context that, as far as we know, has not been studied before. A special challenge for bank marketers is the goal-directed behavior of customers in their online bank activities; customers might be interested only in conducting their financial tasks without any interest for further information search or further purchases.

The analysis of the focus group interviews showed that bank customers regard the indelicate use of self-referent personalization as an invasion of their privacy. Based on these views the exploratory online study that was conducted with almost 900 online bank customers mostly employed preference personalization (Message 1 and Message 2). In addition to preference personalization, self-referent personalization in a modest form was applied in Message 3. The results of our online study reveal that the click-through rates for the personalized banners are higher than for the default banners in all three online groups. The lift was the highest in the NBS group. This might have been due to the fact that the NBS is a relatively simple offering that, as a digital service, also best matches the online bank's distribution channel. It seems that the type of service that is being promoted is important; messages that promote fairly simple services that are easy to apply and are linked to the context in which the promotion occurs are more efficient than messages that do not fulfill these criteria (see additional insights related to "search" and "experience" offerings discussed in the marketing literature in Sunikka, Bragge, and Kallio 2011).

Regarding the use of self-referent information in one of the messages, which referred to the customer's expiring credit card (3), we believe that the banner caught more attention as it explicitly referred to "Your X-card is about to expire" and not generally that "The X-cards are about to expire." The self-reference in this message was in a modest form, and based on the results of our preceding focus group studies, customers regard this kind of message content as welcomed customer service rather than pushy advertising. One indication for this is the largest amount of purchases in this group, also calculated in relation to the unique click-throughs (which was 2.6-fold, i.e., fifty purchases/nineteen unique click-throughs). However, it is hard to separate the true effect of the self-referent information in the messages, as we did not employ exactly the same product as in the non-self-referent messages. As was seen from the traditional direct-mail promotion statistics we presented, the pull-% for expiring credit card promotions is typically and understandably quite large, as the customer needs to react to the situation sooner or later if s/he wishes to continue the bank service s/he already has. This is not the case for totally new service or product suggestions, such as those promoted in messages 1 and 2.

Overall, the pull-percentages of personalized banners were higher than those of the direct mail marketing promotions in two of the three cases studied (not in the X-card group, which achieved better pull-% with direct mail marketing). The results are very promising, and we encourage further research that examines personalized marketing messages in online banks and similar self-service websites. When costs are included to the effectiveness calculations, online personalized messages may fare even better.

We also measured the durations of sessions in the online bank both in pages and in seconds. The sessions that included banner-generated pages were either somewhat or significantly longer than those sessions that did not include banner-generated pages, thus implying better stickiness and clear changes in the navigational patterns. However, one could also speculate that longer durations are not always a good thing, since they might indicate ambiguous instructions. It is especially true in a goal-directed mood, or with "avoidance" products such as financial services (McKechnie et al. 2006), that customers might prefer to carry out their activities without excessive cognitive efforts on a website. This area clearly deserves more investigation.

Although we mainly employed direct response measures (Chandon et al. 2003) in our study, our measures on choice (actual behavior) imply that the marketing messages also worked through memory (with repeated exposure), and not only when clicking (and perusing) the banner. Loans and X-card promotions required offline visits in order to be completed. In these study groups the actual numbers of final purchases were higher than the number of sessions that accessed the banners. Thus, the complementary brand building view presented by Hollis (2005) is acknowledged because indirect effects via memory were discernible in our study.

Managerial Implications

Besides offering understanding of how bank customers respond to online personalization, our research is one of the few studies that provide evidence of the effectiveness of online personalized messages. Even in the goal-directed environment, online personalized messages are noticed. The exploratory online study provided many insights for the bank's future operations regarding personalized online marketing. After this study our case bank started exploring new ways of implementing personalization and analyzing the results. In this regard, the combination of click-stream behavior and demographic profiles provides insights on the behavioral antecedents that also influence navigational patterns. Additionally, clustering analysis is helpful in understanding and predicting which measures of navigation are most important in explaining the purposes of navigation, thus reflecting the mindset of unique sessions (cf. Moe 2003). The insights from Miceli et al. (2007) regarding clustering e-customers according to the value, knowledge, orientation, and relationship quality dimensions are also worth further exploration.

After an exploratory stage of personalization, banks should aim to design and implement a more systematic way of conducting personalized marketing in their online bank. This will require streamlined processes and the increased use of personalization technologies, thus posing multifaceted managerial challenges for banks. The few personalization process frameworks presented in the literature (Adomavicius and Tuzhilin 2005; Vesanen and Raulas 2006; Miceli et al. 2007) should provide useful guidance in this endeavor.



CONCLUSIONS

This study has explored the customer response to personalized marketing messages in a Nordic bank's online service. Three types of financial services or products were promoted to three different customer groups, forming a sample of almost 900 customers. The complexity of the promoted offerings varied from a "risk-free" offering of a Net bank statement, which could be acquired directly online, to more complex products of loans and credit cards, the request of which could be initiated via the Web and finalized offline. This partial execution of the process via the Web was not expected to be regarded as a disadvantage by the online customers, as consultation with sales personnel is a part of a typical multichannel service delivery in the banking sector and a common strategy that customers use to simplify complex decision-making environments (Waite and Harrison 2002; Mitra et al. 1999).

Regarding our three research questions, we found that the appreciated aspects of personalized promotional messages are services that suit the online environment (relatively simple digital services) and the tactful use of self-referent information. Second, online customers respond to personalized banners by clearly changing their navigational behavior and elaborating in length the content when accessing the banner. As to how effective personalized banners are in comparison to non-personalized banners or traditional direct mail, we found that personalized banners in the online banking context received more click-throughs than the default promotional messages. Furthermore, the actual sales based on personalized messages were higher than in the case of direct-mail promotions in two of the three online study groups.

Limitations and suggestions for future research

One limitation of our study is that, due to the exploratory nature of this study, we did not employ a questionnaire on the website. A questionnaire would have provided some answers to our presumptions and better metrics, for example, with regard to the attention variable in the information processing stages. Furthermore, we did not gather control group data during the online study but relied on the average figures that the bank provided us. With more resources, we would also liked to have employed, for comparison, the same three messages in their (non-)self-referent form in order to discern the separate effect of self-referent information. Although the empirical data of this study dates back to 2007, we do not consider this a serious limitation of our research results. Based on our own daily experience, the online banking arena has remained rather constant during the past five years, especially with respect to personalized messages. Thus, we are confident that the empirical results are still valid and offer valuable insights for researchers and practitioners alike.

Cognitive phenomena in information processing are interesting topics for future research. For example, the personality trait, need for cognition (NFC), appears to be a factor that might explain differences between online customer behavior. According to Tam and Ho (2005), high-NFC individuals search for more information when making decisions, engage in more effortful processing of persuasive messages, and devote more topic-relevant thought to persuasive communications compared to low-NFC individuals. Thus, it is not sufficient to manipulate merely the ELM variables of the messages and assume that the behavior of the customers is homogenous, but in future studies, the individual characteristics of the customers should also be studied in more detail, as in Tam and Ho (2005). A further interesting research venue is the integration and/or divergence of multiple channels. We encourage further research on the range of information and services offered in various channels, especially on the way that the various channels could be personalized to offer information and services attractive to different segments of customers. Future research on these topics should also be extended to other industries.

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