

## ORIGINAL ARTICLE

**Personalization versus Customization:  
The Importance of Agency, Privacy,  
and Power Usage**S. Shyam Sundar<sup>1,2</sup> & Sampada S. Marathe<sup>1</sup>

1 Media Effects Research Laboratory, College of Communications, The Pennsylvania State University, University Park, PA 16802, USA

2 Department of Interaction Science, Sungkyunkwan University, Seoul, Republic of Korea

*What makes customization so appealing? Is it because the content is tailored or because the user feels greater agency? Study 1 tested these propositions with a news-aggregator Website that was either personalized (system-tailored), customized (user-tailored), or neither. Power users rated content quality higher when it had a customizable interface, whereas nonpower users preferred personalized content. In Study 2, half the participants were told that their browsing information may be used for providing requested services while the other half was told that it would not be used. The interaction found in Study 1 was observed only under conditions of low privacy, with the pattern being reversed under high privacy. Significant three-way interactions were found for sense of control and perceived convenience.*

doi:10.1111/j.1468-2958.2010.01377.x

From the background color of our computer desktops to the faceplates on our cell phones, we are now able to individualize a wide variety of products and services. Devices such as iPods allow for idiosyncratic organization of music without regard for industry-driven status markers such as album-level groupings of songs or airplay-based ratings. Various video games allow users to define the look of their avatar and customize different aspects of game play such as difficulty levels. On the Internet, we can customize the kinds of information we receive by actively or passively specifying preferred sources as well as content categories. Portals are a common venue for customization (Kalyanaraman & Sundar, 2008) and offer a vast range of gatekeeping options to users, from choosing the particular content categories (weather, horoscope, puzzles, sports, etc.) to specifying how to streamline content (weather in your hometown only, horoscope just for your star sign, only mathematical puzzles, statistics only for your favorite sports team, etc.) and where to get it from.

Customization profoundly alters the concept of “gatekeeping” (Shoemaker, 1991)—a concept that is fundamental to the status, utility, and functioning of traditional mass communication—by allowing communication receivers to serve as

---

Corresponding author: S. Shyam Sundar; e-mail: sss12@psu.edu

communication sources (Sundar & Nass, 2001) and thereby undermine the role of professional gatekeepers. A theoretical understanding of the psychological appeal of customization is critical in the Web 2.0 media landscape, which is dominated by tools allowing users to customize their information universe. From social bookmarking sites such as Digg.com to personal broadcasting technologies such as Twitter.com, newer media offer receivers unprecedented opportunities to serve as information sources and gatekeepers. Scholars have debated the pros and cons of this phenomenon for deliberative democracy (Iyengar, 2001; Sunstein, 2001), but none of it has stemmed the dramatic proliferation of customizable products in the marketplace. If anything, it has led to a “virtuous cycle” wherein systems that offer customization deliver greater value to users by understanding their needs and continually monitoring their changing tastes and preferences at the individual consumer level in order to provide even more well-honed customization (Adomavicius & Tuzhilin, 2005). Customized offerings can be especially gratifying in a medium such as the Web, known for its staggering problem of information overload (Eppler & Mengis, 2004), because it essentially packages the net’s vast repository of evolving information for an audience of one. In fact, Kalyanaraman and Sundar (2006) have demonstrated overwhelmingly positive attitudes toward a Web portal as a function of the degree to which it tailors content to individual users.

Theoretical knowledge of the psychological appeal of customization, however, is still in its nascent stages. As newer digital media offer more and more customization, it is important for scholars to understand how it transforms the process of communication. Research thus far has focused on the outcome of customization, which is tailored content. Insufficient attention has been paid to the process of customization. Tailored content existed even before the advent of digital media (in the form of mass mailing of personalized letters and telephone calls by customer service agents; see Beniger, 1987), although perhaps not as rampantly. The real functional innovation underlying the customization revolution therefore is not that the content is tailored but that the users are able to perform the tailoring on their own, that is, the receivers can shape the nature and course of content that they consume. But, does this matter?

Clearly, the ability to act as a gatekeeper is likely to imbue users with a sense of agency, identity, and investment in both the process of customization and consumption of customized content. The agency model of customization (Sundar, 2008) argues that the psychological effects of customization technologies are fundamentally premised on the user serving as the source or sender of content. The current investigation employs this model in the context of customized news content and performs a theory-testing exercise that pits the self-as-source (agency) explanation against the positive content attributes (tailored content) explanation for the positive appeal of customization. In other words, the impact of customization upon attitudes toward a news site could be because of the ability afforded to the user to serve as the gatekeeper of information or simply because of the positive elements of content resulting from customization (such as perceived relevance). Alternatively, both factors may play a significant role in the effect.

Another possibility is that certain users are influenced more by the affordance of agency, whereas others are persuaded by the relevance of the resulting content. Research suggests that although some technologically efficacious individuals use interface features such as customization to their fullest extent (Manber, Patel, & Robinson, 2000), most others use only the default features without ever exploring all the possible options (Billsus, Brunk, Evans, Gladish, & Pazzani, 2002; McGrenere, Baecker, & Booth, 2002; Rosson, 1984). It is likely therefore that the former category of individuals, the so-called power users, appreciate the ability to personally modify the interface, whereas the latter are more impressed by the interface tailoring content for them without their active involvement.

The relevant concepts signified by these mediators are personalization (or the degree to which the content is tailored by the system to individual tastes) and customization (wherein the user deliberately tailors content by choosing options and/or creating new content). We manipulated these in an experiment that involved study participants (both power users and nonpower users) viewing a Google News site that was either personalized for them (based on covert observation of their previous use) or required them to customize (i.e., specify and create news categories of interest on their own), respectively, and observed their resulting attitudes toward site content, by comparing them to participants in the control condition who received neither personalization nor customization.

### **Personalization versus customization**

The crux of the theory testing between the tailored content explanation and the agency explanation lies in the distinction between system-initiated personalization (SIP) and user-initiated customization (UIC). In order to realize the positive content consequences of tailored content, it is not necessary for users to perform the gatekeeping function on their own. Digital media have made it extraordinarily simple for systems to tailor content based on user behaviors and/or personal information. At a time when online bookstores remember our past selections and offer us related books on our next visit, we no longer need to tell news Websites our zip codes, town names, or our favorite sports team in order to receive relevant news or our local weather. Movie listings for our favorite theater automatically appear when we are looking for showtimes. As companies aim to please all of their users, tailoring content on Websites has become increasingly important and popular. To offer these tailored services to consumers, automatic personalization systems gather user browsing behavior data in two ways—overt and covert. Some gather data by directly asking users for their name, gender, birth date, phone numbers, and zip codes, among other pieces of information. Others gather data by covertly “observing” user behavior by placing cookies in browsers. With these data, personalization systems tailor the system interface for every user. Examples include greeting the user by name upon log in, presenting relevant movie listings or local weather based on IP addresses/zip codes, and sending e-mail coupons based on previous online purchases

among myriad other services. Most of these services are automatic and hence require little or no direct involvement by the user. The systems are designed to tailor content for different sets of users based on information request, use, and demand patterns (Mostafa, 2002).

Increasing personal relevance of the content for the user appears to be the primary reason for SIP. In fact, Blom (2000) defines personalization as a process that “changes the functionality, interface, information content, or distinctiveness of a system to increase its personal relevance to an individual” (p. 313). Similar to Blom, much of the personalization literature focuses on the end result (tailored content) rather than the process of tailoring (who does it). It is generally assumed that tailoring is done by the system, which is designed to understand user needs and situations and adapt to each particular user. Ho and Tam (2005) describe personalization as adapting Web content and layout to “deliver the right content to the right person in the right format at the right time” (p. 96). They argue that personalization is about manipulation of content and interface and that online businesses can take advantage of this opportunity to adapt to their users’ needs (see also Saari, Ravaja, Laarni, Turpeinen, & Kallinen, 2004). More generally, Serino, Furner, and Smatt (2005) define personalization as “use of information about a particular user that provides tailored or personalized services for the user” (p. 1). In the context of the Web, personalization is about “automatic changes of webpages to accommodate individual user’s needs, interests, knowledge, goals, or tasks” (p. 1), whereas in electronic commerce, it is reflected in the form of gathering consumer data for making product recommendations to consumers. They further specify that personalization should be defined as “tailoring product or service to a buyer’s preferences” and customization as “configuring a product or service to a buyer’s specifications.” This definition of customization emphasizes the user’s role in specifying content, thereby underscoring the importance of control on the part of the user. Along similar lines, personalization systems are also thought of as “adaptive hypermedia,” which use intelligent technologies for user modeling that provide tailored content to different users (Brusilovsky & Maybury, 2002), quite distinct from “adaptable hypermedia,” which require “the user to specify exactly how the system should be different” (p. 32) as a precondition to providing tailored content. In the latter, even though the system performs the “tailoring” of content for the user, it takes into consideration the user’s active input on his/her needs and desires.

User-initiated customizable systems do not tailor content on their own, but instead feature a number of affordances that allow users to make changes to the form and content of the interfaces. They give high priority to user control and involvement, and therefore place users in the “driver’s seat,” essentially making them sources of their interaction with the systems (Sundar, 2008). Today, most interfaces offer some sort of customization possibilities, ranging from simple font or color change on desktops and Web pages to more involved modifications (mods) in video games. Unlike personalization, which is system driven, customization is a highly user-driven process of tailoring (Nielsen, 1998). As Coner (2003) points out,

users have a relatively passive role in personalization, and the content is filtered for them, whereas in customization, they actively dictate the information on the site (cf. Treiblmaier, Madlberger, Knotzer, & Pollach, 2004). Nielsen maintains that personalization is “driven by a computer which tries to serve up individualized pages to the user based on some form of model of that user’s needs,” whereas in customization, “the user explicitly selects between certain options.” In sum, literature in the area of human–computer interaction clearly indicates experiential differences between customizable and personalized interfaces, with the former entailing a more active role for the user in ensuring personal relevance and utility of mediated content.

### **If tailored content is key. . .**

If resulting *content* is the main reason why tailoring is so desirable, then just the *outcome* (such as access to relevant content and the involvement that it engenders) is the object of ultimate interest and not the *process* by which tailoring is achieved. When Kalyanaraman and Sundar (2006) experimentally varied the myYahoo portal site by the degree to which the site content catered to users’ specific interests, they found large differences on all attitudinal variables of interest. Specifically, attitudes toward the portal were significantly more positive when the site provided highly individualized information that matched users’ stated preferences perfectly, followed by a condition where only a few generalized traits were matched (e.g., personalized greeting, local weather, movie listings in the area). Attitudes toward the portal were found to be the least positive in the control version where none of the stated preferences was matched in the information provided to users. Furthermore, perceived relevance and perceived involvement significantly mediated the relationship between tailoring levels and attitude toward the portal. All this suggests that the ability of SIP to serve up relevant and involving content is of significant psychological value. Indeed, much of the literature on tailoring, including several studies in the domain of health communication (Hawkins, Kreuter, Resnicow, Fishbein, & Dijkstra, 2008), focuses on the pertinence of resulting content for users rather than on the process by which tailored content is brought to the users.

### **If agency is key. . .**

The process of UIC is seen by some scholars as an outgrowth of the interactivity afforded by the interface. Interactivity is arguably the most distinguishing aspect of modern online media, and when conceptualized as a source factor, it represents the degree to which the system allows users to serve as sources of information (Sundar, 2007). For example, if a Website follows the traditional media norm of stringently gatekeeping the site with the help of a professional staff and “publishes” a product for user consumption without issuing any calls for interaction, it would be considered very low in interactivity. If, on the other hand, it allowed other entities to serve as gatekeepers or sources, then it might be considered more interactive. For example, blogs and Wikipedia allow the collective mass of users to serve as sources by contributing comments and posting original information. The highest form of

source-based interactivity is achieved when an interface allows the user himself or herself to serve as the source of information. Clearly, this is more involving and empowering than simply reading what professional journalists have put together or even what other users have chosen.

Sundar and Nass (2001) experimentally created one such condition in the context of online news by providing participants with an interface that ostensibly allowed them to choose their own news stories for consumption from a menu of headlines. However, they liked the news stories less and rated them as being of lower quality and newsworthiness than participants in another condition who read the same stories, but were told that other users of the online news service had collectively chosen the news stories. Clearly, this latter condition offers lesser agency to the individual user than the self-as-source condition, yet the content evaluations were more positive. How can we reconcile such a finding with the generally monotonic associations between level of UIC and attitudes toward site, that is, the greater the customization, the more positive the attitudes toward the portals (Kalyanaraman & Sundar, 2006)? Sundar (2007) contends that greater interactivity simply breeds more involvement, focusing greater user attention on content. This means a more rigorous appraisal of content, which explains the somewhat negative content evaluations in the self-as-source condition in the Sundar and Nass (2001) experiment because the stories chosen were generally mediocre, so that they would not evoke any strong emotions. We may interpret this also as providing greater agency to the user: Heightened interactivity not only affords higher potential for customization vis-à-vis content selection but also offers more intimate contact with content, thus resulting in closer scrutiny. For example, we are likely to be more than ordinarily careful in evaluating content that we share via social media such as social networking sites (e.g., Facebook) and microblogging tools (Twitter.com). We would conduct more research on the product if we are recommending it on an e-commerce site than if we are acting on collective recommendation from other consumers.

Therefore, in order to realize agency to the fullest extent, users should be allowed to play a more active role in arranging their information environment than these experiments allow. In both the Sundar and Nass (2001) and Kalyanaraman and Sundar (2006) studies, participants in the high-interactivity condition were offered opportunities to consume individualized content, but without the ability to make extensive or truly idiosyncratic content decisions. They were mostly choosing between options (e.g., headlines of news stories) or expressing preferences (e.g., favorite sports teams) instead of creating their own content. And, when they eventually received the content, it was canned and mediocre in order to be of moderate appeal to participants in all conditions. However, if users are allowed to go beyond choosing from options and are able to input keywords and more directly influence the nature of content on the site, they may be able to pull up information in which they are truly interested, not some predetermined content designed by the experimenter to be of average level of interest to everyone. This would constitute a stronger operationalization of self-as-source, leading to both cognitive and affective consequences. The agency model

of customization (Sundar, 2008) posits that triggering the self-as-source schema can have both cognitive and attitudinal outcomes, albeit through different mechanisms. Cognitively, self-as-source will motivate greater engagement with content, which is likely to result in positive attitudes given its guaranteed consonance with the user's interests, something that cannot be said for stimulus materials in the experiment described above. Affectively, true self-as-source will foster positive attitudes toward content by invoking a greater sense of me-ness in that users may see their content gatekeeping decisions as reflecting their identity (Sundar, 2008).

In general, the agency model proposes that technological variables such as interactivity, modality, and navigability serve to enhance user agency, which can have direct effects on psychological responses to mediated content. Specifically, the sense of agency will increase attention to content, thus amplifying one's experience with it and its effects. In addition, it will positively influence affective responses and attitudes toward the interaction by enhancing users' ability to shape their individual identities, as suggested by postmodernists (Turkle, 1995) and demonstrated by media scholars (Dominick, 1999) as well as experimental psychologists (Bargh, McKenna, & Fitzsimons, 2002).

### Testing the two explanations

In order for users to realize the feeling of self-as-source, the interface ought to go beyond simply personalizing the content for them and indeed allow users to exercise gatekeeping themselves. Therefore, the best way to test the two explanations is to invoke the distinction emerging from the explication presented earlier between SIP and UIC. In the former, the system or interface tailors the content for the user, whereas in the latter, the user performs the tailoring. So if tailored content is the underlying mechanism, then it should not matter who does the tailoring, that is, there should be no differences between SIP and UIC in promoting attitudes toward content, but both would be more positive than a control Website (W) that does not feature tailoring at all. In sum, the tailored content explanation would predict  $SIP = UIC > W$  on attitudes. Indeed, Kalyanaraman and Sundar (2006) have demonstrated strong support for positive attitudinal effects of automatic personalization. Therefore,

H1a: UIC and SIP will not differ in their contribution to positive attitudes toward content, but both will be higher than a control condition.

But if the sense of ownership and identity imbued by the self acting as the source is psychologically critical, then we would expect support for the agency argument, with results showing the following pattern:  $UIC > SIP = W$ . This would mean exclusive support for the self-as-source mechanism discussed in the previous section. That is,

H1b: UIC will lead to significantly more positive attitudes toward content than SIP, with the latter being no different from the control.

However, if we obtain  $UIC > SIP > W$ , then we would have to conclude that both theoretical mechanisms play a significant role. On the other hand, the relationship

could be more nuanced, conditioned perhaps by user preferences for acting as a source. Sundar (2008) points out that, aside from providing a sense of identity and ownership, self-as-source can provide a real sense of control to the user, which in itself can be a motivating force. In fact, need for control is correlated with the amount of customization among users (Marathe, 2007). But, not everyone desires control. It is well known that there are individual differences in the degree to which computer users utilize the technology's functionality. Compared with regular users, power users are likely to have greater desire for control and therefore a stronger aptitude for—and interest in—UIC (Marathe, Sundar, Bijvank, van Vugt, & Veldhuis, 2007).

### **Moderating role of power usage**

Power users spend a lot of time using different gadgets and browsing the Internet, incurring enormous bandwidth costs by using complex file sharing applications, streaming audio and video content, and downloading large multimedia files (Bhargava & Feng, 2004). They are highly self-motivated learners who commit greater effort to discovery and experience frustration if restricted or given little learning autonomy. They are also known to routinely engage in multitasking (Roberts, Foehr, & Rideout, 2005) and navigate through complex situations that require them to act and communicate in parallel (Sorensen, n.d.). Power users tend to push any technological device to its functional limit. They are “technophiles” who think of technology as intuitive and do not need readily available technical support at help desks (McAlearney, Schweikhart, & Medow, 2004). They may be classified as “experts,” requiring lesser navigational support than novices (Jenkins, Corritore, & Wiedenbeck, 2003; Chen, Fan, & Macredie, 2006) and expressing more frustration when the interface poses restrictions (Specht, 1998). These users are more likely to own a variety of gadgets and drive technological innovation.

Nonpower users, on the other hand, lack the expertise and interest in adopting newer technologies and interface features. Warschauer (2003) believes that the digital divide is no longer simply because of barriers to access, but in people's readiness, willingness, and ability to productively use technological interfaces. Based on this idea, Marathe et al. (2007) have argued that power usage is a multidimensional concept encompassing a user's motivation, efficacy, expertise, and demonstration of evolved technology use. It is an individual difference variable, meaning that variation between individuals in their technology usage is significantly larger than variation within a user over time.

Power users are therefore likely to have strong self-efficacy and clear outcome expectations, both good predictors of technology use, according to the technology acceptance model (TAM). Literature also suggests that power users like to control their interaction with technology as much as possible (Marathe et al., 2007). Nonpower users tend to be the opposite—they would rather not have to choose among options or expend energy controlling their interface, in part because they lack efficacy, but like all users they too appreciate content that is relevant. What all this means for

our investigation is that power users may differ from other users in their reaction to customization and personalization. Therefore, we expect:

H2: Power users will show more positive attitudes toward site content in UIC condition than SIP condition whereas the reverse would be true for nonpower users.

## Study 1

### Method

In order to test these hypotheses, we conducted a 3 (Customization, Personalization, Control)  $\times$  2 (Power User, Nonpower User) fully crossed between-subjects factorial experiment whereby study participants were exposed to Google News over two sessions. They were either exposed to the Website as is (control condition, heretofore referred to as W) or a system-initiated personalized version (SIP condition) in the second session (based on data of their browsing behavior during the first session) or a user-initiated customizable version (UIC condition). They were then asked to fill out a paper-and-pencil questionnaire measuring their attitudes toward news content on the site.

### *Participants*

Participants ( $N = 82$ ) were recruited from undergraduate communication classes and provided course credit for completing the experiment. All participants signed an informed consent form at the beginning of the experiment. They were randomly assigned to one of the three conditions ( $\sim 35\%$  in control condition,  $\sim 32\%$  in personalization condition, and  $\sim 31\%$  in customization condition). All experimental sessions lasted around 30 minutes.

### *Stimulus*

The Google News Website ([www.news.google.com](http://www.news.google.com)) was used as the stimulus for this study. The left-hand side menu could be used by participants to navigate through the Website. The standard options under this menu are World, U.S., Sci/Tech, Sports, Entertainment, Health, Business, and Most Popular. The "Top Stories" section is displayed on the upper left side of the Webpage. On the right-hand side of the page, near the top, the site offers a link to "Edit this page," which allowed the researcher to personalize the site for the second session of the SIP condition and served as the starting point for participants in the UIC condition to engage in customization.

### *Experimental treatment conditions*

*Control condition.* In this condition, participants were exposed to the Standard View of the Google News Website during both sessions. In the Standard View, the Webpage seen by participants showed content as described above. Under each section, three news stories were displayed in the form of headlines, followed by the lead (i.e., brief summary of the story). Clicking on the headline would take the user to another page dedicated to that particular news story. Under the three headlines

of each section was a link offering to show more or fewer stories. Participants were asked to browse the Website on their own for 15 minutes.

*Personalization condition.* For the personalization condition, the first session was identical to the control condition. For the second session, the study administrator used the “Edit this page” link to personalize the Website for the individual participants in the condition (Figure 1) based on their interests (e.g., Environment), as inferred from their browsing during the first session. This “Custom section” was added to their Webpage and the layout was saved. (Further details on the personalization procedure are provided in the “Procedure” section below.) The menu window was then closed and the Webpage was brought to the “Standard View” before participants arrived in the lab.

*Customization condition.* Participants in this condition also browsed the regular Google News Website during their first session. During their second session, they were given explicit written instructions and asked to make changes to the Website using the customization feature on the site. For example, participants could rearrange the eight preset sections that can be seen in Figure 1. And, if they clicked on “Add a custom section,” they were able to enter keywords of their choice and make up their own section (Figure 2). For example, if a person wanted to read a daily dose of articles pertaining to the environment, he or she could enter the word “Environment” in that field and get a section of news stories on that topic.

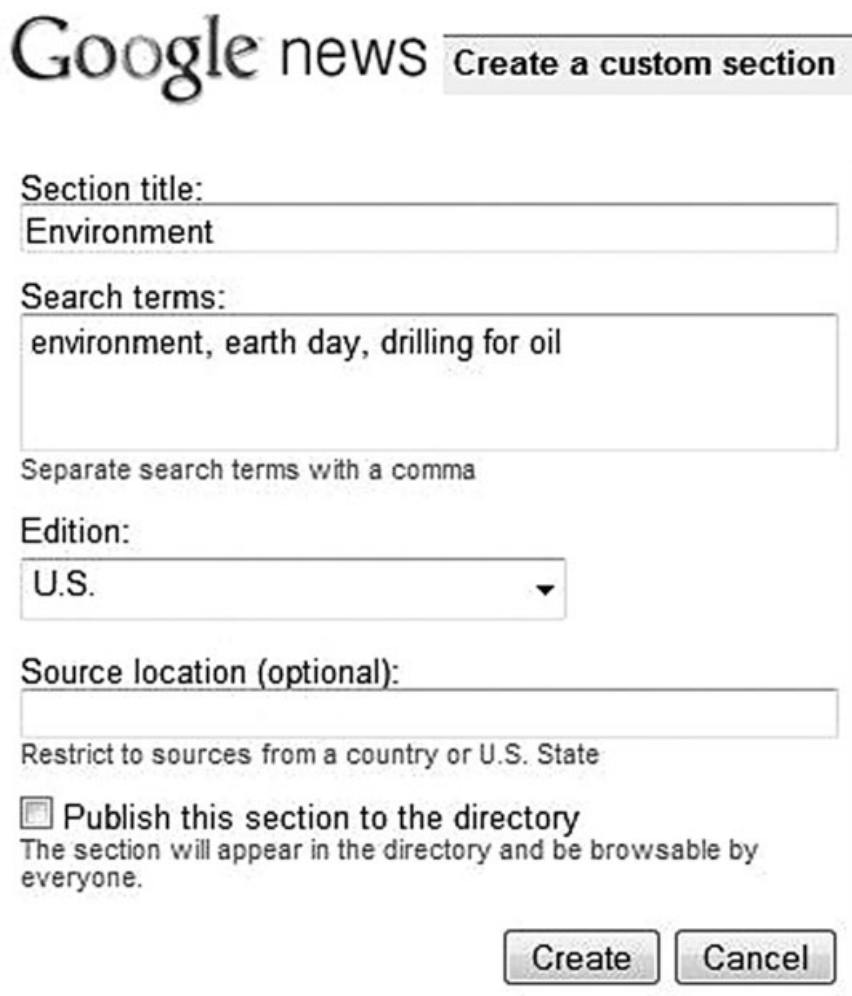
### Procedure

All participants participated in two experimental sessions, on separate days.

*Session 1.* The experimental condition was identical for all participants during Session 1. Each participant was given a unique study ID which was placed in front of the computers before their arrival. Upon entering the computer laboratory, each



**Figure 1** Google News Website with the customization menu.



The image shows a web form titled "Google news" with a button labeled "Create a custom section". The form contains several input fields and a checkbox. The "Section title" field is filled with "Environment". The "Search terms" field is filled with "environment, earth day, drilling for oil". Below this is a note: "Separate search terms with a comma". The "Edition" dropdown menu is set to "U.S.". The "Source location (optional)" field is empty, with a note below it: "Restrict to sources from a country or U.S. State". At the bottom, there is a checkbox labeled "Publish this section to the directory" which is unchecked. Below the checkbox is the text: "The section will appear in the directory and be browsable by everyone." At the very bottom right are two buttons: "Create" and "Cancel".

Google news **Create a custom section**

Section title:  
Environment

Search terms:  
environment, earth day, drilling for oil

Separate search terms with a comma

Edition:  
U.S.

Source location (optional):

Restrict to sources from a country or U.S. State

☐ **Publish this section to the directory**  
The section will appear in the directory and be browsable by everyone.

**Create** **Cancel**

**Figure 2** Option to add a custom section added to the Google News Website.

participant was directed to the computer that had their unique study ID. After a brief introduction to the procedure, he or she was asked to turn on the monitor and browse the Google News Website for 15 minutes. At the end of these 15 minutes, they were asked to answer the questionnaire placed on top of their computers, identical for all conditions. The questionnaire contained the control variable (site familiarity), measures of power usage, as well as the dependent variable (attitudes toward site content). After the participants left, the researcher copied the browsing history (as a Word document) for the participants who were in the personalization condition. The browsing history was then cleared from all computers before commencement of the next session.

*Session 2.* Unique study IDs for participants were placed in front of the computers. Prior to their arrival in the lab, the researcher personalized the Google News Website for participants in the SIP condition based on their browsing history (from Session 1). For example, if a particular participant had browsed the Sports section of the Website, then that section was brought to the top of the page using the “Edit this page” feature available on the Website. Efforts were made to personalize the Webpage to the specific degree based on the browsing histories from Session 1. For example, under the Entertainment section, one participant had read two news stories about a Harry Potter movie. The personalized Website contained the Entertainment section at the top of the page with the latest available news about the Harry Potter movie. Care was taken to conceal the fact that the researcher had personalized the Webpage, by closing the personalization menu. This was done to give participants the impression that the system automatically personalized information for each user. Participants were asked to browse this personalized Website for 15 minutes and then answer a questionnaire.

Participants in the UIC condition saw the Google News Website as it appeared at the time of their first session. Written instructions were provided to them with specific directions to customize the Webpage this time. For example, they were told: “You can drag and rearrange the order of any of the preset sections on the website or add a custom section by making use of the Add section links.” After they customized the Webpage on their own, they were asked to browse the Website for 15 minutes and then answer a questionnaire.

In the control condition, the participants went through the exact same procedure as they had on their first day in the lab.

The questionnaire in all the three conditions contained an identical battery of dependent measures eliciting participants’ attitudes toward site content.

#### *Moderator variable*

*Power usage* was measured via questions based on explication of the concept by Marathe et al. (2007) and pertained to participants’ liking of technology (McAlearney et al., 2004), the extent of their use of technology in general, their dependence on different information technologies (McAlearney et al., 2004; Sorensen, n.d.), and the ease with which they use different information technologies (Agarwal & Prasad, 1999), among other things. All questions were on a 10-point scale, with most of them anchored between *strongly disagree* and *strongly agree*, and others between *rarely* and *very often*. Four of the items on the questionnaire were reverse coded for consistency. Examples include “I make good use of most of the features available in any technological device,” “I have to have the latest available technology or the latest available upgrades,” “I like to challenge myself in figuring out how to use any new technology,” “A little bit of intuition is all that is needed to figure out how to use any new technology,” “Many of my friends come to me to get help related to technological gadgets,” and “I find myself using macros and keyboard shortcuts on the computer.” In all, 39 items were averaged to create the Power User index

(Cronbach's  $\alpha = 0.88$ ), which was normally distributed (Shapiro–Wilk  $W = 0.98$ ,  $p = .40$ ), with both mean and median at 6.85. Scores ranged from 4.51 to 8.64, with a standard deviation of 0.85 and no significant gender differences. A median split was employed to distinguish between power users and nonpower users.

#### *Dependent variable*

The dependent variable of *attitude toward content* was measured by asking participants to indicate how well each of the following words described the news content on the site: *accurate, believable, biased, clear, comprehensive, factual, fair, informative, important, objective, persuasive, sensationalistic, and well-written*—adapted from Sundar (1999). All items were anchored on a 10-point Likert-type scale between “describes very poorly” and “describes very well.” The dependent variable was measured during both sessions and was similar across all conditions. Based on an exploratory factor analysis of the 13 items, we reverse coded and combined biased, persuasive, and sensationalistic to create an index entitled “Session 1 Content Integrity” (Cronbach's  $\alpha = 0.70$ ) and “Session 2 Content Integrity” (Cronbach's  $\alpha = 0.70$ ). The remaining 10 items were summed to create the second index entitled “Session 1 Content Quality” (Cronbach's  $\alpha = 0.90$ ) and “Session 2 Content Quality” (Cronbach's  $\alpha = 0.93$ ).

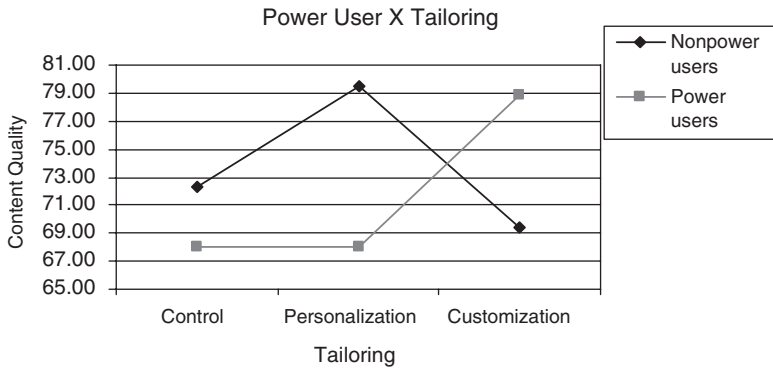
#### *Control variable*

In order to control for novelty effect, prior exposure to Google News was ascertained by asking participants if they had ever visited the stimulus Website before participating in this study.

### **Results**

Based on the logic that tailored content is more desirable than nontailored content, H1a hypothesized a main effect for the condition variable such that SIP and UIC would both show significantly more positive attitudes toward content compared with the control condition. Furthermore, H1b hypothesized that if agency was key, UIC would foster more positive attitudes toward content, compared to personalization and control conditions. We tested these hypotheses with both the Content Integrity DV and the Content Quality DV. First, a full factorial 2 (power usage)  $\times$  3 (tailoring condition) analysis of covariance (ANCOVA) was performed for Session 2 Content Integrity DV, with Session 1 Content Integrity and site familiarity as covariates. No main effect was found, thus offering no support for either of the two hypotheses on this dependent variable. The only significant effect was that of the integrity covariate,  $F(1, 74) = 88.03$ ,  $p < .01$ , partial  $\eta^2 = 0.54$ .

A similar ANCOVA with the Content Quality DV also yielded a significant effect for the covariate,  $F(1, 74) = 80.04$ ,  $p < .01$ , partial  $\eta^2 = 0.51$ . In addition, the control variable had a significant effect, such that content quality was rated higher by those who had never been to Google News before,  $F(1, 74) = 7.66$ ,  $p < .01$ , partial  $\eta^2 = 0.09$ . No main effect was found for the Content Quality DV. However, the analysis revealed a significant two-way interaction between type of user (power



**Figure 3** Type of user × condition interaction on perceived content quality.

usage) and condition, such that nonpower users showed more positive attitudes toward content in the SIP condition than control and UIC conditions, whereas power users showed more positive attitude toward content in the UIC condition than control and SIP conditions,  $F(2, 74) = 8.51$ ,  $p < .01$ , partial  $\eta^2 = 0.18$  (Figure 3). This two-way interaction provides support to H2, which hypothesized a moderating effect of power usage.

In sum, the results showed no main effects for tailoring condition manipulation, thus providing no support for global hypotheses H1a and H1b. This result is because of the significant two-way interaction indicating the moderating role of power usage upon users' responses to the two types of tailoring—SIP and UIC—thereby lending support to H2. We found that UIC > SIP for power users and SIP > UIC for nonpower users. Therefore, H1b was supported for power users, whereas H1a was partially supported for nonpower users, in that SIP was received better than the control site. Unexpectedly, UIC resulted in poorer content evaluations by nonpower users than even the control site.

## Discussion

It is quite remarkable that study participants were so reactive to the subtle and covert manipulation of personalization. Simply altering the menu of news items to match user interests (based on just one previous session with the site) appears to be enough to induce a strong sense of personalization, with psychological consequences. When supplied with news items tailored to their interests, lay users tend to rate the stories as having superior journalistic quality compared with news items that are not tailored to their interests, whereas power users tend not to be particularly impressed. They instead rate content quality higher when they themselves are allowed to tailor their news menu. In terms of the theoretical explanations motivating this research, data lend support to the mediating role of agency in the case of power users and to that of tailored content in the case of nonpower users.

The positive reactions to SIP by nonpower users may also be a reflection of their naivete in that they may not have thought through the privacy concerns underlying the system “learning” from their prior browsing patterns (Chellappa & Sin, 2005). Power users, on the other hand, are likely to be intimately aware of such issues and therefore could be wary of sites tailoring content for them, preferring instead to do it themselves. This kind of outlook might underlie the psychological appeal of agency for expert users. For them, it is not simply about relevance of content, but rather about how that content came to be.

However, one has to consider the convenience aspect as well. UIC means control on the one hand, but considerable time and cognitive investment on the other. SIP is comparatively less demanding and yet can produce tailored content, even if it is not as individualized. Alternatively, concerns of privacy and convenience may not factor into their relative evaluations of customized and personalized content. It might just be that power users feel a greater sense of control, as suggested by the theoretical warrant of Study 1.

## Study 2

A follow-up study was conducted to explore the viability of these different theoretical mechanisms/explanations by studying the role played by concern for privacy, sense of control, and perceived convenience in explaining the differential effects of the two forms of tailoring (SIP and UIC) upon power users and nonpower users.

### Perceptions of privacy

SIP may make a Website seem easier to use, but entails sacrificing a certain amount of privacy. It is inevitable that by supplying personal information to a Website or any other system in order for it to cater to your needs as a user, there is a consequent loss of privacy (Chellappa & Sin, 2005). For example, Ho (2006) found that although participants were interested in Internet personalization services, they were concerned about the amount of personal information that the Website would collect, the purpose for which the information will be used, the likelihood that their personal information may be circulated via the Internet, and the uncertainty about who will receive that information. Privacy concerns are shown to negatively affect e-commerce consumers' views of personalization services (Chellappa & Sin, 2005). This effect is likely to be more pronounced among power users, who are more knowledgeable about the operation of underlying technology, whereas nonpower users may be oblivious to the privacy implications of the system tailoring information for them. Power users also are the people who use technology to its full extent and hence are likely to have encountered more instances where their privacy might have been compromised. Fox et al. (2000) found that as much as 50% of Internet users are highly concerned about tracking of their browsing behavior through cookies.

Given the privacy concerns documented in the literature, it may be argued that power users express preference for UIC over SIP at least in part because they are more

concerned about the privacy of their personal and browsing information. If this is true, then an assurance of privacy of submitted information should serve to allay their concerns, thus diminishing the magnitude of the difference in their positive attitudes between customization and personalization. Therefore, we hypothesize that:

H3: A three-way interaction will occur between tailoring (personalization, customization), privacy (low, high), and power usage on site attitudes such that the interaction effect of H2 is true only under conditions of low privacy, but not true under conditions of high privacy.

### **Perceived control**

Control is a basic human desire that pervades almost all aspects of life. Human beings are often more content when they are placed in control of situations that affect them. For example, a study about context-aware computing revealed that when users are given the freedom to specify their own settings of how an application should behave, they feel more in control of their experience with the technology (Barkhuus & Dey, 2003). Interactivity, by its very nature, is known to provide the user with control of the flow of information and navigation on the Web (McMillan & Hwang, 2002).

Perceived control, then, refers to the belief that you are responsible for the outcome of a given situation (deCharmes, 1968). Power users may feel increased levels of control when they are given the option to customize a Webpage themselves rather than having the Website personalize it for them. SIP is a process that places control outside of the user's hands. For example, a Website may record a user's browsing behavior without the user's knowledge. Customization, on the other hand, lets the user specify his or her preferences. As Botti (2003) found, choice significantly increases perceptions of control, and because UIC offers more choices, we can predict that allowing users to customize will significantly increase levels of perceived control, in turn increasing levels of satisfaction with the Website. This literature therefore suggests that the reason why power users enjoy UIC over SIP is because of the control that users are afforded in customization. Hence,

H4: Perceived control will mediate the relationship between tailoring (personalization, customization) and site attitudes, especially for those high on power usage.

### **Perceived convenience**

Compared with customizable interfaces, SIP systems are easier to use because of the fact that they demand very little user involvement. Users are not expected to invest time and cognitive resources to receive tailored content. Several lines of research, starting with the diffusion of innovations, have suggested that technologies that are characterized as being convenient are more popular among users, especially the vast majority that is not particularly tech savvy. The TAM posits that those technologies that require very little effort to use are more likely to be employed and enjoyed compared with technologies that are perceived as being burdensome to use (Davis, 1989). Studies testing the perceived ease of use theory, an offshoot of the TAM, have

shown that perceived convenience of finding information significantly predicts user evaluations of the sites (Malhke, 2002; Wolfinbarger & Gilly, 2000). This convenience factor can be critical to the success of personalization systems. Users who are forced to find information themselves may find the task to be more burdensome than if the site were to be automatically personalized for their personal wants and needs. Therefore, one could argue that the reason why nonpower users favor system-initiated personalized sites more strongly than customizable ones is because personalization provides convenience to the user and ultimately makes the Website seem easier to use. So, we expect that,

H5: Perceived convenience will mediate the relationship between tailoring (personalization, customization) and site attitudes, especially for those low on power usage.

In sum, concern for one's privacy and a sense of control are hypothesized as two reasons why power users prefer UIC over SIP, whereas perceived convenience governs the tendency among nonpower users to prefer SIP over UIC.

## Method

Study 1 was replicated by adding a privacy manipulation and dropping the control condition. Half the participants in each of the two tailoring conditions (personalization and customization) received assurances of high privacy, whereas the other half were randomly assigned to a low-privacy condition, so that we can examine whether the stronger attitudes for customization over personalization exist only in the low-privacy condition. If this happens, then we can make causal assertions about the role of privacy in dictating the attitudinal differences between customization and personalization for power users.

We also added measures for the hypothesized mediators of perceived control and convenience, as described below. Furthermore, given that tailoring is an attribute of the site rather than content, we changed our dependent variable of "attitude toward site content" to "attitude toward site." The nature of our manipulations of SIP and UIC is such that no two participants in these conditions will receive the same content. Therefore, because attitudes toward site content will likely be dictated in part by the particular news stories encountered by the respondents and thereby add noise to the outcome of our independent variables, we decided to measure attitudes toward site as a whole, which carries the additional advantage of making this study comparable to those in the literature (Kalyanaraman & Sundar, 2006). We describe below those aspects of the method that are different from Study 1.

### *Participants*

In all, 70 undergraduate students were randomly assigned to one of the four conditions (24.3% personalization/low privacy, 24.3% personalization/high privacy, 27.1% customization/low privacy, and 24.3% customization/high privacy).

### *Privacy manipulation*

Prior to being exposed to the stimulus in the second session of the experiment, participants in the low-privacy condition were exposed to a statement that read, “The News Website that you are about to browse MAY USE your browsing information to provide the services you’ve requested,” adding that the site “may share aggregated nonpersonal information with third parties outside of the company.” Participants in the high-privacy condition were exposed to a similarly worded statement that read, “The News Website that you are about to browse WILL NOT use your browsing information to provide the services you’ve requested,” accompanied by an assurance that the site “will not share aggregated nonpersonal information with third parties outside of the company.”

A manipulation check verified that participants took note of the privacy manipulation—those in the low-privacy condition reported significantly more privacy concerns ( $M = 5.65$ ) than their counterparts in the high-privacy condition ( $M = 4.33$ ). The following five questions from Chellappa and Sin (2005) were administered on a 10-point agreement scale: Concerned about privacy on Website, sensitive about giving information to Website, concerned about information collected by Website, concerned about giving unidentifiable information to Website, and concerned about giving identifiable information to Website (Cronbach’s  $\alpha = 0.79$ ).

### *Measured mediating variables*

Measures for convenience, adapted from Davis’s (1989) perceived ease-of-use scale, were also administered on 10-point scales, each anchored between *strongly disagree* and *strongly agree*, and comprised the following six items, three of which were reverse coded: cumbersome, no need for mental effort, easy to use, easy to do what I want, interaction frustrating, site rigid/inflexible—all averaged to form the *convenience* index (Cronbach’s  $\alpha = 0.80$ ).

Measures for perceived control, derived from Venkatesh (2000), were administered on the same scale in response to the following six items: control of site, resources needed to use site, knowledge needed to use site, resources made it easy to use site, site was easy to navigate, and site was unmanageable (reverse coded)—all averaged to form the *control* index (Cronbach’s  $\alpha = 0.81$ ).

### *Dependent variable*

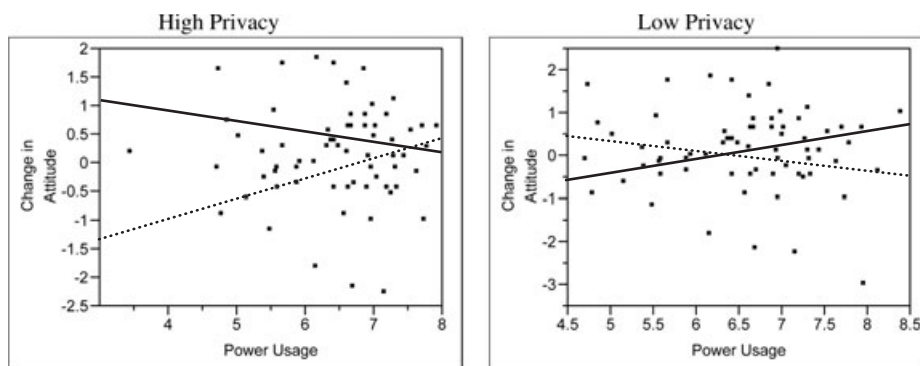
The dependent variable of *attitude toward Website* was adapted from Kalyanaraman and Sundar (2006) and Sundar (2000), and included the following 11 items: organized, interactive, useful, coherent, confusing, enjoyable, sophisticated, user-friendly, layout affected browsing, likely to revisit Website, and likely to recommend Website. All items were anchored on a 10-point Likert scale between “describes very poorly” and “describes very well.” One of the items, *confusing*, was reverse coded for consistency. The same measurement instrument was used to measure the dependent variable during both sessions. All measures were additively combined for each session (Cronbach’s  $\alpha = 0.86$  for Session 1 and 0.89 for Session 2), and the score for the

first session was subtracted from that of the second session to obtain the dependent variable of attitude change toward the site, which was used in all our analyses.

## Results

A general linear model analysis that fully crossed the two manipulated factors of tailoring and privacy—that is, 2 (Personalization, Customization)  $\times$  2 (Low Privacy, High Privacy), respectively—along with the measured variable of power usage (as a continuous independent variable that was normally distributed, Shapiro Wilk  $W = 0.97$ ,  $p = .2$ ) was performed on the dependent variable of change in attitude toward the Website between Session 1 and Session 2 of the experiment. This analysis yielded a significant three-way interaction,  $F(1, 62) = 4.24$ ,  $p < .05$ . For participants in the high-privacy condition, those with higher levels of power usage showed more positive changes in attitude toward the Website in the SIP condition than the UIC condition, whereas those with lower levels of power usage showed more positive changes in attitude toward the Website in the UIC condition than the SIP condition. However, for participants in the low-privacy condition, those with higher levels of power usage showed more positive changes in attitudes toward the Website in the UIC condition than in the SIP condition, whereas those with lower levels of power usage showed more positive changes in attitudes toward the Website in the SIP condition than the UIC condition (Figure 4). The fact that power users favor UIC under conditions of low privacy and favor SIP under high privacy lends strong support to H3.

Perceived control and convenience failed to predict change in attitudes toward the site. Therefore, the mediational propositions made by H4 and H5 did not receive support from our data. However, exploratory general linear model analyses yielded significant three-way interactions for both convenience,  $F(1, 62) = 5.13$ ,  $p < .05$ , and control,  $F(1, 62) = 5.64$ ,  $p < .05$ , revealing the following general pattern: For low privacy, perceived control and convenience increased with increase in power



**Figure 4** Power usage  $\times$  tailoring  $\times$  level of privacy on change in attitude toward Website (dotted line: personalization; black line: customization).

usage in the UIC condition, but decreased with increase in power usage in the SIP condition. For high privacy, however, perceived control and convenience increased with increase in power usage, but did not differ appreciably between the two tailoring conditions.

## General discussion

The three-way interaction between tailoring, privacy, and level of power usage on the change in attitude toward the site may have been realized because of the increase in security that participants felt when they were shown a statement ensuring privacy of their browsing behavior. Ho (2006) found that a common reason for users to be apprehensive when using SIP services is their perceived lack of privacy. We see that in our low-privacy condition, with power users favoring UIC over SIP, a tendency that they do not show in the high-privacy condition. Clearly, they did not feel secure with the Website automatically collecting information about their browsing behavior. When exposed to the low-privacy statement, participants were perhaps concerned with the news Website tracking their browsing information and distributing the information to third parties, just as Fox et al. (2000) discovered.

The right-hand side of Figure 4 (showing the combined effect of tailoring and power usage in the low-privacy condition) is identical to the result obtained in Study 1, in that power users give higher ratings to UIC, whereas nonpower users give higher ratings to SIP. This pattern does not emerge on the left-hand side of the figure, under conditions of high privacy. We can therefore infer that the two-way interaction found in the first experiment is because of power users being concerned with privacy. It implies that the default assumption that users, especially power users, make is that SIP systems are low in privacy. Such a mindset could have serious implications in a number of arenas. As Chellappa and Sin (2005) observe, “investments in online personalization may be severely undermined if consumers do not use these services due to privacy concerns” (p. 181). Design implications of this finding include the need to improve the security profile and image of SIP services and systems, more reminders about the protection of user privacy on the interface, and wherever possible, supplementation of SIP systems with customizable options so that high-end users can still benefit from the system’s ability to tailor without having to worry about potential—and sometimes unavoidable—loss of privacy accruing from the use of personalization.

The findings for the high-privacy condition are equally interesting. With increase in one’s expertise (i.e., power usage), users show a gradual preference for SIP over UIC, owing perhaps to heightened convenience. Curiously, low-end users show a marked preference for UIC over SIP, suggesting that the high-privacy assurance actually serves as an enabler, imbuing strong positive attitudes toward the site’s ability to let users serve as active content gatekeepers. In order to empirically verify this possibility, we will need data on differences between power and nonpower users on actual customization behavior. Future research measuring the extent of customization

undertaken by study participants can also shed light on other theoretical issues, for example, hesitation among nonpower users in using unfamiliar technology or the role of convenience in fostering positive attitudes. Therefore, inclusion of such a behavioral measure is likely to supplement inferences about user perceptions of site and content.

The sense of control variable provided some insightful results. Increase in power usage was associated with increase in the level of perceived control over the Website. This could be because of the fact that as users move up the ladder of power usage, they become more sophisticated in the amount and type of usage. It means that more usage associated with various types of communication technologies will give users the necessary expertise and hence will make them feel in control of the Website. This main effect finding is qualified by the significant three-way interaction, which shows that the positive correlation between power usage and control exists regardless of the tailoring method under conditions of high privacy, but is seen only for UIC in the low-privacy condition. That is, when privacy is low, power users need to customize themselves in order to feel control and they are well aware that personalization systems compromise one's privacy. This is consistent with the prediction made by the agency model of customization (Sundar, 2008), which proposes a direct connection between customizing activity and a sense of control leading to behaviors. Nonpower users curiously showed more control under SIP rather than UIC when their privacy is at stake. This implies that the low-privacy manipulation may have adversely affected their interaction with the site. When asked to customize under this condition, they were probably at a loss as to how the system was going to monitor their customizing activities, including what it might do with the information they enter for specifying their unique news categories and so on. This could have led to a distinct loss in the sense of control. When put in the personalization condition, however, they may not have been so distressed because they were not asked to enter any information. They were simply told to browse the site and read the stories. Given that they are nonpower users, they may not have realized that their browsing itself could compromise their privacy, or if they did (especially considering the manipulation), they may have consciously inhibited their browsing behaviors. Because this is within their control, at least in this experiment, they showed a greater sense of control. A larger implication of this finding is that when sensitized to lower privacy situations, users, especially nonpower users, are more likely to be high self-monitors of their news consumption, perhaps limiting their exploration as a result. Future research ought to systematically examine the inhibition of content exploration as a function of privacy assurance/disclosure on such systems.

In conclusion, privacy turns out to be a key predictor of user attitudes toward personalization and customization, with clear implications for site and system design. Providing high privacy has tangible psychological benefits, by imbuing users with a greater sense of control and stronger attitudes toward SIP for power users and stronger attitudes toward UIC for nonpower users. Low privacy, which unfortunately is the default assumption, appears to be a key psychological concern for users,

forcing power users to take personal control of the system by engaging in effortful customization and discouraging nonpower users from effectively using the system. A clear design implication is that interfaces have to feature different types or levels of customization for users with different levels of expertise. Most users may respond favorably to tailored content, but experts need to be provided privacy assurances or the means to express their agency, whereas novices ought not to be burdened with calls for UIC unless encouragement is available in the form of privacy guarantees.

Future theoretical work should explore the role played by other potential mediators in explaining the differential appeal of SIP and UIC for users of different expertise levels. In addition, research ought to examine differences accruing because of different types of UIC features on this as well as other types of Websites, portals, and systems. To the extent newer customization functions represent different theoretical mechanisms (outside of agency motivated by privacy concerns), they will serve to enhance our understanding of the overall psychological appeal of this unique aspect of digital media. These mechanisms are likely to be different for different technological features of media. As indicated earlier, customization is a manifestation of source-based interactivity (Sundar, 2007), which is quite different from interactivity at the level of medium and message. Structural variables relating to the medium, such as modality and navigability, may trigger different psychological responses, which may overlap or supplement those discovered in this study. Together, these responses will help us better understand the role played by technological affordances in determining user engagement with digital media.

## Acknowledgments

This research was supported by the Korea Science and Engineering Foundation under the WCU (World Class University) program funded by the Ministry of Education, Science, and Technology, South Korea (Grant R31-2008-000-10062-0). The authors thank Christen Reese for her collaboration on Study 2.

## References

- Adomavicius, G., & Tuzhilin, A. (2005). Personalization technologies: A process-oriented perspective. *Communications of the ACM*, *48*(10), 83–90.
- Agarwal, R., & Prasad, J. (1999). Are individual differences germane to the acceptance of new information technologies? *Decision Sciences*, *30*, 361–391.
- Bargh, J. A., McKenna, K. Y. A., & Fitzsimons, G. M. (2002). Can you see the real me? Activation and expression of the “true self” on the Internet. *Journal of Social Issues*, *58*(1), 33–48.
- Barkhuus, L., & Dey, A. (2003). *Is context-aware computing taking control away from the user? Three levels of interactivity examined*. Paper presented at the UbiComp 2003: Ubiquitous Computing: 5th International Conference, Seattle, WA.
- Beniger, J. R. (1987). Personalization of mass media and the growth of pseudo-community. *Communication Research*, *14*, 352–371.

- Bhargava, H. K., & Feng, J. (2004). American online's Internet access service: How to deter unwanted customers. *Electronic Commerce Research and Applications*, *4*, 35–48.
- Billsus, D., Brunk, C. A., Evans, C., Gladish, B., & Pazzani, M. (2002). Adaptive interfaces for ubiquitous Web access. *Communications of the ACM*, *45*(5), 34–38.
- Blom, J. (2000). *Personalization—A taxonomy. Extended abstracts of the CHI 2000 Conference on Human Factors in Computing Systems*. New York: ACM.
- Botti, S. (2003). Preference for control and its effect on evaluation of consumption experience. Retrieved November 7, 2006, from the University of Chicago: [http://gsbwww.UChicago.edu/kilts/research/Workshop/WorkshopPapers/Curriculum\\_Paper.pdf](http://gsbwww.UChicago.edu/kilts/research/Workshop/WorkshopPapers/Curriculum_Paper.pdf)
- Brusilovsky, P., & Maybury, M. T. (2002). From adaptive hypermedia to the adaptive Web. *Communications of the ACM*, *45*(5), 30–33.
- Chellappa, R. K., & Sin, R. G. (2005). Personalization versus privacy: An empirical examination of the online consumer's dilemma. *Information Technology and Management*, *6*(2–3), 181–202.
- Chen, S., Fan, J.-P., & Macredie, R. D. (2006). Navigation in hypermedia learning systems: Experts vs. novices. *Computers in Human Behavior*, *22*(2), 251–266.
- Coner, A. (2003). Personalization and customization in financial portals. *Journal of American Academy of Business*, *2*, 498–504.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319–340.
- deCharmes, R. (1968). *Personal causation*. New York: Academic Press.
- Dominick, J. (1999). Who do you think you are? Personal home pages and self presentation on the World Wide Web. *Journalism & Mass Communication Quarterly*, *76*, 646–658.
- Eppler, M. J., & Mengis, J. (2004). The concept of information overload: A review of literature from organization science, accounting, marketing, MIS, and related disciplines. *Information Society*, *20*, 325–344.
- Fox, S., Raine, L., Horrigan, J., Lenhart, J., Spooner, T., & Carter, C. (2000). Trust and privacy online: Why Americans want to rewrite the rules. The Pew Internet & American Life Project.
- Hawkins, R. P., Kreuter, M., Resnicow, K., Fishbein, M., & Dijkstra, A. (2008). Understanding tailoring in communicating about health. *Health Education Research*, *23*, 454–466.
- Ho, S. Y. (2006). The attraction of Internet personalization to Web users. *Electronic Markets*, *16*(1), 41–50.
- Ho, S. Y., & Tam, Y. K. (2005). An empirical examination of the effects of Web personalization at different stages of decision making. *International Journal of Human-Computer Interaction*, *19*(1), 95–112.
- Iyengar, S. (2001). Cynicism and choice: A response to The Daily We. *Boston Review*. Retrieved September 1, 2009, from <http://www.bostonreview.net/BR26.3/iyengar.html>
- Jenkins, C., Corritore, C. L., & Wiedenbeck, S. (2003). Patterns of information seeking on the Web: A qualitative study of domain expertise and Web expertise. *IT & Society*, *1*(3), 64–89.
- Kalyanaraman, S., & Sundar, S. S. (2006). The psychological appeal of personalized content in Web portals: Does customization affect attitude and behavior. *Journal of Communication*, *56*(1), 110–132.

- Kalyanaraman, S., & Sundar, S. S. (2008). Portrait of the portal as a metaphor: Explicating Web portals for communication research. *Journalism & Mass Communication Quarterly*, **85**(2), 239–256.
- Malhke, S. (2002). Factors influencing the experience of Website usage. In *CHI '02 extended abstracts* (pp. 846–847). New York: ACM Press.
- Manber, U., Patel, A., & Robison, J. (2000). Experience with personalization on Yahoo! *Communications of the ACM*, **43**(8), 35–39.
- Marathe, S. S. (2007, May). *If you build it, they will come—Or will they? Need for uniqueness and need for control as psychological predictors of customization*. Paper presented at the 57th annual conference of the International Communication Association, San Francisco, CA.
- Marathe, S. S., Sundar, S. S., Bijvank, M. N., van Vugt, H., & Veldhuis, J. (2007, May). *Who are these power users anyway? Building a psychological profile*. Paper presented at the 57th annual conference of the International Communication Association, San Francisco, CA.
- McAlearney, A. S., Schweikhart, S. B., & Medow, M. A. (2004). Doctors' experience with handheld computers in clinical practice: Qualitative study. *British Medical Journal*, **328**, 1162–1165.
- McGrenere, J., Baecker, R. M., & Booth, K. S. (2002). An evaluation of a multiple interface design solution for bloated software. In *Proceedings of CHI'2002* (pp. 164–170). New York: ACM Press.
- McMillan, S. J., & Hwang, J.-S. (2002). Measures of perceived interactivity: An exploration of the role of direction of communication, user control, and time in shaping perceptions of interactivity. *Journal of Advertising*, **31**(3), 29–42.
- Mostafa, J. (2002). Information customization. *Intelligent Systems, IEEE*, **17**(6), 8–11.
- Nielsen, J. (1998). Personalization is over-rated. Retrieved October, 23, 2005, from <http://www.useit.com/alertbox/981004.html>
- Roberts, D. F., Foehr, U. G., & Rideout, V. (2005). *Generation M: Media in the lives of 8–18 year-olds*. Menlo Park, CA: Henry J. Kaiser Family Foundation.
- Rosson, M. B. (1984). The effects of experience on learning, using, and evaluating a text-editor. *Human Factors*, **26**, 463–475.
- Saari, T., Ravaja, N., Laarni, J., Turpeinen, M., & Kallinen, K. (2004). *Psychologically targeted persuasive advertising and product information in e-commerce*. Paper presented at the ICEC'04, Sixth International Conference on Electronic Commerce.
- Serino, C. M., Furner, C. P., & Smatt, C. (2005). *Making it personal: How personalization affects trust over time*. Paper presented at the 38th Hawaii International Conference on Systems Sciences.
- Shoemaker, P. J. (1991). *Communication concepts 3: Gatekeeping*. Newbury Park, CA: Sage Publications.
- Sorensen, B. H. (n.d.). Power users in a learning, communication and social relation perspective. Retrieved August 11, 2005, from <http://powerusers.edc.org/materials/BirgitteHolmSorensenAbstract.pdf>
- Specht, M. (1998). *Empirical evaluation of adaptive annotation in hypermedia*. Paper presented at the ED-MEDIA98, Freiburg, Germany.
- Sundar, S. S. (1999). Exploring receivers' criteria for perception of print and online news. *Journalism & Mass Communication Quarterly*, **76**, 373–386.
- Sundar, S. S. (2007). Social psychology of interactivity in human-Website interaction. In A. N. Joinson, K. Y. A. McKenna, T. Postmes, & U.-D. Reips (Eds.), *The Oxford handbook of Internet psychology* (pp. 89–104). Oxford, UK: Oxford University Press.

- Sundar, S. S. (2008). Self as source: Agency and customization in interactive media. In E. Konijn, S. Utz, M. Tanis, & S. Barnes (Eds.), *Mediated interpersonal communication* (pp. 58–74). New York: Routledge.
- Sundar, S. S., & Nass, C. (2001). Conceptualizing sources in online news. *Journal of Communication*, *51*(1), 52–72.
- Sunstein, C. R. (2001). The daily we: Is the Internet really a blessing for democracy? *Boston Review*. Retrieved September 1, 2009, from <http://www.bostonreview.net/BR26.3/sunstein.html>
- Treiblmaier, H., Madlberger, M., Knotzer, N., & Pollach, I. (2004). *Evaluating personalization and customization from an ethical point of view: An empirical study*. Paper presented at the 37th Hawaii International Conference on System Sciences, Hawaii.
- Turkle, S. (1995). *Life on the screen: Identity in the age of the Internet*. New York: Simon & Schuster.
- Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, *11*, 342–365.
- Warschauer, M. (2003). Demystifying the digital divide. *Scientific American*, *289*(2), 42–47.
- Wolfenbarger, M., & Gilly, M. (2000). Consumer's perceived quality of e-commerce experiences. Retrieved September 1, 2009, from the California University Long Beach: <http://www.crito.uci.edu/papers/2000/consumers-gilly.pdf>

## 个性化与用户化：代理、隐私和强势使用的重要性

### 【摘要：】

本文报告了两项研究。研究一使强势用户和普通用户都浏览一个新闻聚合网站，该网站或个性化（系统定制），或用户化（用户定制），或两者皆非。结果显示了一个交叉作用：如果网站是用户定制的界面，强势用户较高地评价内容的质量，而普通用户却偏爱个性化内容。在第二项研究中，一半的参与者被告知他们的浏览信息将被用于要求服务，而另外一半则被告知信息将不会被使用。结果显示，研究一所发现的交叉模式只有在低隐私条件下发生，而在高隐私条件下却相反。另外，控制感和感知方便有显著性的三向互动。

## Adaptation ou personnalisation :

L'importance de l'agentivité, de la confidentialité et de l'intensité de l'utilisation

### Résumé

Cet article fait état de deux études. La première a présenté à de grands utilisateurs et à des utilisateurs réguliers un site web agrégateur de nouvelles qui était adapté à l'utilisateur (conçu par le système), personnalisé (façonné par l'utilisateur lui-même) ou qui n'était ni l'un ni l'autre. Les résultats révèlent une interaction asymétrique en ce que les grands utilisateurs notaient plus favorablement la qualité du contenu lorsque le site avait une interface personnalisée, alors que les utilisateurs réguliers préféraient le contenu adapté. Dans la seconde étude, la moitié des participants ont été avisés que l'information sur leur navigation pourrait être utilisée afin de leur offrir les services demandés, alors que l'autre moitié a été avisée que cette information ne serait pas utilisée. Les résultats montrent que le modèle asymétrique révélé dans la première étude ne s'observait que sous les conditions de faible confidentialité, alors que le rapport s'inversait dans le contexte de forte confidentialité. Des interactions triangulaires significatives ont été démontrées pour le sentiment de contrôle et pour le sentiment de commodité.

Mots clés : adaptation, personnalisation, agentivité, grands utilisateurs, vie privée, sentiment de contrôle, sentiment de commodité, nouvelles en ligne, portail

## Personalisierung vs. Kundenorientierung: Die Rolle von Agentschaft, Privatheit und Machtausübung

Dieser Artikel dokumentiert zwei Studien. Studie 1 setzte Vielnutzer und Normalnutzer einer Nachrichtenaggregationswebseite aus, welche entweder personalisiert (system-zugeschnitten), kundenorientiert (nutzerzugeschnitten) oder keines von beiden war. Die Ergebnisse zeigen eine Kreuzinteraktion dahingehend, dass Vielnutzer die Qualität des Inhalts höher einstufen, wenn sie die kundenorientierte Oberfläche nutzten, während Normalnutzer den personalisierten Inhalt bevorzugten. In Studie 2 wurde der Hälfte der Teilnehmer erzählt, dass ihre Surfinformationen möglicherweise genutzt werden, um die abgefragten Angebote bereitzustellen. Der anderen Hälfte wurde gesagt, dass dies nicht geschehe. Die Ergebnisse duplizieren das Kreuzmuster der ersten Studie, allerdings nur für die Niedrige-Privatheit-Bedingung. Das Muster kehrt sich für die Hohe-Privatheit-Kondition um. Signifikante 3-Wege-Interaktionen wurden für Wahrnehmung von Kontrolle und wahrgenommene Verbraucherfreundlichkeit gefunden.

Schlüsselbegriffe: Kundenorientierung, Personalisierung, Agentschaft, Vielnutzung, Privatheit, wahrgenommene Kontrolle, wahrgenommene Verbraucherfreundlichkeit, Online-Nachrichten, Gatekeeping, Portal

## Personalization vs. Customization

### The Importance of Agency, Privacy, and Power Usage

#### 개인화 대 일대일맞춤: 기관, 사생활, 그리고 파워 사용의 중요성

##### 요약

본 연구는 2 가지 연구를 보여주고자 한다. 첫번째 연구는 개인화하거나, 일대일맞춤으로 하거나, 또는 둘다 아닌 경우로 한 뉴스 취합 웹사이트에 파워 사용자와 일반 사용자들을 노출하였다. 발견들은 일반 사용자들은 개인화된 콘텐츠를 선호하는 반면 파워 사용자들은 콘텐츠의 질을 일대일맞춤 사이트에서 더 높게 등급화하는 교차상호작용을 보여주었다. 연구 2에서는 참여자들의 절반이 그들의 인터넷 탐색정보는 요구된 서비스들에 제공되어질 수도 있다고 하였으며, 나머지 절반은 이를 사용하지 않을 것이라고 말해 준 다음에 실행하였다. 결과들은 연구 1 에서 발견된 교차 패턴은 낮은 정도의 사생활상황 아래에서만 관찰되었으며, 높은 정도의 사생활상황하에서는 그 형태가 반대로 되었다. 중요한 삼각형태의 상호작용들이 통제감과 인지된 편리함에서 발견되었다.

## La Personalización versus la Adaptación al Cliente

### La Importancia de la Agencia, la Privacidad, y el Uso del Poder

#### Resumen

Este manuscrito presenta dos estudios. El estudio 1 expuso a los usuarios de poder, así como a los usuarios regulares a una página agregada de noticias de Internet que estuvo ó personalizada (adaptada al sistema), ó adaptada al cliente (adaptada al usuario), ó a ninguna de las dos. Los hallazgos revelaron una interacción de cruce tal que los usuarios con poder estimaron al contenido como de mayor calidad cuando tenían una interfaz adaptada al usuario, mientras que los usuarios sin poder prefirieron el contenido personalizado. En el estudio 2, se les dijo a la mitad de los participantes que la forma en la que buscaban información podría ser usada para proveer los servicios solicitados mientras que a la otra mitad se le dijo que no sería usada. Los resultados revelaron que la pauta de cruzamiento encontrada en el estudio 1 fue observada solo en condiciones de privacidad baja, mientras que la pauta fue reversa bajo las condiciones de privacidad alta. Las interacciones significativas de 3 partes fueron encontradas para el sentido del control y la percepción de la conveniencia.

*Palabras Claves:* Adaptado al cliente, personalización, agencia, poder de uso, privacidad, control percibido, percepción de conveniencia, noticias online, guardián, portal.