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Customer responses to personalized websites: essays on the process underlying experience

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Abstract

Companies increasingly personalize their website content with the aim of improving customer experience. Although the personalization process has been studied by prior research in marketing and information systems, the understanding of customer experience on personalized websites has been identified by the Marketing Science Institute as requiring further investigation. Therefore, this doctoral dissertation explores customer experience on personalized websites and the underlying processes with three essays combining quantitative and qualitative methods. The first essay shows the influence of personalization on customer experience and highlights the process underlying customers' conscious and unconscious responses to personalization. The second essay enables a better appraisal of the process underlying the triggering and management of paradoxical tensions of personalization. The third essay further examines the backfire effects of personalization on customer experience and the role of information transparency and customer need for cognition in this process. This doctoral research contributes to research on both customer experience and personalization by providing a more holistic and iterative view of customer experience on personalized websites and the underlying psychological mechanisms. It also provides practitioners with several insights on how to provide an optimal customer experience with the personalization of the website content and how to mitigate negative responses to personalization.

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General introduction

Research context

“If there’s one reason we have done better than all of our peers in the Internet space over the last six years, it is because we have focused like a laser on customer experience, and that really does matter, I think, in any business,” said Jeff Bezos, founder and CEO of Amazon (Medium, 2013). In order to enhance customer experience, many companies like Amazon increasingly rely on the personalization of their website content to provide tailored content to every customer (Bodoff & Ho, 2016). A 2019 study conducted by Forbes Insight found that 41% of companies consider personalization an immediate priority to deliver a superior customer experience.

Providing a strong customer experience has become a key management objective for companies to have a long-term competitive advantage (Lemon & Verhoef, 2016). A 2017 study conducted by Deloitte found that 90% of companies surveyed consider customer experience improvement to be a strategic focus. Many companies, such as Google, Amazon, and KPMG, now have chief customer experience managers responsible for managing and improving their customers’ experience (Burgess & Burgess, 2020; Lemon & Verhoef, 2016).

Pine and Gilmore (1998) and Schmitt (1999) were some of the first scholars to highlight the importance of customer experience for companies. However, the construct of customer experience emerged in the 1980s when the literature on experiential marketing (Hirschman & Holbrook, 1982; Holbrook & Hirschman, 1982) extended the understanding of consumer behavior by highlighting the importance of the experiential aspects of consumption (Gentile et al., 2007; Lemon & Verhoef, 2016). Since then, the literature has recognized the importance of emotions in decision making and experience and considered customers as both thinkers and feelers (Addis & Holbrook, 2001; Gentile et al., 2007).

Since the pioneering work of Holbrook and Hirschman (1982), customer experience has enjoyed increased attention in marketing research (Roederer, 2012; Roederer & Filser, 2016). Nevertheless, this trend has not produced a unified view on the conceptualization of customer experience (Becker & Jaakkola, 2020; Roederer, 2012). Some research views customer experience as the offerings that companies produce and manage (Pine & Gilmore, 1998). Others take a broader view of customer experience and consider it to be customer responses to

company-related interactions (Lemon & Verhoef, 2016; Meyer & Schwager, 2007). Some studies delimit the scope of customer experience to a specific context, such as the shopping experience (Antéblan et al., 2013; Badot & Lemoine, 2013; Bridges & Florsheim, 2008), the movie experience (Fornerino et al., 2008) and service encounters (Kumar et al., 2014). Others focus on the consequences of the experience, such as the value of the experience (Babin et al., 1994; Mathwick et al., 2001; Sweeney & Soutar, 2001) and satisfaction (Audrain-Pontevia et al., 2013). Researchers also adopt different epistemological positioning to study customer experience (Becker & Jaakkola, 2020): from more positivist (e.g., Novak et al., 2000) to interpretive approaches (e.g., Carù & Cova, 2003).

Several streams of literature coexist in the study of customer experience (Becker & Jaakkola, 2020). In the framework of this doctoral thesis, we aim to investigate the responses customers have to interactions with companies online. Therefore, we will build on the work of Lemon and Verhoef (2016) that views customer experience as a holistic construct and defines it as internal responses that customers have to any interaction with a company during the customer journey (Lemon & Verhoef, 2016; Meyer & Schwager, 2007).

Internal responses include all the sensorial, cognitive, affective, behavioral, and social reactions that customers have when exposed to companies' stimuli (Gentile et al., 2007; Lemon & Verhoef, 2016; Schmitt, 1999), which, together, create the experience (Gentile et al., 2007). Customers first perceive their experience with the five senses (vision, taste, hearing, smell, and touch), which form the sensorial dimension of customer experience. Cognitive responses involve a mental process and are related to thinking, reasoning, and analyzing. Emotional responses involve the emotional system and are translated into emotions, feelings, and moods. Two other dimensions related to the customer per se, behavioral and social, added to these three components compose customer experience. The behavioral dimension relates to customer interaction with the environment while the social dimension refers to the customer's relational context and its influence on customer perception and evaluation (Brakus et al., 2009; Lemon & Verhoef, 2016; Verhoef et al., 2009). Because customer experience includes different dimensions, this construct is difficult to grasp as a whole. Therefore, most prior research has focused on specific dimensions and measures of experience (Lemon & Verhoef, 2016).

Customers' internal responses are gradually built up through the interactions customers have with a company at different touchpoints through their journey (Lemon & Verhoef, 2016; Verhoef et al., 2009). From this perspective, the flow of customer experience is dynamic and

iterative, as past experience influences future experience with a company (Lemon & Verhoef, 2016).

Offering an optimal customer experience enables a company to foster customer satisfaction (Bolton, 1998; Bolton & Lemon, 1999; Brakus et al., 2009), build customer loyalty (Brakus et al., 2009), and trigger purchase intentions (Rose et al., 2012). However, designing an optimal customer experience has become a key challenge for companies, especially online (Lemon & Verhoef, 2016; Rose et al., 2012) where customers can decide to leave the website of a company quickly if the content does not meet their expectations (Srinivasan et al., 2002). In this competitive online context, many companies decide to personalize their website content in order to enhance customer experience (Bodoff & Ho, 2016; Ho & Bodoff, 2014).

Personalization has been recognized as an important process in customer relationships (Peppers & Rogers, 1997; Shen & Ball, 2009) and refers to the individualization of content to every customer, initiated by companies (Arora et al., 2008; Lavie et al., 2010).

Personalization is not a new process. For instance, service representatives and merchants have always adapted their communication and behavior to each customer in face-to-face interactions based on their knowledge of the customer (Shen & Ball, 2009). Companies can use personalization with or without the mediation of technologies (Shen & Ball, 2009). However, technological advances have expanded the use of personalization processes online (Aguirre et al., 2015; Bodoff & Ho, 2016; Shen & Ball, 2009). Companies can now personalize their website content to every customer based on their data (Ho & Bodoff, 2014; Huang & Rust, 2017) and increasingly tend to do so (Bodoff & Ho, 2016). According to Forbes Insight (2019), 57% of the surveyed marketers say they want to develop their website personalization processes further in the next year.

Personalization of the website content is part of the online personalization processes, along with personalized advertising. Personalization of the website content is the automated adaptation of the website content (Ho & Bodoff, 2014; Lavie et al., 2010). Such personalization is part of the individualization of the website's features (Kumar et al., 2004), such as website morphing, which focuses on the adaptation of the website design (Hauser et al., 2009; Hauser et al., 2014), and adaptive menus (Al-Omar & Rigas, 2009). This form of personalization is widely used by companies (Ho & Bodoff, 2014). For instance, Amazon's website adapts the content displayed on its pages based on customers' previous searches (www.amazon.com). In contrast, personalized advertising is the automated adaptation of ad content (Aguirre et al.,

2015; Bleier & Eisenbeiss, 2015a), enabling companies to adapt ad content of theirs that appears on other websites (Bleier & Eisenbeiss, 2015a). For instance, Facebook enables companies to personalize their ads on its platforms based on customers' past online behavior. In the framework of this doctoral thesis, the research mainly focuses on the personalization of the website content.

The personalization process is often confused with customization (Ho & Bodoff, 2014). Personalization and customization are both processes enabling the individualization of the website content. However, they differ in the adaptation initiative (Arora et al., 2008; Ho & Bodoff, 2014). On the one hand, customization is initiated by customers and enables them to tailor the content based on their needs (Arora et al., 2008). This is the case, for example, on Facebook, where customers can click on content and decide whether they want to see more or less of this type of content. On the other hand, personalization is initiated by the company and does not require the explicit control of the customers to generate adapted content. Therefore, the key element underlying personalization and differentiating it from other forms of content individualization is automation (Arora et al., 2008; Ho & Bodoff, 2014). This automated process enables companies to adapt their website content to every customer based on their data (Ho & Bodoff, 2014; Murthi & Sarkar, 2003). For instance, the Zalando website automatically adapts the content suggested on its homepage based on customers' previous searches (www.zalando.com).

Personalization is done in three steps: learning, matching, and evaluation (Murthi & Sarkar, 2003). In the learning step, companies collect data to learn more about their customers and infer their preferences. Collected data may include data related to past transactions on the website (past purchases), data relating to past or current searches on a website, and socio-demographic data, such as age and gender (Fay et al., 2009; Tam & Ho, 2006). Such data may be collected explicitly or implicitly. Explicit data collection implies that customers deliberately provide such data, for instance, by completing a form. Implicit data collection implies tracking customers' behavior online, for instance, through cookies (Fay et al., 2009). In both cases, companies use the data collected implicitly and explicitly to understand their customers better, infer their preferences, and establish customer profiles (Fay et al., 2009; Murthi & Sarkar, 2003). In the matching step, companies adapt their content based on inferred customer preferences with prediction models and/or clustering methods (Liang et al., 2006; Murthi & Sarkar, 2003). In the evaluation step, companies assess the effectiveness of personalization on customer experience (Aguirre et al., 2015; Fay et al., 2009).

Companies expect to improve customer experience on their website with personalization (Aguirre et al., 2015; Tam & Ho, 2006). However, how does personalization influence customer experience? Does personalization always enhance customer experience? Does it have backfire effects on customer experience? In the next section, we will review prior research on customer experience on personalized websites and identify different research gaps that need to be investigated further to improve understanding of customer experience on personalized websites and the underlying processes and provide insights to companies.

Research motivations

The Marketing Science Institute¹ has identified the understanding of customer experience as one of its top research priorities and views personalization and its effect on customer experience as one of its most important research challenges for 2018-2020 and 2020-2022. Specifically, it calls for further investigation of how technologies like personalization alter customer experience, how they may trigger privacy concerns, and how to manage personalization and privacy in the General Data Protection Regulation (GDPR) age.

Within the framework of this doctoral research, we will be interested in customer experience on personalized websites and the underlying processes and will consider these different research questions. Therefore, this research will enable several of the Marketing Science Institute's identified priorities to be met and address important research and practice challenges. In the rest of this section, we will review in more detail the different research gaps related to customer experience on personalized websites that will be investigated further through this doctoral thesis.

First, prior research has shown that personalized content is more effective than non-personalized content. For instance, personalization can reduce information overload (Ansari & Mela, 2003), facilitate the decision-making process (Tam & Ho, 2006), and increase content relevance (Rimer & Kreuter, 2006; Tam & Ho, 2006). Personalization can also improve customer satisfaction (Rust & Chung, 2006), loyalty (Ansari & Mela, 2003), and generate a positive attitude toward a website (Ho & Bodoff, 2014; Kalyanaraman & Sundar, 2006). However, although marketing and information systems literature have discussed the benefits of

¹ The Marketing Science Institute is a non-profit member organization that was created in 1961. It brings together marketing scholars and leading marketers to think about the most salient real-world marketing problems and identify research priorities (Marketing Science Institute, 2020).

personalization, we still have limited knowledge about customer experience on personalized websites and, especially, the affective responses to personalization.

In addition, the underlying psychological mechanism of personalization effectiveness has recently been called into question. In an advertising context, Li (2016) showed that personalization needs to be perceived to influence customer attitude and behavioral intentions toward advertising, suggesting that perceived personalization, which is the extent to which customers perceive content as personalized, shapes customers' responses more than actual personalization, which is initiated by the company.

Nevertheless, Li (2016) assessed the effectiveness of personalization using verbal measures. Even though these subjective measures have long been used in marketing research, they only capture what is conscious for customers and do not reflect the unconscious mechanisms that come into play (Derbaix & Poncin, 2005). Li's (2016) study only captures the conscious psychological process underlying the effectiveness of personalization and, therefore, only reflects a part of the personalization process. The understanding of the process underlying personalization is still discussed (Li, 2016), and we still have limited knowledge about the process underlying customer experience on personalized websites.

In addition, prior research has mainly highlighted the benefits of personalization. However, as companies use personalization with the aim of improving customer experience (Tam & Ho, 2006), it is also important to acknowledge the downsides that such a process may trigger (Hoyer et al., 2020). Personalization may generate positive and negative responses simultaneously (Aguirre et al., 2016; Awad & Krishnan, 2006). For instance, even if customers find personalized content relevant, they may also worry about how their data are collected (Chellappa & Sin, 2005; Karwatzki et al., 2017). The literature identifies these tensions as the personalization-privacy paradox (Sutanto et al., 2013).

Some prior research has suggested other negative points of personalization (Shen & Ball, 2009; Strycharz et al., 2019) but without examining the paradoxical tensions that they could trigger. Although prior research has identified the personalization-privacy paradox, we still have limited knowledge about the different paradoxes that personalization may trigger, how they are triggered and managed by customers, and how companies can help mitigate negative responses to personalization.

Furthermore, in the context of growing privacy concerns, GDPR was enacted to delineate data protection for European customers. It notably defines rules about the type of data companies can process and how to communicate data collection and use transparently to customers (Kumar, 2018).

Companies hope that being more transparent about data collection and use for personalization purposes could help reduce negative responses to personalization (Aguirre et al., 2015; Kim et al., 2018). Such information transparency is expected to reduce information asymmetries between customers and companies (Zhou et al., 2018) and empower customers by balancing their relationships with companies (Connelly et al., 2011). For instance, the Zalando website informs customers about its collection and use of data in a black box displayed at the bottom of the homepage (www.zalando.com).

In an advertising context, prior research has examined how information transparency may influence the effectiveness of personalization (Aguirre et al., 2015; Kim et al., 2018). While Aguirre et al. (2015) find that information transparency may improve click-through rates on personalized ads, Kim et al. (2018) find that information transparency may decrease behavioral intentions depending on the type of data being collected to personalize ad content.

Prior studies investigating customer privacy concerns about personalization and the role of information transparency in this process were mainly conducted in the advertising context. We still have limited knowledge about how information transparency influences the effect of personalization on customer experience. The understanding of the role of information transparency and the relationship between personalization and privacy concerns outside the advertising context has, therefore, been identified as requiring further investigation (Kim et al., 2018).

In addition, although prior research has examined the effect of information transparency on the effectiveness of personalized advertising, they did not investigate the influence of customer characteristics in the processing and interpretation of transparency message. Based on signaling theory (Spence, 1973, 2002), the effectiveness of a signal like information transparency mainly relies on individual characteristics (Connelly et al., 2011).

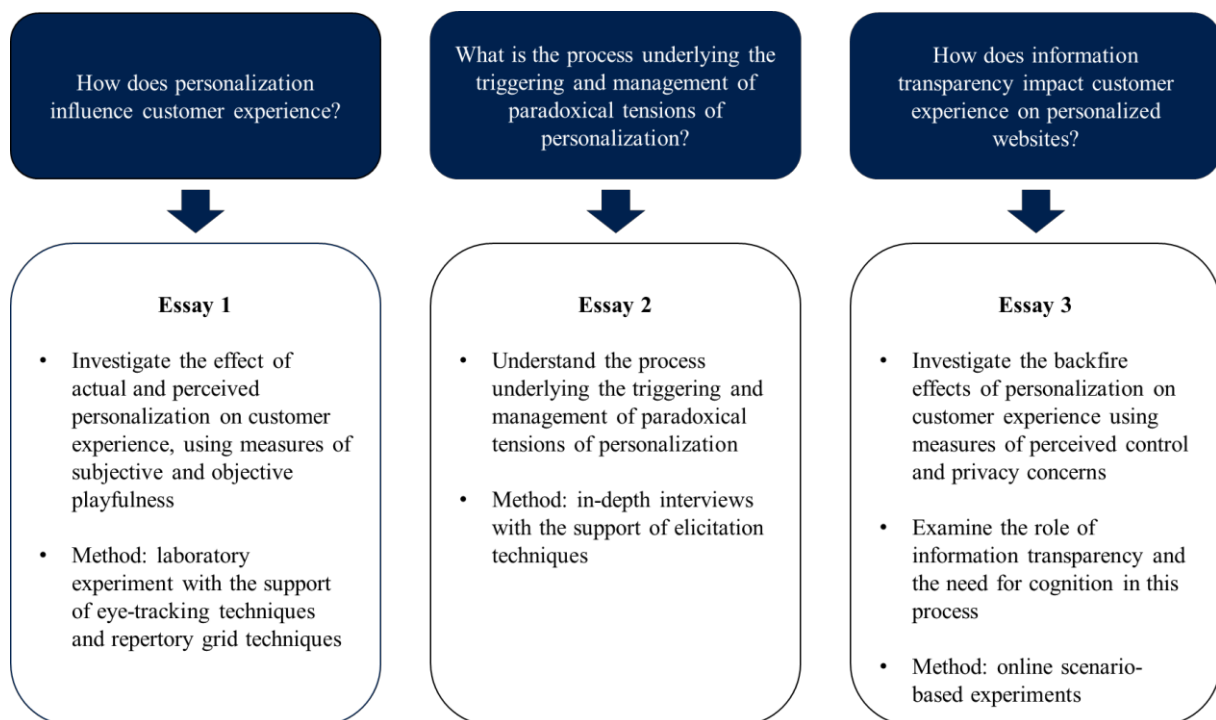
Objectives and research questions

Based on the need to better understand customer experience on personalized websites and the underlying processes (Li, 2016), to better appraise both positive and negative effects that such technological process may trigger (Hoyer et al., 2020), and to better understand the role of information transparency in this process (Kim et al., 2018), this doctoral thesis will address the following research questions:

- How does personalization influence customer experience?
- What is the process underlying the triggering and management of paradoxical tensions of personalization?
- How does information transparency impact customer experience on personalized websites?

To address the above questions, this doctoral dissertation will be organized around three essays that will be detailed in the next sections. Figure 1 presents an overview of the research questions investigated in this doctoral thesis and shows the articulation of the three essays with these questions.

Figure 1: Overview of the research questions and the related research papers



Essay 1

The first essay, entitled *The influence of personalization on playful customer experience*, aims to show the effects of personalization on customer experience and better appraise the underlying psychological mechanisms. This essay focuses on interactions customers have with a company on its website and positive customer responses to personalization. We developed a personalized website where we manipulated the level of control given to the customer: no personalization and personalization.

In this research, we combined both subjective and objective customer experience measures to explore conscious and unconscious responses to personalization. Specifically, with a laboratory experiment, this research examines the effect of actual and perceived personalization on playful customer experience, using subjective and objective measures. While subjective playfulness aims to explore conscious responses to personalization and is assessed with verbal measures, objective playfulness is assessed using eye-tracking data to capture unconscious responses to personalization. We also captured the dynamic aspect of customer experience by analyzing eye-tracking data with repertory grid techniques (Hair et al., 2009; Tan & Hunter, 2002).

This essay's main contributions are to show the effect of personalization on customer experience and highlight the presence of two concomitant processes. While perceived personalization influences subjective playfulness, actual personalization influences objective playfulness, even if customers are not conscious of it. This research shows that personalization, regardless of whether it is perceived or not, influences customer experience.

This research has been presented at the *18ème Colloque du Marketing Digital* (2019) and the *AMS 22nd World Marketing Congress* (2019).

While this first essay aims to show the effect of personalization on customer experience and to understand the underlying processes better, it focuses on positive reactions to personalization. The following essay further investigates customer experience on personalized websites and specifically addresses positive and negative customer responses to personalization.

Essay 2

The second essay, entitled *Customers facing companies content personalization attempts: paradoxical tensions, strategies, and managerial insights*, specifically aims to investigate the process underlying the triggering and management of the paradoxes of personalization with in-depth interviews and the support of elicitation techniques.

In this essay, we take a holistic and iterative view of customer experience. First, we address both positive and negative responses to personalization. Second, we consider the interactions customers have with companies online, starting with their interactions on companies' websites and including other interactions they have with companies on other platforms through advertising.

This essay's main contribution is to better appraise the process underlying the triggering and management of paradoxical tensions of personalization. First, this research enables us to gain a better understanding of the different paradoxical tensions that personalization may trigger and how they are triggered. Because of the automated nature of personalization, customers are less in control on websites. This loss of control generates different paradoxical tensions, which appear when customers perceive personalization. For instance, we show that the personalization-privacy paradox, which has been identified by prior research (Awad & Krishnan, 2006; Chellappa & Sin, 2005), arises when customers are exposed to personalized advertising after they visit a personalized website and realize data was collected. From this perspective, customers suddenly become aware that their data has been collected and used for personalization purposes and that they have no control over what is actually done by the company. Second, in light of the theory of paradox (Schad et al., 2016; Smith & Lewis, 2011), this research identifies different strategies that customers tend to adopt to cope with the paradoxical tensions of personalization and highlights that customers do not always resolve paradoxes of personalization. Finally, this research provides companies with insights on how they can mitigate these paradoxical tensions. It highlights content and contextual levers, namely valuable personalized content, transparency, trust, and affinity, which can help reduce paradoxical tensions of personalization and improve customer experience on personalized websites.

This research has been presented at the *16ème Colloque du Marketing Digital* (2017), the *4ème Journée de Recherche en Marketing du Grand Est* (2018), and at the *AMS 21st World*

Marketing Congress (2018). It was also selected for the AFM Publication Booster program (2019).

While this second essay aims to understand the process underlying the triggering and management of the paradoxes of personalization better, the following essay further investigates the downsides of personalization on customer experience and how to mitigate the perceived loss of control.

Essay 3

The third essay, entitled *Backfire effects of personalization: why information transparency and need for cognition matter*, examines the backfire effects that personalization induces. It builds on Essay 2's findings and addresses the role of information transparency and the need for cognition in this process with two online experiments.

In this essay, we focus on the interactions customers have with companies on their websites. We take a holistic view of customer experience by combining different measures to assess the downsides of personalization. Specifically, this research examines the downsides of personalization using the measures of perceived control and privacy concerns. Hoyer et al. (2020) identified these two variables to investigate the downsides of technologies on customer experience. In addition, this research investigates the interaction effect of personalization and information transparency on perceived control, depending on the need for cognition. This individual trait has been identified as one of the most salient personality traits in the evaluation of a persuasion message (Cacioppo & Petty, 1982; Sicilia & Ruiz, 2010) and personalized content (Tam & Ho, 2006).

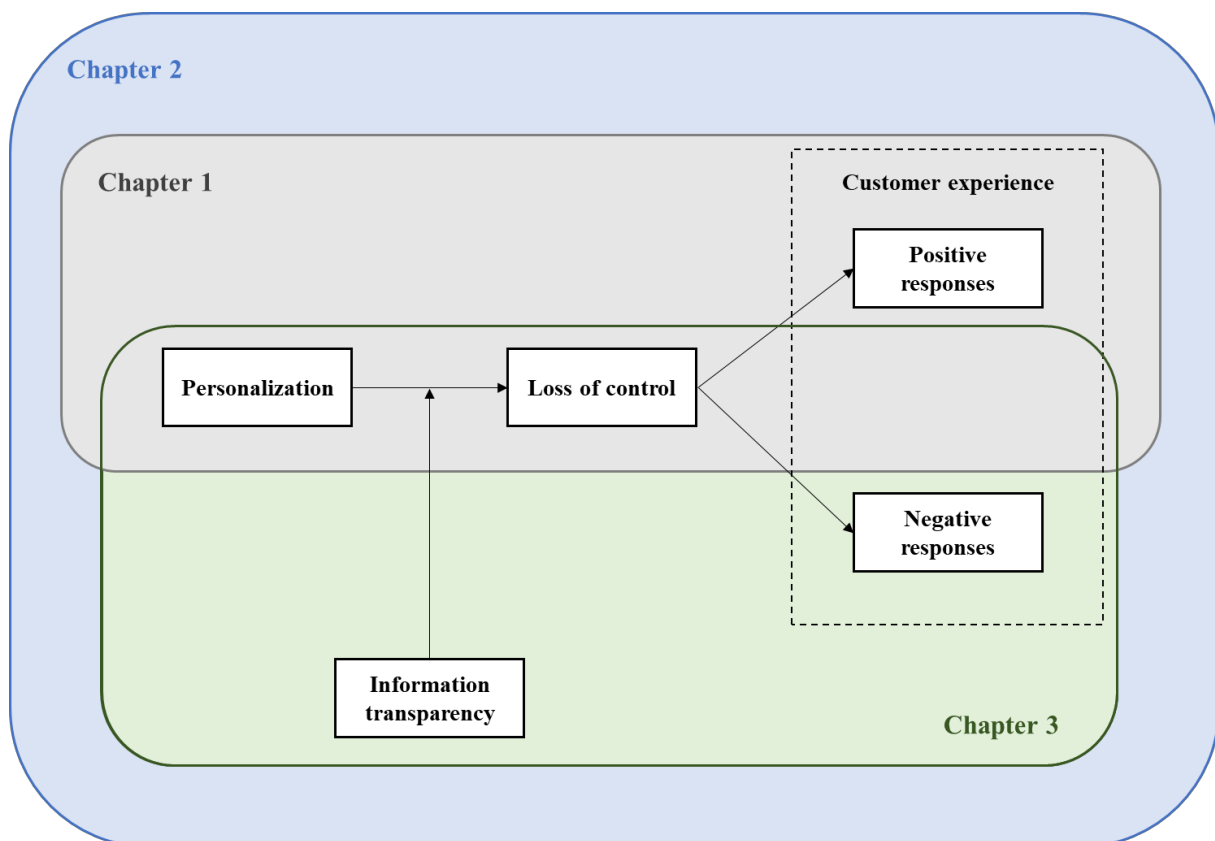
This essay's main contributions are to show the backfire effects of personalization on customer experience and how information transparency may mitigate the perceived loss of control and the subsequent privacy concerns, depending on customer need for cognition. We show that personalization generates privacy concerns among customers and that perceived control mediates the relationship between personalization and privacy concerns. Because of the automated nature of personalization, customers feel that they are less in control on personalized websites. This loss of control raises privacy concerns among customers. However, this research also shows that information transparency may reduce these backfire effects of personalization on customer experience, depending on customers' need for cognition.

This research has been presented at the *Thought Leaders' Conference on Privacy in the Retail Environment* (2019) organized by the *Journal of Retailing* and was accepted at the *2020 AMS Annual Conference* and the *AFM 36th International Congress* (2020).

Thesis overview

This doctoral dissertation provides an in-depth understanding of customer experience on personalized websites and the underlying processes. This research does not aim to study the different personalization agents (information technology enablers of personalization) that underlie the personalization process as they have been studied by Tam and Ho (2006). The present research instead aims to explore customers' responses to personalization. It specifically shows how personalization, giving objectively less control to customers during navigation, influences customer experience on personalized websites, both positively and negatively. In addition, it investigates how companies can use levers such as information transparency, to mitigate negative responses to personalization. Figure 2 presents the scope of this doctoral dissertation and the focus of the attention of each essay. The contributions of this research are detailed in the next section.

Figure 2: Summary of the three essays



Research contributions

The general objective of this doctoral thesis is to gain a better understanding of customer experience on personalized websites and the underlying processes. The contributions of this doctoral project are theoretical, managerial, and methodological.

The main theoretical contribution of this doctoral thesis is to respond to the call of the Marketing Science Institute (2018, 2020) to obtain a better understanding of customer experience on personalized websites. This doctoral thesis specifically provides a holistic and iterative view of the process underlying customer experience on personalized websites. First, as customer experience exists at conscious and unconscious levels (Joy & Sherry, 2003; Lemke et al., 2011), this research captures both conscious and unconscious responses to get a more comprehensive view of this process. Second, it explores both positive and negative responses to personalization. Although technological processes like personalization may generate positive customer responses, it is important to acknowledge both the benefits and downsides that such processes may trigger (Hoyer et al., 2020). Third, this research considers the different dimensions of customer experience (affective, cognitive, and behavioral) to explore customer experience on personalized websites more holistically. Finally, this doctoral project considers the interactions customers have online with companies on their websites and other platforms to capture the dynamic and iterative view of such experience.

From a methodological perspective, the main contribution of this research is the use of original and complementary methods to capture the holistic, dynamic, and iterative aspects of the mechanisms that underlie customer experience on personalized websites. First, the adaptation of repertory grid techniques to analyze eye-tracking data enables us to capture customers' responses to personalization objectively and to capture the dynamic aspect of customer experience. Combining this original method to measure customer experience objectively with subjective measures enables us to have complementary views of the processes underlying customer experience on personalized websites. Second, as customer experience is dynamic and iterative, we used original elicitation techniques during the interviews to capture the interactions customers have online with companies on their websites and other platforms through advertising.

From a managerial point of view, the main contribution of this research is to enable marketing managers to better understand how personalization may influence customer experience on their websites. Companies expect that personalization will improve customer

experience (Tam & Ho, 2006; Tong et al., 2020). Nevertheless, personalization may also backfire and lead customers to react negatively (Aguirre et al., 2015). This research first shows that personalization is still worthwhile for companies to support customer experience. Second, it enables identifying content and contextual levers that can help companies improve customer experience with personalization and particularly investigates how information transparency may help mitigate negative responses to personalization.

Epistemological positioning and research strategy

Epistemology is the study of the nature and generation of knowledge (Creswell & Plano Clark, 2017). The epistemological approach reflects the researcher's assumptions and beliefs about reality, human beings, and human behavior and influences the way of seeking knowledge (Creswell & Plano Clark, 2017; Hudson & Ozanne, 1988). While the literature on customer behavior was mainly dominated by positivism (Anderson, 1986), the interpretive approach received some attention as an alternative way of seeking knowledge (Hirschman, 1985, 1986). However, both approaches reveal limits in their philosophical assumptions. Therefore, researchers increasingly adopt a post-positivist approach that answers critics of positivism and interpretivism (Hudson & Ozanne, 1988).

The next section briefly contrasts the positivist and interpretive approaches. In order to understand the differences between positivism and interpretivism, we first present the philosophical assumptions that underlie these approaches. Philosophical assumptions refer to the views of reality and social beings (ontological assumptions), the overriding goal of research (axiological assumptions), and how knowledge is generated (epistemological assumptions) (Hudson & Ozanne, 1988). We then examine the limits of both approaches. Finally, we present the post-positivist approach and explain how this epistemological positioning influences our research strategy.

Positivism

In the positivist approach, only one single reality exists. This reality is objective and thus independent from individual perceptions. Positivists consider that reality is the truth and is, therefore, divisible, observable, and accurately measurable (Bagozzi, 1980; Hudson & Ozanne, 1988). Regarding the nature of social beings, positivists adopt a deterministic view and explain customers' behaviors with external factors (Hudson & Ozanne, 1988).

Positivists take a generalist approach and aim to explain customer behavior by predicting relationships between variables. They tend to reach the truth and generalize behavior to create abstract laws that should apply to many customers independent of the context and time of the event (Anderson, 1986; Hudson & Ozanne, 1988). Regarding the relationship between the researcher and the subject, positivist researchers find themselves outside the world of the subject because they want to limit their influence (Gill & Johnson, 2010; Hudson & Ozanne, 1988).

In the positivist approach, finding causal relationships between variables is important because researchers believe human actions have a causal explanation. Therefore, positivists consider laboratory experiments as the ideal methodology to conduct research. They assume that laboratory experiments reflect behaviors in natural settings as relationships can be taken out of their context without changing behaviors. Experimentations enable them to find causal linkages while controlling variables. In the positivist perspective, a fixed list of criteria is necessary to have a standardized and fixed protocol structure. Following a hypothetico-deductive approach, the research establishes a theory, independent, and dependent variables and specifies hypotheses in order to reach some validity (Creswell, 2009; Hudson & Ozanne, 1988).

Nevertheless, philosophical, psychological, and historical streams present some criticisms regarding the positivist approach and raise the problem of induction. These streams first mention the impossibility of reaching universal laws with finite observations. Second, they contest the treatment of subjective states like objects. They believe that behavior and context are interconnected and question the study of reality from the outside and independent from the context (Henriques et al., 1998; Hudson & Ozanne, 1988).

Interpretivism

In the interpretivist approach, reality is the reflection of individual perceptions. Therefore, multiple realities exist, and they are socially constructed (Hudson & Ozanne, 1988). Regarding the nature of social beings, interpretivists consider that customers shape their environment and create meaning through their interactions with others. Context is, therefore, of the utmost importance (Anderson, 1986; Burrell & Morgan, 2017; Lincoln & Guba, 1985).

Unlike positivists, interpretivists adopt a particularistic approach and aim to understand behaviors. They give value to the study of a phenomenon in a particular context and time.

Consequently, they seek understanding from the inside and favor customers' perceptions (Hudson & Ozanne, 1988).

In the interpretivist approach, researchers adopt a more holistic view and believe that multiple simultaneous entities that shape individuals exist (Lincoln & Guba, 1985). Consequently, they consider that it is impossible to distinguish a cause from an effect. In addition, they believe in a hermeneutic truth, meaning that the process of understanding is a never-ending process. Consequently, researchers can only speak about current interpretations when looking at the findings (Hudson & Ozanne, 1988). Regarding the relationship between the researcher and the subject, interpretivist researchers interact with their subject, and they consider the researcher to be a member of the social reality of the subject under study (Reason & Rowan, 1981).

Based on these assumptions, interpretivists advocate data collection methods in natural settings, such as participant-observer techniques or interviews, and follow an inductive approach. The research design is dynamic. This derives from the assumption that realities are time and context related. The interpretive approach also assumes that researchers enter research with a priori knowledge and remain open to new information. The interpretivist view considers several general criteria. As the context gives meaning, the most important criterion is that research must be conducted in natural settings (Hudson & Ozanne, 1988). To be consistent with the idea of producing knowledge, which is time and context-related, interpretivists favor "thick description" to describe contextual and historical aspects (Lincoln & Guba, 1985).

However, the interpretive approach raises some critics. First, the empathetic identification with the subject could generate some understanding biases, as researchers cannot experience others' thoughts. In addition, some researchers question the validity of the findings: even if researchers could relive others' mental experience, it would not automatically mean that they understand it (Hudson & Ozanne, 1988; Thorns, 1976).

The limits of both positivist and interpretive approaches have led researchers to consider the post-positivism epistemological positioning (Creswell, 2014).

Post-positivism

Post-positivism combines assumptions from positivism and interpretivism. Regarding the axiological assumptions, post-positivist researchers believe in a single reality like

positivists. However, they also stress the importance of the context in individual behaviors. They believe that interactions with the environment shape individual meaning (Creswell, 2009).

Regarding axiological assumptions, post-positivist researchers believe they may only try to reach the truth by getting as close as possible to reality. Unlike positivists, they believe that the goal of science is to explain reality rather than uncover it. Like interpretivists, they tend to highlight the context of research to provide a better comprehension of the phenomenon (Byrne & Ragin, 2009; Creswell, 2009).

Based on their epistemological assumptions, post-positivists seek causal relationships in order to explain a phenomenon while considering the context. Post-positivists advocate the use of methods triangulation to get closer to the single and context-related reality. The mix of qualitative and quantitative methods enable them to have different views of the same reality. In line with interpretivists, qualitative methods enable post-positivists to have a deep understanding of the phenomenon in a defined context and time while quantitative methods enable them to have an outside perspective (Caracelli & Greene, 1993; Creswell, 2009; Patton, 1990).

This doctoral project aims to explain reality, not to uncover the truth, while considering the context that shapes customer reality (Byrne & Ragin, 2009; Creswell, 2009). This research, therefore, takes a post-positive perspective. Accordingly, we use a triangulated approach by considering complementary methods (i.e., laboratory experiments, online experiments, and in-depth interviews), techniques (i.e., repertory grid techniques and elicitation techniques), and measures (subjective and objective) through this dissertation to get closer to customer reality (Caracelli & Greene, 1993). Each essay tries to answer a defined question and mobilizes an adapted method in order to answer it.

In the first essay (Chapter 1), we aim to investigate the effect of personalization on customer experience and the underlying processes. We seek causal relationships with a laboratory experiment and investigate the influence of actual and perceived personalization on playful customer experience by combining subjective and objective measures to explore customers' conscious and unconscious responses. In this essay, we consider the GDPR context by choosing a sample of European customers to conduct the experiment.

In the second essay (Chapter 2), we aim to gain a deeper understanding of the process underlying the triggering and management of the paradoxical tensions of personalization while

considering the GDPR context. Therefore, we favor in-depth interviews with the support of elicitation techniques to understand customer perceptions.

In the third essay (Chapter 3), we aim at examining the negative effects of personalization and seek causal relationships. Therefore, we favor online experiments and combine different measures (i.e., perceived control and privacy concerns) to explain this phenomenon. In this essay, we also take the GDPR context into account by selecting a sample of European customers to conduct the experiments.

The following chapters present each of the three papers that compose this doctoral dissertation.

Chapter 1: The influence of personalization on playful customer experience

Laetitia Lambillotte, Nathan Magrofuoco, Ingrid Poncin, and Jean Vanderdonckt

Introduction

Companies increasingly personalize content on their website to enhance customer experience (Bodoff & Ho, 2016). According to an Adobe survey (2019), 33% of larger companies consider the personalization of customer experience will be one of the most important perspectives in three years.

Companies expect that the personalization process will improve customer experience (Bodoff & Ho, 2016; Tong et al., 2020). However, we still have limited knowledge about the influence of personalization on customer experience and the underlying processes. Although some prior research has shown that actual personalization can reduce information overload (Ansari & Mela, 2003) and generate a positive attitude toward websites (Kalyanaraman & Sundar, 2006), other research conducted in an advertising context (Li, 2016) shows that it is not the actual personalization made on the website but rather perceived personalization – the extent to which customers perceive that content is personalized – that shapes attitude toward ad content. This raises the question of whether customers need to perceive personalization in order for it to influence their responses.

However, Li (2016) assessed the effectiveness of personalization with verbal measures (subjective measures). Although verbal measures have long been used in marketing and have proven to be relatively effective, they only measure what the customer is aware of and do not capture the unconscious and automated mechanisms. Once certain underlying unconscious mechanisms are at work, the use of verbal measures alone may not reflect reality (Derbaix & Poncin, 2005).

Therefore, the present research intends to investigate the effect of personalization on customer experience and the underlying processes using both objective and subjective measures. Specifically, it intends to examine the effect of actual personalization and perceived personalization on playful customer experience using subjective and objective measures with the support of eye-tracking techniques.

With an original methodological perspective, this research enables us to better appraise playful customer experience on personalized websites by using eye-tracking techniques and adapting repertory grid techniques (Hair et al., 2009; Tan & Hunter, 2002) to analyze eye-tracking data. Such techniques enable us to explore customers' unconscious responses to personalization and capture the dynamic aspect of customer experience.

Using both subjective and objective measures, this research shows that customers need to perceive that content is personalized to influence subjective playful customer experience (subjective measure). However, unlike prior research (Li, 2016), we show that actual personalization does influence objective playful customer experience (objective measures). Customers tend to focus their attention more on their favorite products when the website content is personalized and are also more likely to select their favorite products for purchase when they focus their attention on them. This research, therefore, shows that personalization, regardless of whether it is perceived or not, positively influences customer experience and shows the presence of two concomitant processes.

In the next section, we begin by presenting the literature on playful customer experience, personalization, and then focus on the theory of salience. Then, we outline our research method and detail the findings. Finally, we discuss the implications and avenues for future research.

Theoretical background

Playful customer experience

Emerging from research on play, playfulness is an appropriate construct for studying human-computer interactions in online environments (Ben Mimoun & Poncin, 2015; Ben Mimoun et al., 2017). Characterizing playfulness is difficult because researchers define 'play' in several ways (Day, 1981; Webster & Martocchio, 1992). Playfulness is either considered a trait or a state (Ahn et al., 2007; Hackbarth et al., 2003; Lin et al., 2005).

The trait of playfulness represents a predisposition to be playful and interact spontaneously and imaginatively with computers (Webster & Martocchio, 1992). A trait tends to be stable over time and across situations (Hackbarth et al., 2003; Woszczyński et al., 2002). Customers who rank high in playfulness demonstrate better performance and a positive attitude toward online computer-mediated environments (Ahn et al., 2007; Webster & Martocchio, 1992).

The state of playfulness rather represents a short-lived experience felt by customers (Ahn et al., 2007). Customer experience refers to internal responses that customers have to any interaction with a company throughout the customer journey (Lemon & Verhoef, 2016; Meyer & Schwager, 2007). When experiencing the state of playfulness, customers focus their attention on the interaction and are absorbed in the activity, which gives them enjoyment (Ahn et al., 2007; Kuts, 2009; Mathwick et al., 2001). Most research on playfulness as a state is based on flow theory (Csikszentmihalyi, 1975, 1990) that highlights the interaction environment's role in explaining individual motivated behaviors (Moon & Kim, 2001). When interacting with websites, customers can become so absorbed in a situation-specific activity that they lose track of time, as if time had stood still (Mathwick et al., 2001; Woszczynski et al., 2002). In this research, we consider playfulness to be a situational state, as customers might have a more or less playful experience during the interaction with the website (Ben Mimoun et al., 2017). In human-computer interaction and specifically in website experience, playfulness is viewed as elements of the website that “engage people’s attention or involve them into activity for play, amusement, or creative enjoyment” (Kuts, 2009, p.7).

By offering a playful customer experience or playfulness², companies can foster positive behavioral intentions in using a website (Moon & Kim, 2001; Sledgianowski & Kulviwat, 2009) and a positive attitude toward the website (Ahn et al., 2007). They can also enhance perceived ease-of-use (Hackbarth et al., 2003; Moon & Kim, 2001), pleasure, and satisfaction (Zolkepli & Kamarulzaman, 2015).

Providing optimal customer experience has become a key challenge for companies (Ho & Bodoff, 2014; Lemon & Verhoef, 2016). On e-commerce websites, for instance, customers can decide to leave a website without purchasing anything if their experience is not satisfying (Srinivasan et al., 2002). To address this challenge, companies increasingly personalize their website content with the aim of improving customer experience (Bodoff & Ho, 2016; Tong et al., 2020).

Personalization

Personalization is considered an important customer-oriented process (Aguirre et al., 2015; Murthi & Sarkar, 2003; Peppers & Rogers, 1997) and refers to the individualization of content, initiated by the company, to every customer (Arora et al., 2008; Ho & Bodoff, 2014).

² The terms playful customer experience and playfulness are used interchangeably in this article.

Automation is a central aspect of personalization. Unlike customization, which enables customers to tailor content themselves according to their needs, personalization is initiated by the system, which automatically adapts website content to every customer based on their data (Arora et al., 2008; Ho & Bodoff, 2014). For instance, companies like Barnes & Noble personalize their content based on customers' previous searches (Aguirre et al., 2015).

By personalizing their website content, companies expect to enhance customer experience (Ho & Bodoff, 2014; Tong et al., 2020). Prior research has shown personalized content is expected to be more memorable and persuasive than generic, non-personalized content (Noar et al., 2009; Petty et al., 2000; Tam & Ho, 2006) and that customers are expected to pay closer attention to personalized content and to use it for decision making (Rimer & Kreuter, 2006). Personalization can reduce information overload (Ansari & Mela, 2003) and generate a more positive evaluation because the content is perceived to be more relevant (Tam & Ho, 2006). Personalization can also foster satisfaction (Rust & Chung, 2006) and loyalty (Ansari & Mela, 2003).

However, the effectiveness of the personalization process has recently been called into question. Some recent research suggests that personalization needs to be perceived by customers to influence their responses. In a recent study conducted in an advertising context, Li (2016) shows that perceived personalization, instead of actual personalization, influences customer attitude and behavioral intentions.

Actual personalization occurs when companies intentionally adapt content based on customer data, whereas perceived personalization represents the extent to which customers perceive content as personalized (Li, 2016). Despite companies' effort to personalize content, perceived personalization will not always reflect actual personalization: non-personalized content might be misinterpreted as personalized and personalized content might accidentally not be perceived as personalized (Komiak & Benbasat, 2006; Li, 2016). Two main reasons explain these discrepancies.

First, companies can incorrectly assume customer preferences. Customers do not always have well-defined preferences while browsing websites. They may have no preferences or unstable preferences. Therefore, inferred preferences may differ from customers' real preferences (Li, 2016; Simonson, 2005).

Second, the same content can be framed or communicated differently and displayed at different times. These different factors can influence customers' perceptions of whether content is personalized (Li, 2016; Rimer & Kreuter, 2006). Even if customer preferences are correctly assumed by companies, customers might not perceive that content is personalized (Li, 2016).

In his study, Li (2016) shows that actual personalization and perceived personalization are two distinct constructs that should be considered separately. He shows that perceived personalization, rather than actual personalization of the ad content, generates a better attitude toward the ad content and higher behavioral intentions. Such results suggest it is perception more than reality that influences customer responses.

However, prior research has shown that customer perceptions do not always reflect objective experience *per se* (Ben Mimoun et al., 2017; Mitra & Golder, 2006). In his study, Li (2016) assessed the effectiveness of personalization on customer responses with verbal measures (subjective measures) while some studies have favored objective measures (e.g., Ansari & Mela, 2003; Tam & Ho, 2006). By using only subjective measures, Li's (2016) study has perhaps neglected the impact of actual personalization on customer responses because of shared method variance between perceived personalization and customer perceived responses (Derbaix, 1995).

In addition, although verbal measures have long been used in marketing, they only capture subjective responses, what is conscious for customers, and do not capture the underlying unconscious mechanisms (Derbaix & Poncin, 2005). Customer experience exists at conscious and unconscious levels (Joy & Sherry, 2003; Lemke et al., 2011), and the processing of content is mostly unconscious and implicit (Hazlett & Hazlett, 1999). Therefore, the use of verbal measures alone may not capture the whole reality of customer experience. Such unconscious and uncontrolled processing can only be assessed with objective measures (Derbaix & Poncin, 2005).

Therefore, this research intends to investigate the effect of actual personalization and perceived personalization on playful customer experience, with objective and subjective measures in order to capture the unconscious and conscious responses customers have during an interaction with a personalized website. Subjective playfulness will capture the extent to which customers perceive that their attention is focused and that they feel absorbed in an activity for play, amusement, or enjoyment (Kuts, 2009) and therefore capture the extent to

which they perceive their experience as playful (Ahn et al., 2007). It will be measured using a perceptual measure. The unit of analysis will, therefore, be the participant.

Objective measures will capture the extent to which customers actually focus their attention during navigation and are absorbed into the activity. It will be captured using eye-tracking techniques. The use of eye-tracking techniques will capture customers' focused attention (Jacob & Karn, 2003) on favorite products. Unlike the subjective measure that reflects customers' perceptions and will be analyzed at the participant level, the objective measures capture focused attention on products and will be analyzed at the product level. Table 1 presents an overview of the objective and subjective measures used to assess playful customer experience and the analysis unit.

Table 1: Subjective and objective measures to assess playful customer experience

Playfulness	Description	Measure	Analysis unit
Subjective playfulness	Extent to which customers perceive that their attention is focused and that they feel absorbed in the activity for play, amusement, or enjoyment	Perceptual measure developed by Ahn et al. (2007)	Participants
Objective playfulness	Extent to which customers focus their attention during navigation and are absorbed in the activity	Customer actual focused attention (Jacob & Karn, 2003) on favorite products, using eye-tracking techniques	Products by participant

Following prior research showing the effect of actual personalization on customer responses using objective measures (e.g., Ansari & Mela, 2003; Tam & Ho, 2006), we assume that actual personalization is more likely to influence objective playfulness, even if customers are not conscious of it. Therefore, we posit that:

H1: Objective playfulness is higher when content is personalized than when content is not personalized

We also assume that customers are more likely to select their favorite products for purchase when they focus their attention on their favorite products (Rimer & Kreuter, 2006). Thus, we hypothesize that:

H2: Objective playfulness predicts the likelihood that customers select their favorite products for purchase

Based on Li's (2016) work and the theory of salience (Guido, 1998; Pryor & Kriss, 1977), we also assume that perceived personalization, rather than actual personalization, influences subjective playfulness.

Theory of salience

The concept of salience has been employed in the literature on customer perception (Fiske & Taylor, 1991; Heckler & Childers, 1992; Taylor & Fiske, 1975, 1978) to describe the property of particular stimuli that stand out in the environment and are perceived by customers (Fiske & Taylor, 1991; Guido, 1998).

Based on the theory of salience, a stimulus that is perceived and attracts attention generates more favorable responses from customers (Guido, 1998; Pryor & Kriss, 1977). This can be explained by the fact that a salient stimulus can be perceived as more congruent to customers in a certain context (Guido, 1998).

Congruence refers to a match between two entities and includes two dimensions: relevancy and expectancy (Fleck & Maille, 2010; Mandler, 1982). Relevancy of the association represents the extent to which the content helps identify the message, whereas expectancy reflects the extent to which the information fits into a pre-established structure (Fleck & Quester, 2007; Heckler & Childers, 1992). In the context of personalization, relevancy would refer to the extent to which there is a match between customer preferences and the content displayed on the website (Tam & Ho, 2006). Expectancy could refer to the extent to which customers expected the displayed content based on their preferences.

Noar et al. (2009) and Rimer and Kreuter (2006) suggested that perceived content relevancy, which is one of the dimensions of congruence, is the primary mediator that explains the effect of personalization on the processing of content, as well as behavioral intentions and attitude toward this content. In their research, Tam and Ho (2006) show that perceived content relevancy mediates the effect of personalization on customers' evaluation of website content.

Building on prior research (Li, 2016) and the theory of salience (Guido, 1998; Pryor & Kriss, 1977), we assume that perceived personalization influences perceived content congruence and subjective playfulness. We posit that when customers perceive content as

personalized (no matter from what process it is produced) they will perceive it as more congruent. In addition, as salient stimuli generate more positive responses from customers, we posit that when customers perceive content as personalized, they will perceive their experience as more playful. Finally, as congruence has been identified as an antecedent of customer responses (Guido, 1998; Tam & Ho, 2006) and identified as a mediator that explains the effect of personalization on the processing of content (Kalyanaraman & Sundar, 2006; Tam & Ho, 2006), we believe that perceived personalization influences subjective playfulness because the content is perceived as more congruent. Thus, we hypothesize that:

H3: Perceived content congruence is higher when content is perceived as personalized than when content is not perceived as personalized

H4: Subjective playfulness is higher when content is perceived as personalized than when content is not perceived as personalized

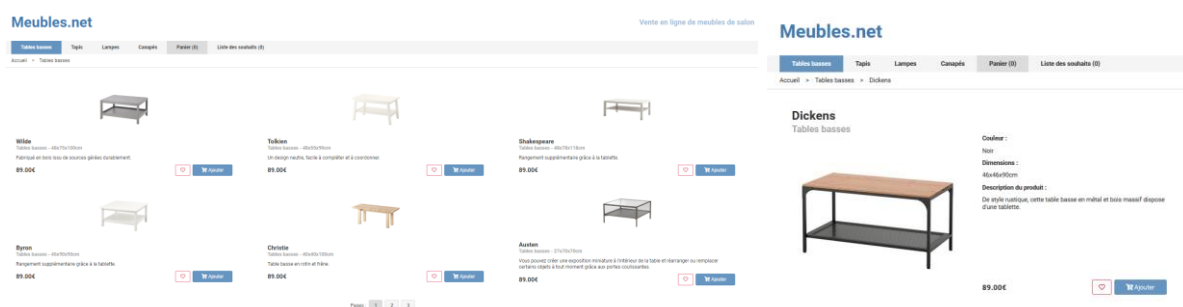
H5: Perceived content congruence mediates the relationship between perceived personalization and subjective playfulness

Method

Design and sample

We developed a personalized website to conduct a between-subject laboratory experiment. Furniture was chosen for the product category as it can be of interest to women and men and presents a medium level of involvement. The website presented living room furniture with four categories of products (sofas, coffee tables, lamps, and carpets). It included a homepage, three pages per category (18 products per category), a wish list page, and a basket page. Figure 3 presents different pages of the website.

Figure 3: Website pages



Study collaborators contacted 60 participants. They were requested to avoid family members, friends, and students (Derbaix, 1995). We excluded the answers from one participant due to a technical problem during data recording. The final sample was therefore composed of 59 participants. Table 2 presents the composition of the sample and the groups. Groups were equivalent in terms of age, gender, digital skills, and online shopping involvement. However, the mean of the involvement in the product category was significantly higher in the actual personalization condition ($M_{ipc}=5.29$) than in the no actual personalization condition ($M_{ipc}=4.5$; $t=-2.012$; $p=0.05$). Therefore, we added this variable as a covariate in the tests to control its potential impact on the results.

Table 2: Sample and groups composition

Sample			
N	59		
Age mean	35.69	(SD=13.135)	
Digital skills mean	3.80	(SD=1.617)	
Involvement in online shopping mean	4.53	(SD=1.554)	
Involvement in product category mean	4.91	(SD=1.544)	
Gender (female)	51%		

No actual personalization			Actual personalization		
N	29		N	30	
Age mean	36	(SD=13.299)	Age mean	35.40	(SD=13.195)
Digital skills mean	4.07	(SD=1.792)	Digital skills mean	3.53	(SD=1.409)
Involvement in online shopping mean	4.39	(SD=1.562)	Involvement in online shopping mean	4.66	(SD=1.562)
Involvement in product category mean	4.51	(SD=1.404)	Involvement in product category mean	5.29	(SD=1.597)
Gender (female)	52%		Gender (female)	50%	

No perceived personalization			Perceived personalization		
N	25		N	34	
Age mean	37	(SD=14.705)	Age mean	34.74	(SD=11.988)
Digital skills mean	4.03	(SD=1.761)	Digital skills mean	3.63	(SD=1.507)
Involvement in online shopping mean	4.47	(SD=1.627)	Involvement in online shopping mean	4.57	(SD=1.522)
Involvement in product category mean	4.70	(SD=1.708)	Involvement in product category mean	5.06	(SD=1.419)
Gender (female)	44%		Gender (female)	56%	

Table 3 presents a matrix crossing the groups based on actual personalization condition (vertically) and the groups based on perceived personalization (horizontally). In the no actual personalization group, 48% of participants did not perceive that the content was personalized, while 52% perceived that it was personalized. In the actual personalization group, 37% did not perceive that the content was personalized, whereas 63% perceived that it was personalized.

Table 3: Matrix crossing groups

	No actual personalization	Actual personalization	Total
No perceived personalization	14	11	25
Perceived personalization	15	19	34
Total	29	30	59

To confirm that actual personalization and perceived personalization are two distinct constructs (Li, 2016), we used a chi-2 test. Results show no relationship between these two variables (Pearson chi-square=0.814, df=1; p=0.377).

Procedure

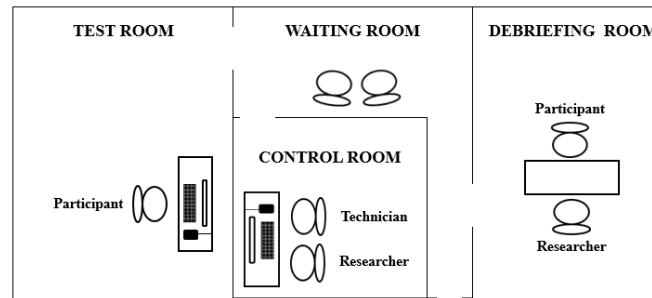
The study was carried out in two steps. The first step was addressed online and aimed to collect participants' data. Participants received a link to the website and were invited to browse all the products displayed on the website and select their four favorite products by category in order to have similar exposure to the products. In order to increase the ecological validity of our study and the interest of respondents in the exercise, we informed them that five of them would win one of their favorite products.

Five days later, participants were invited to our research laboratory to participate in the second step of the study. They were randomly assigned to one of two conditions: actual personalization and non-personalization. In the personalized condition, the website was automatically adapted and presented the four favorite products selected by participants in Step 1 on the first pages of each category. We did not signal personalization with a message. In the non-personalized condition, the website remained unchanged between the two steps³.

³ Except for participants who had selected their favorite products from the first four products in each category. For those participants, we moved the favorite product(s) so that they were no longer among the first four products presented.

The experiment took place in a test room with a desk, a chair, and a computer that reproduced the natural settings at home or work as closely as possible. This room was equipped with audio and video recording material that enabled researchers to observe participants from a control room. Such a room arrangement helps avoid potential biases related to the presence of researchers (Ben Mimoun et al., 2017). Figure 4 presents the test rooms' arrangement.

Figure 4: Test rooms' arrangement



Participants sat at computers equipped with eye-tracking software (Tobii Pro X3 120) and were asked to shop for one product per category. Using such technology enables analysis of customer experience during participants' navigation session without being intrusive (Ben Mimoun et al., 2017). After a calibration phase, we informed the participants that five of them would win one of their favorite products. After treatment, participants were invited to complete a questionnaire. Finally, the participants were invited to the debriefing room to explain the experiment in which they had just participated.

Subjective measures

We operationalized the key constructs: perceived personalization, perceived content congruence, and subjective playfulness, using established multi-item scales. Appendix 1 reports the measures of the constructs and statistics. Perceived personalization was measured with an adaptation of the 4-item scale developed by Maslowska et al. (2016) ($\alpha=0.85$). Perceived content congruence was assessed with an adaptation of the 6-item scale developed by Fleck and Quester (2007) ($\alpha=0.86$) and subjective playfulness with the 9-item scale developed by Ahn et al. (2007) ($\alpha=0.89$). Our manipulation was checked with the item "display of the products was based on the wish list I made during my first visit on the website." All variables were measured on 7-point Likert scales.

We also controlled for some individual characteristics: digital skills, online shopping involvement, and product category involvement. Digital skills were measured with an adaptation of the 4-item scale developed by Rose et al. (2012) ($\alpha=0.95$). Online shopping involvement was assessed with an adaptation of the 6-item scale developed by Strazzieri (1994) ($\alpha=0.96$) and product category involvement was measured with an adaptation of the same scale ($\alpha=0.96$).

All scales were considered to be unidimensional. They achieved a Cronbach's alpha value greater than .8 and therefore presented a very good level of internal consistency.

Objective measures

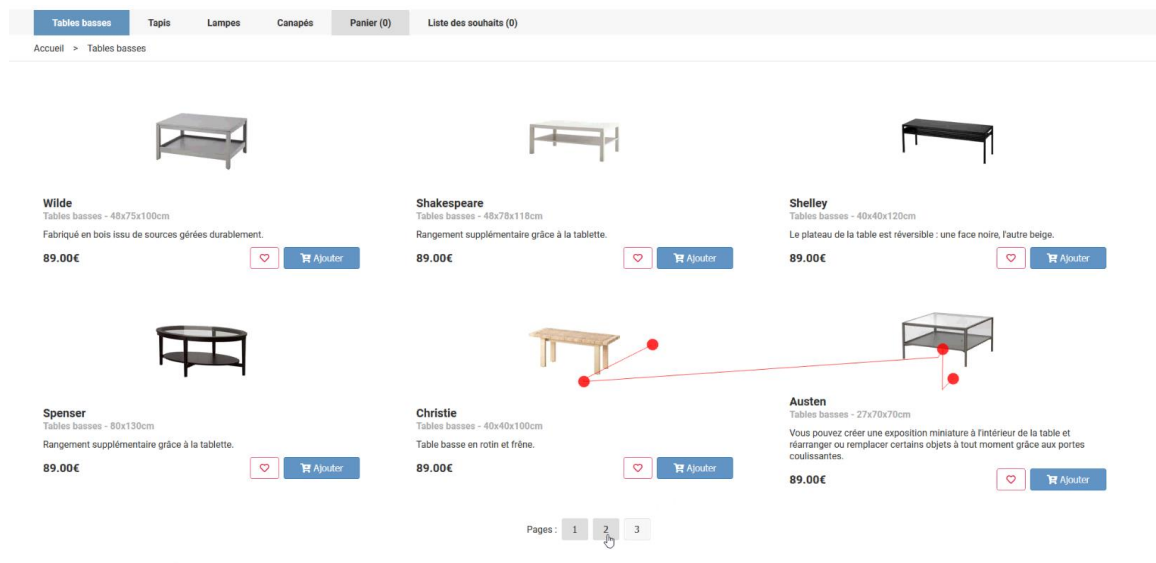
An objective measure of playfulness captures the extent to which customers focus their attention and are absorbed in the activity. To capture objective playfulness, we used eye-tracking technology to capture customer responses based on behavioral manifestations (Léger et al., 2014). Eye-tracking techniques enable participants' eye movement to be tracked and particularly aim to analyze how customers focus their attention on defined stimuli during navigation (Jacob & Karn, 2003) in settings that approximate a natural use environment (Ben Mimoun et al., 2017).

To analyze how customers focused their attention during navigation, we adapted repertory grid techniques (Tan & Hunter, 2002). Using such a technique is important, given the sensory dimension of customer experience (Hair et al., 2009). Adapting repertory grid techniques to analyze eye-tracking data enables the dynamic aspect of customer experience through the browsing behavior to be captured, which traditional analysis of eye-tracking data does not enable for dynamic websites. In addition, although eye-tracking techniques enable the recording of all the eye movements made on the website (Jacob & Karn, 2003), the use of repertory grid techniques also enables the focused attention made on defined products to be captured. This latter measure enables more efficient use of time to be captured (Koiso-Kanttila, 2005; Shapiro et al., 1999).

Repertory grid techniques are mapping techniques that aim to describe customer responses to phenomena (Hair et al., 2009; Tan & Hunter, 2002). These techniques include three central components: elements, constructs and grid (Hair et al., 2009). Elements are eliciting elements from which comparisons are drawn (Hair et al., 2009; Tan & Hunter, 2002). In this study, the eliciting element is the website that participants are asked to browse to

purchase products. Constructs represent participants' responses and interpretations of the elements. These responses are generally gathered through interviews or questionnaires and are subjective (Tan & Hunter, 2002). In this study, participants' responses correspond to actual behavioral manifestations using eye-tracking data, which enables us to reach a more objective coding. We analyzed the videos of the eye movements of the 59 participants millisecond by millisecond (Fig. 5).

Figure 5: Tracking eye movements



In the coding phase, we manually coded fixations and interactions on products to operationalize playfulness objectively. Fixations reflect a period where the eyes focus their attention toward a stimulus (Jacob & Karn, 2003). Interactions represent the total number of interactions with a product. For example, a participant may have made two fixations in one interaction or two interactions with the product.

In the coding of the fixations, we made a distinction between different types of fixations (Table 4). First, we distinguished simple and long fixations to capture the amount of time for which participants focus their attention and are therefore absorbed. The longer the fixation is, the longer the participant is absorbed into the activity. We also distinguished fixations made on the image and the text of a product. Finally, in order to capture all the time spent by participants focusing their attention on a product, we aggregated the number of simple and long fixations made on the products. The latter measure enables all the fixations to be considered while taking the weighting into account. This measure, therefore, summarizes the experience in terms of focused attention.

Table 4: Types of coded fixations

Types of fixations	Description
All simple fixations	Total number of simple fixations made on the products. This number corresponds to the sum of simple fixations made on text and images.
Simple fixations image	Total number of simple fixations made on the image area of the products.
Simple fixations text	Total number of simple fixations made on the text area of the products.
All long fixations	Total number of long fixations made on the products. This number includes the sum of the long fixations made on text and images. The size of the point of the long fixation is twice the size of a simple fixation.
Long fixations image	Total number of long fixations made on the image area of the products.
Long fixations text	Total number of long fixations made on the text area of the products.
Aggregate fixations	Total number of all fixations made on the products. This number represents the sum of all simple fixations and long fixations. Long fixations are converted to simple fixations.
Aggregate fixations image	Total number of all fixations made on the image area of the products. This number represents the sum of all simple image fixations and long image fixations. Long fixations are converted to simple fixations.
Aggregate fixations text	Total number of all fixations made on the text area of the products. This number represents the sum of all simple text fixations and long text fixations. Long fixations are converted to simple fixations.

Finally, the grid is used to present links between elements and constructs (Tan & Hunter, 2002). We developed a repertory grid to perform a systematic analysis of behavioral manifestations of experience. In the development of the grid, we took a nomothetic approach, meaning that we established a common set of elements to compare groups (Tan & Hunter, 2002). Appendix 2 presents the grid we used for every participant in the study. Coded data represents 4,248 lines of coded data. In addition to the metrics explained above regarding fixations and interactions, we indicated for each product (72 products) if it was one of the participant's favorite products in Step 1 and if it had been selected for purchase by the participant in Step 2. In addition, as the Tobii eye tracker records all the fixations made on the website by default (Jacob & Karn, 2003), we also controlled this measure in parallel with the coding.

Results

Subjective measures

To check the manipulation of personalization, we performed an independent sample t-test. Results show that the manipulation of personalization was as expected ($M_{np}=4.24$; $M_p=5.17$; $t=-2.127$; $p=.019$; one-tailed). In all tests, we controlled for the effect of the involvement in the product category⁴ using a general linear model with actual personalization as a factor and the involvement in the product category as a covariate, and it did not change the significance of the results.⁵

To test the effect of perceived personalization on perceived content congruence and subjective playfulness, we created a dummy-coded variable with 1 being perceived as personalized ($M_{pp}>4$) and 0 being perceived as not personalized ($M_{npp}\leq 4$). To test that perceived content congruence is higher when content is perceived as personalized than when content is not perceived as personalized (H3), we performed an independent sample t-test. As expected, content that was perceived as personalized was perceived as more congruent ($M_{pp}=5.48$) than content that was not perceived as personalized ($M_{npp}=4.8$; $t=-2.8$; $p=.004$; one-tailed).

To test the effect of perceived personalization on subjective playfulness and the mediating role of perceived content congruence (H4 and H5), we used Preacher and Hayes's (2008)'s mediation model. Results show that perceived personalization had an indirect effect on subjective playfulness. Perceived personalization had a positive effect on perceived content congruence ($\beta=.68$; $t=2.80$; $p=0.007$) and perceived content congruence had a positive effect on subjective playfulness ($\beta=.39$; $t=2.83$; $p=0.007$), leading to an overall positive, indirect only, effect of perceived personalization on subjective playfulness ($\beta=.27$; 95%; $CI=[+.0487, +.5883]$).

Finally, we controlled the effect of actual personalization on perceived content congruence and subjective playfulness. To test the effect of actual personalization on perceived

⁴ Involvement in the product category was added as covariate in the tests comparing actual personalization and no actual personalization groups as the mean was significantly higher in the actual personalization condition compared to the no actual personalization condition. We also controlled the effect of this variable in the tests comparing perceived personalization and no perceived personalization. In all cases, it didn't change the significance.

⁵ We controlled the effect of customers' other individual characteristics, namely gender, digital skills, and involvement in online shopping in all tests and it didn't change the significance of the results.

content congruence, we performed an independent sample t-test. Results show that perceived content congruence was not significantly higher in the personalization condition ($M_p=5.08$) than the no personalization condition ($M_{np}=5.29$; $t=0.853$; $p=.397$; two-tailed). To test the effect of actual personalization on subjective playfulness, we performed the same test. Results show that subjective playfulness was not significantly higher in the actual personalization condition ($M_p=5.42$) than the no actual personalization condition ($M_{np}=5.18$; $t=-0.877$; $p=.384$; two-tailed)⁶.

In summary, the results on subjective measures confirm that content that is perceived as personalized generates a more subjective playful customer experience compared to content that is not perceived as personalized because the content is perceived as more congruent. Results also show that content that is actually personalized does not generate a more subjective playful experience than non-personalized content. Consistent with Li (2016), these results show that perceived personalization, rather than actual personalization, influences subjective playfulness and that content needs to be perceived as personalized to have an impact on customers' subjective responses. In the next section, we investigate the effect of actual personalization. Unlike Li (2016), we find that actual personalization does influence customers' actual responses.

Objective measures

To test whether objective playfulness is higher when content is personalized than when content is not personalized (H1), we performed independent sample t-tests. Results support this hypothesis, as the number of fixations on favorite products (whatever the type of fixations) and the number of interactions was significantly higher in the actual personalization condition compared to the no personalization condition (see Table 5).

We controlled the number of fixations made on the whole website with an independent sample t-test, and results show that the number of fixations on the whole website was not significantly higher in the actual personalization condition ($M_p=598.3$), compared to the no personalization condition ($M_{np}=541.66$; $t=-.807$; $p=.212$; one-tailed). These results show that there was no difference in the browsing experience between conditions if we consider the time spent on the whole website. Nevertheless, we can see that the navigation time was not used in the same way between personalized and non-personalized conditions. In the personalized

⁶ Two-tailed tests were used in making these contrasts, because no effects were predicted from actual personalization based on Li (2016)'s work.

condition, the attention time was used more efficiently as customers focused their attention more on their favorite products.

We also controlled the effect of perceived personalization on objective measures with the same tests. Results show that the number of fixations on favorite products (whatever the type of fixations) and the number of interactions was not significantly higher in the perceived personalization condition than the no perceived personalization condition (see Table 5). Objective measures capture the customer's unconscious, spontaneous, and uncontrolled responses. Perceptions do not influence responses that are not controlled by the customer's will (Derbaix & Poncin, 2005).

Table 5: Results on objective measures

	Actual personalization			Perceived personalization		
	No AP Mean	AP Mean	T-test and p-value*	No PP Mean	PP Mean	T-test and p-value*
All simple fixations	82	133.5	$t=-2.513$; $p=.008$	116.04	102.41	$t=.620$; $p=.269$
Simple fixations (image)	46.86	73.87	$t=-3.382$; $p=.001$	61.04	60.27	$t=.087$; $p=.466$
Simple fixations (text)	35.14	59.63	$t=-1.649$; $p=.054$	55	42.15	$t=.832$; $p=.205$
All long fixations	32.52	58.13	$t=-2.718$; $p=.005$	44.2	46.53	$t=-.227$; $p=.411$
All long fixations (image)	25	41.47	$t=-2.477$; $p=.009$	30.48	35.5	$t=-.705$; $p=.242$
All long fixations (text)	7.52	16.67	$t=-1.744$; $p=.045$	13.72	11.03	$t=.488$; $p=.314$
Aggregate fixations	147.04	249.77	$t=-2.757$; $p=.005$	204.44	195.47	$t=.221$; $p=.413$
Aggregate fixations (image)	96.86	156.8	$t=-3.067$; $p=.002$	122	131.27	$t=-.431$; $p=.334$
Aggregate fixations (text)	50.17	92.97	$t=-1.740$; $p=.045$	82.44	64.21	$t=.709$; $p=.241$
Interactions	35.17	51.83	$t=-3.582$; $p=.001$	44.08	43.32	$t=-.144$; $p=.443$

* one-tailed tests

We checked that these results were not due to the simple highlighting of products on the four first positions of each category (regardless of whether they were favorite or not). To control this, we performed independent sample t-tests and compared fixations and interactions on the first four products positioned on the first page of each category. While the number of fixations and interactions on the four products positioned first was significantly higher in the actual personalization condition than the no-personalization condition, there was no significant difference when content was perceived as personalized compared to when content was not perceived as personalized. These results show that the highlighting of favorite products (personalization) influences objective measures and not the simple highlighting of products. Table 6 presents these results.

Table 6: Results depending on the highlighting of products

	Actual personalization			Perceived personalization		
	No AP Mean	AP Mean	T-test and p-value*	No PP Mean	PP Mean	T-test and p-value*
All simple fixations	58.52	133.5	t=-3.908; p=.000	99.24	94.74	t=.204; p=.420
Simple fixations (image)	38.72	73.87	t=-4.654; p=.000	54.56	58.09	t=-.390; p=.349
Simple fixations (text)	19.79	59.63	t=-2.864; p=.004	44.68	36.65	t=.528; p=.300
All long fixations	21.59	58.13	t=-3.948; p=.000	37.56	42.09	t=-.425; p=.337
All long fixations (image)	15.83	41.47	t=-4.014; p=.000	25.20	31.56	t=-.865; p=.196
All long fixations (text)	5.76	16.67	t=-2.113; p=.021	12.36	10.53	t=.333; p=.370
Aggregate fixations	101.69	249.77	t=-4.126; p=.000	174.36	178.91	t=-.109; p=.457
Aggregate fixations (image)	70.38	156.8	t=-4.655; p=.000	104.96	121.21	t=-.733; p=.234
Aggregate fixations (text)	31.31	92.97	t=-2.608; p=.007	69.40	57.71	t=.457; p=.325
Interactions	33.10	51.83	t=-4.100; p=.000	42.56	42.68	t=-.022; p=.492

* one-tailed tests

Finally, to test that objective playfulness predicts customers' likelihood of selecting their favorite products for purchase (H2), we performed a logistic regression on the 4,248 lines of coded data. Results support this hypothesis as the number of aggregate fixations on the favorite products positively influences the likelihood of customers selecting their favorite products for purchase ($\beta=.068$; Wald=114.259; $p=0.000$).

Discussion

This research investigates the effects of actual and perceived personalization on playful customer experience by using both subjective and objective measures.

With a lab experiment, this work shows the influence of personalization on playful customer experience and offers a better understanding of the process underlying customer conscious and unconscious responses. Consistent with prior research conducted in an advertising context (Li, 2016), our findings show that content needs to be perceived as personalized to have an impact on subjective playfulness.

Nevertheless, subjective measures only enable conscious customer experience to be captured (Derbaix & Poncin, 2005). As customer experience exists at both conscious and unconscious levels (Joy & Sherry, 2003; Lemke et al., 2011), objective measures are needed to capture the unconscious mechanisms underlying customer experience.

With this research, therefore, we also used objective measures to assess playful customer experience. Objective playfulness represents the extent to which customers focused their attention and were absorbed in the activity, and was captured with eye-tracking techniques by analyzing the interactions and the fixations made on defined products during navigation. Unlike the subjective measure that reflects customers' perceptions and is at the participant level, these objective measures capture focused attention on products and, therefore, are at the product level.

To analyze these data, we adapted repertory grid techniques (Tan & Hunter, 2002). This enabled us to capture the dynamic aspect of customer experience but also to capture focused attention on defined products, which represents a more efficient use of time (Koiso-Kanttila, 2005; Shapiro et al., 1999), compared to all the eye movements made on the website recorded by the eye tracker. Using a grid, we coded all the different fixations made on products and interactions. In coding the fixations, we made a distinction between different types of fixations. For instance, we distinguished simple and long fixations to capture how long the participants were absorbed in the activity. However, we also used an aggregated and weighted measure to summarize the experience in terms of focused attention.

Unlike Li (2016), our findings show that actual personalization does influence objective playfulness. Although customers tend to spend the same time on the website regardless of condition, they tend to focus their attention more on their favorite products when content is personalized, and this focused attention enables us to predict the likelihood that customers select their favorite products for purchase.

In addition, we observe that personalization influences objective playfulness, whatever the type of fixations. Therefore, although the different measures of fixations bring nuance to the observed behaviors, the aggregated and weighted measure can be used to best summarize the objective experience of customers during an interaction with a personalized website.

Finally, the effect of actual personalization on objective measures is not a mere exposure effect (Zajonc, 1968). If it were the mere exposure effect, the simple highlighting of the content, whether personalized or not, would have the same effect. In this research, however, we have seen that it is the personalization of content (the highlighting of favorite products) that influences objective measures and not the simple highlighting of products.

Conclusion

Companies increasingly personalize their website content with the aim of improving customer experience (Bodoff & Ho, 2016). However, there was still limited knowledge about customer experience on personalized websites and the underlying processes.

Prior studies present contradictory findings. Although some prior research has shown that actual personalization can reduce information overload (Ansari & Mela, 2003) and can foster satisfaction (Rust & Chung, 2006), a recent study conducted in an advertising context (Li, 2016) shows that perceived personalization – the extent to which customers perceive that content is personalized – instead of actual personalization, influences attitude toward ad content, suggesting that personalization only influences customer responses when they perceive it.

However, Li's (2016) study assessed the effectiveness of personalization using verbal measures. Therefore, it only captures customers' conscious responses to personalized ad content and only reflects a part of the process.

With a lab experiment, this research enables us to appraise the effect of personalization on customer experience. Specifically, it enables us to understand the effects of actual and perceived personalization on playful customer experience using subjective and objective measures and with the support of eye-tracking techniques. This research offers several methodological, theoretical, and managerial implications.

Methodological contributions

From a methodological point of view, the contributions of this research are threefold. First, the eye-tracking technology enables us to capture playfulness objectively based on behavioral manifestations (Léger et al., 2014; McColl-Kennedy et al., 2015). Using such a method enables us to capture customers' unconscious responses to personalization. Such spontaneous and objective measures particularly aim to understand responses that are not controlled by the customer's will (Derbaix & Poncin, 2005), which are the majority of responses customers have when processing content (Hazlett & Hazlett, 1999).

Second, the original use of repertory grid techniques (Hair et al., 2009; Tan & Hunter, 2002) to analyze eye-tracking data helps to better appraise the dynamic aspect of customer experience through the browsing behavior, which traditional analysis of eye-tracking data does

not enable for a dynamic website. Prior research using eye-tracking techniques to understand customer experience mainly focused on analyzing aggregated data using fixed scan paths (e.g., Kahn, 2017) and heat map analysis (e.g., Ben Mimoun et al., 2017; Wang et al., 2014).

Third, the use of a repertory grid enables us to focus our analysis on the focused attention on participants' favorite products and not on all fixations made on the website. Unlike web analytics used by companies to analyze the efficiency of a website that measures the whole time customers spend on pages and websites (Bucklin & Sismeiro, 2003), this techniques enables us to distinguish between the whole time spent on the website and the time spent on their favorite products, which represents a more efficient time spent on the website (Koiso-Kanttila, 2005; Shapiro et al., 1999).

Theoretical contributions

From a theoretical perspective, this research provides a better understanding of the effect of personalization and perceived personalization on playful customer experience using objective and subjective measures.

This research shows that personalization, regardless of whether it is perceived or not, influences playful customer experience and highlights the presence of two concomitant processes. In his research, Li (2016) shows that it is not the actual personalization initiated by the company on the website but rather perceived personalization – the extent to which customers perceive that content is personalized – that influences customer attitude and behavioral intentions toward an ad content. Consistent with prior research, and in light of the theory of salience (Guido, 1998; Pryor & Kriss, 1977), we show that content needs to be perceived as personalized to influence subjective playfulness.

However, unlike prior research (Li, 2016), we show that actual personalization does influence customers' actual responses and the way they focus their attention on the website. The use of both subjective and objective measures to assess playful customer experience enables us to capture both conscious and unconscious responses to personalized content and to consider playful customer experience more holistically.

By also using objective measures, this research shows that customers focus their attention more and interact more with their favorite products when the website is personalized than when the website is not personalized. Such focused attention on favorite products predicts the likelihood that customers select them for purchase. Personalized content tends to be more

memorable for customers and more persuasive than generic, non-personalized content (Noar et al., 2009; Petty et al., 2000; Tam & Ho, 2006). While perceived personalization influences subjective playful customer experience, actual personalization tends to influence objective playful customer experience.

Managerial contributions

From a managerial perspective, this research shows that actual personalization processes are still worthwhile for companies as actual personalization influences customer responses. However, the choice of measures to assess the impact of personalization on playful customer experience is important.

Actual personalization appears not to influence subjective and conscious measures of experience but rather influence unconscious and uncontrolled responses while browsing the website. Customers appear to focus their attention more on their favorite products when the website content is personalized and are more likely to select their favorite product for purchase when they focus their attention on it.

Such findings raise the question of whether companies need to communicate that content is personalized. Some research shows that it is more the fact of saying that content is personalized rather than the personalization itself that influences customers' responses (Vandenbulcke, 2019). The present research did not accompany personalization with a message signaling personalization but still shows that actual personalization influences customer responses. This shows that it is not required to indicate that the content is personalized to influence customer responses.

Limitations and avenues for future research

Despite our rigorous experimental approach, some limitations to our work persist, which can be considered as future research avenues.

First, this research is based on an experimental study carried out in the laboratory and mobilizes a fictive website of an unknown brand. Further research on brand websites is needed to investigate the effect of the relationship with the brand. Trust toward the brand and prior experience with the brand (Aguirre et al., 2015; Lemon & Verhoef, 2016; Rose et al., 2012) could influence the effect of actual personalization and perceived personalization on playful customer experience.

Second, the website we used to conduct the experiment presents furniture products, which can be perceived as products with both utilitarian and experiential attributes (Brakus et al., 2014). Future research should investigate the effect of actual and perceived personalization on customer responses on websites displaying other product categories.

Third, the subjective measure to assess playful customer experience was analyzed at the participant-level while the objective measures were analyzed at the product-level. Future research is needed with additional physiological measures, such as electroencephalography, to conduct additional analysis on customer attention (Gordon et al., 2018; Léger et al., 2014) at the participant level.

Fourth, in this research, we did not signal personalization with an accompanying message. Signaling personalization is a factor that could influence customer perceptions of personalization (Li, 2016). Future research should, therefore, investigate the effect of personalization of playful customer experience when it is signaled.

Fifth, we created a personalization algorithm for this study. This algorithm focuses on the personalization of content, which is one form of the personalization of website features (Murthi & Sarkar, 2003). Future research could investigate how the personalization of the design of the website (Hauser et al., 2009; Hauser et al., 2014) or the personalization of the menu (Al-Omar & Rigas, 2009) can influence playful customer experience.

Finally, this research investigates playful customer experience on a personalized website and focuses on positive customer responses to personalization. Although personalization has been found to have positive effects, it has also been found to have downsides, such as privacy concerns (Chellappa & Sin, 2005; Sutanto et al., 2013). Future research should investigate customer experience on personalized websites further and the downsides that such personalization may trigger for customers.

Chapter 2: Customers facing companies content personalization attempts: paradoxical tensions, strategies, and managerial insights

Laetitia Lambillotte and Ingrid Poncin

Introduction

Companies increasingly use personalization based on customer data to improve customer experience and gain a competitive advantage (Tong et al., 2020). According to the Forbes Insights Survey (2019), 57% of marketing leaders surveyed say that they want to develop their personalization processes further over the next year, and 41% identify personalization as an immediate priority to deliver a superior customer experience.

Nevertheless, although customers may value personalization, they may simultaneously have negative responses to it. For instance, although customers may find personalization relevant, they may worry about how their data are collected and used to personalize such content at the same time. The literature identifies these contradictory yet interrelated responses as a paradox (Schad et al., 2016).

Most prior research (e.g., Karwatzki et al., 2017; Zeng et al., 2020) investigated the personalization-privacy paradox, which reflects the tensions between the value that personalization may bring and the privacy concerns it may raise (Cloarec, 2020). Some prior research (Shen & Ball, 2009; Strycharz et al., 2019) identified other negative aspects of personalization but did not investigate the paradoxical tensions that could arise from them. We still have limited knowledge about the different paradoxical tensions that personalization may trigger and how they are triggered.

In addition, prior research mainly adopted the privacy calculus theory to investigate customers' management of the personalization-privacy paradox. This theory suggests that customers resolve paradoxical tensions of personalization by weighing the benefits and costs of personalization (Dinev & Hart, 2006; Dinev et al., 2008). However, the theory of paradox (Smith & Lewis, 2011) suggests that customers adopt different strategies when facing paradoxical tensions.

To address these gaps, this research aims to explore the process underlying the triggering and management of paradoxical tensions of personalization by conducting 20 in-

depth interviews with customers with the support of elicitation techniques. Specifically, this research first intends to investigate the different paradoxical tensions that personalization triggers and how they are triggered by adopting a holistic view of customer experience. Whereas prior research generally investigated personalization either in an advertising context or in a website environment, this research examines them together to understand the triggering of paradox through the customer journey. Second, this research aims to understand the management of these paradoxical tensions better by identifying the different strategies that customers adopt to manage paradoxes of personalization and by examining how companies can mitigate the tensions that personalization triggers.

The contributions of this research are threefold. First, we extend prior research on the paradoxes of personalization by identifying two previously unknown paradoxes of personalization and providing a better understanding of how personalization triggers these paradoxical tensions.

Second, in light of the theory of paradox (Smith & Lewis, 2011), this research extends prior research on the paradoxes of personalization by identifying two strategies that customers adopt to manage paradoxical tensions of personalization. Unlike prior research suggesting that customers operate a rational calculus to resolve paradoxical tensions of personalization (Awad & Krishnan, 2006; Li & Unger, 2012), this research shows that customers adopt either resolution (synthesis) or acceptance strategies to cope with the tensions.

Third, this research extends prior research by identifying content and contextual levers, namely valuable personalized content, affinity and trust toward websites, and signaling cues, which companies can use to mitigate paradoxical tensions. In addition, it proposes a typology of personalized content that provides marketers with practical guidelines for developing personalized content.

In the next section, we begin by presenting the literature on personalization and reviewing the literature on the paradoxes of personalization, and then focus on the theory of paradox. Then, we outline our research method and detail the findings. Finally, we discuss the theoretical and managerial implications and avenues for future research.

Theoretical background

Personalization

Personalization has been recognized as an important process in customer relationships (Peppers & Rogers, 1997; Shen & Ball, 2009) and refers to the adaptation, initiated by the company, of content to every customer (Arora et al., 2008).

Personalization includes two main forms: web personalization and personalized advertising. Web personalization refers to the personalization of the content of a website (Ho & Bodoff, 2014). For instance, online retailers like Amazon adapt the content displayed on their homepage based on customers' previous searches (Arora et al., 2008). Personalized advertising refers to the personalization of the ad content (Bleier & Eisenbeiss, 2015a). This form of personalization enables companies to adapt their ad content that appears on other websites (Bleier & Eisenbeiss, 2015a). For instance, Google enables companies to personalize their ad content on Google's platforms based on a customer's online behavior (Aguirre et al., 2015; Goldfarb & Tucker, 2011).

The personalization process is often confused with customization (Ho & Bodoff, 2014). Both refer to the process of individualizing content for every customer. However, they differ in the adaptation initiative (Arora et al., 2008). Customization is initiated by customers and enables them to tailor content themselves according to their needs. Personalization is initiated by the company and does not require the customer's explicit control to generate adapted content. The central aspect underlying personalization is automation. This automated process enables companies to adapt their content to every customer based on their data (Ho & Bodoff, 2014; Valos et al., 2010).

Personalization consists of a three-step process: learning, matching, and evaluation (Murthi & Sarkar, 2003). In the learning step, companies collect data to learn more about their customers and infer their preferences (Murthi & Sarkar, 2003). Data collection may be of two kinds: explicit or implicit (Fay et al., 2009; Liang et al., 2006). Explicit data collection implies that customers deliberately provide such data. For instance, customers provide data explicitly when they complete a form online. Companies also collect data implicitly by tracking customers' behavior online. For instance, companies can assume interests and age based on the content customers have previously read or watched (Kim et al., 2018). Companies use data collected implicitly and explicitly to infer customer preferences and build customer profiles

(Fay et al., 2009; Liang et al., 2006). In the matching step, companies use this information to personalize content (Aguirre et al., 2015; Murthi & Sarkar, 2003). In the evaluation step, companies assess the impact of personalization on customer experience (Aguirre et al., 2015; Fay et al., 2009).

Customer experience refers to internal responses that customers have to any interaction with a company during the customer journey (Lemon & Verhoef, 2016; Meyer & Schwager, 2007). It includes cognitive and affective responses (Jüttner et al., 2013; Rose et al., 2012). Cognitive responses involve mental processes and are connected to knowledge (classifying, analyzing, and reasoning). Affective responses involve the affective system and are translated into moods, feelings, and emotions (Brakus et al., 2009; Gentile et al., 2007; Lemon & Verhoef, 2016; Schmitt, 1999). Mehrabian and Russell (1974) characterize affective responses to content in three dimensions: pleasure (pleasure–displeasure), arousal (nonarousal–arousal), and dominance (dominance–domination). Positive customer experience foster customer satisfaction and loyalty (Brakus et al., 2009; Lemon & Verhoef, 2016) and trigger behavioral intentions (Rose et al., 2012).

With personalization, companies expect to improve customer experience (Aguirre et al., 2015; Tong et al., 2020). Prior research has highlighted the benefits of personalization. For instance, personalization can reduce cognitive overload (Ansari & Mela, 2003) and facilitate the decision-making process (Tam & Ho, 2006). Personalization can also improve customer satisfaction (Rust & Chung, 2006) and loyalty (Ansari & Mela, 2003) and make websites more useful because the content is perceived as more relevant to customers (Ho & Bodoff, 2014; Tam & Ho, 2006). However, although customers may have positive responses to personalization, they may also have negative responses to it at the same time (Aguirre et al., 2015; Tong et al., 2020) and even have reactance behaviors (Brinson et al., 2018; Chen et al., 2019; Vesanen, 2007; White et al., 2008). For instance, although customers may find personalized content relevant, they may also worry about how their data are collected (Aguirre et al., 2015; Karwatzki et al., 2017). The literature identifies these contradictory responses to personalization as a paradox (Aguirre et al., 2016).

Paradoxes of personalization

A paradox denotes the simultaneous existence of contradictory elements within a unified whole (Smith & Lewis, 2011). The presence of conflicting perceptions triggers tensions and can elicit stress and anxiety (Smith & Lewis, 2011; Vince & Broussine, 1996).

Prior research has investigated some tensions that personalization triggers, especially the personalization-privacy paradox, which denotes the tensions between the value personalization may bring to customers and the privacy concerns that such personalization may generate at the same time (Cloarec, 2020). Table 7 summarizes the existing knowledge about the paradoxes of personalization in marketing and information systems research⁷.

This table first highlights that prior research mainly investigated the personalization-privacy paradox. Some prior research identified other negative aspects of personalization for customers (e.g., Shen & Ball, 2009; Strycharz et al., 2019) but without highlighting and investigating the paradoxical tensions that could arise from them. We still have limited knowledge about the different paradoxes that personalization may trigger and how they are triggered.

Second, prior research on the personalization-privacy paradox mainly adopted the privacy calculus theory to investigate the management of paradoxical tensions of personalization. The privacy calculus theory suggests that the benefits of personalization need to outweigh the costs of personalization to resolve tensions. For instance, perceived quality of personalization can outweigh the impact of privacy concerns (Li & Unger, 2012). This theory also argues that customers resolve paradoxical tensions rationally by operating a calculus, weighing the benefits and costs of disclosing data for personalization purposes to resolve tensions (Dinev & Hart, 2006; Dinev et al., 2008). Nevertheless, resolution strategies are only one possibility among the strategies that customers can adopt when faced with paradoxes (Poole & Van de Ven, 1989). The theory of paradox adopts an alternative approach to managing tensions (Schad et al., 2016; Smith & Lewis, 2011) that can be adopted to better understand how customers manage paradoxical tensions of personalization.

⁷ To develop this summary table of literature, we searched for published research articles in ranked journals that included the terms “personalization paradox” or “benefits and costs of personalization” and that appeared between 2005 and September 2020. We ran queries in five research databases: Emerald, Jstor, Springer, Science Direct and Taylor and Francis.

Table 7: Summary table of literature

Study	Areas of focus	Context	Theory	Method	Key findings
Chellappa and Sin (2005)	Personalization, privacy, trust, online transactions	Personalization of services	Privacy calculus	Survey	The likelihood of using online personalization services results from a trade-off between the value of personalization and privacy concerns.
Awad and Krishnan (2006)	Privacy, information transparency, personalization, information sharing	Personalized advertising and personalized services	Utility maximization theory	Survey	Customers who value information transparency the most are less willing to be profiled. Customers value personalized website services more than personalized advertising.
Shen and Ball (2009)	Relationship marketing, trust, customer loyalty	Technology-mediated personalization	-	Interviews with customers	Personalization does not always enhance service. Its effect on customer relationships have contingencies and vary across the categories.
Xu et al. (2011)	Privacy decision making, location-aware marketing, overt and covert personalization	Personalized location-based mobile notifications	Privacy calculus	Experiment	The effect of personalization on privacy beliefs varies depending on the way personalized content is delivered (overt vs. covert). Customers' characteristics moderate the path structure of the privacy calculus model.
Li and Unger (2012)	E-commerce, information disclosure, personalization, privacy, quality, willingness to pay	Web personalization (news and financial websites)	Privacy calculus	Experiment	The quality of personalized offerings can outweigh the negative influence of privacy concerns.

Table 7: Summary table of literature (continued)

Study	Areas of focus	Context	Theory	Method	Key findings
Sutanto et al. (2013)	Personalization-privacy paradox, uses, and gratification	Personalized mobile advertising	Information, boundary theory, and gratification theory	Mobile applications development, field experiment, and post-experiment surveys	Customer privacy concerns can be mitigated when a personalized privacy-safe solution is provided that retains customers' information locally.
Aguirre et al. (2015)	Personalization paradox, information collection, trust-building strategies, vulnerability	Personalized advertising	Psychological ownership theory	Experiments	Click-through rates intentions are higher when companies engage in overt data collection than when they engage in covert data collection. Trust-building strategies can offset feelings of vulnerability.
Lee and Kwon (2015)	Privacy decision-making, feature selection, personalization-privacy paradox	Personalized mobile wellness healthcare services	Privacy calculus	Development of an algorithm and experiment	Proposition of a method of privacy-aware feature selection for personalized mobile healthcare systems that includes the privacy calculus model and that considers customers' characteristics.
Lee and Rha (2016)	Personalization-privacy paradox, location-based service, mobile commerce, conflict	Location-based service mobile commerce	-	Survey	Customer characteristics influence two outcome variables of the personalization-privacy paradox: internal conflict and continued use intention.
Guo et al. (2016)	Privacy-personalization paradox, trust, adoption intention, age differences	Personalized mHealth services	-	Survey	Perceived personalization and privacy concerns influence behavioral intentions. Trust mediates the relationships between these variables.
Karwatzki et al. (2017)	Information disclosure, privacy, Transparency features, valuation of privacy	Web personalization	Information boundary theory	Experiment	Transparency features do not influence customer disclosure intention. Privacy valuation is a strong inhibitor of information provision in general.

Table 7 : Summary table of literature (continued)

Study	Areas of focus	Context	Theory	Method	Key findings
Watrave et al. (2018)	Personalization, social networks, privacy paradox, adolescence	Personalized advertising	-	Experiment	For adolescents, the highest level of personalization generates the most positive response. Privacy concerns do not moderate the effects of personalization.
Albashrawi and Motiwalla (2019)	Mobile banking, privacy, personalization, continued usage intention	Personalized mobile banking	Technology acceptance model	Survey	The effect of perceived usefulness on customer satisfaction is moderated by privacy concerns, not personalization.
Stycharz et al. (2019)	Personalization effectiveness, privacy concern	Personalized advertising	-	Interviews with practitioners	Practitioners are positive about personalization, but they are aware of constraining factors: preference mismatch, skepticism toward advertising, privacy concerns, and high cognitive demand.
Kang and Namkung (2019)	Personalization, branded mobile apps, food service industry	Personalized mobile apps	Technology acceptance model and privacy calculus	Survey	Personalization affects perceived benefit, perceived risk, and perceived ease of use. Perceived benefit has positive effects on perceived value of disclosure, not perceived risk.
Chen et al. (2019)	Reactance, personalization paradox, rational choice theory, ownership, vulnerability	Personalized advertising	Rational choice theory	Survey	Three rational choice factors from a negative-effect perspective affect customer reactance. These rational choice factors are determined by affective factors, such as ownership and vulnerability.

Table 7 : Summary table of literature (continued)

Study	Areas of focus	Context	Theory	Method	Key findings
Zeng et al. (2020)	Personalization-privacy paradox, self-disclosure, privacy assurance, personalization declaration	Web personalization	-	Field experiment	The act of self-disclosure and the intensity of self-disclosure have positive effects on purchase responses. Combining privacy assurance and personalization declaration drives acts of self-disclosure and increases the intensity of self-disclosure.

Theory of paradox

A paradox arises when contradictory yet interrelated elements exist within a unified whole (Schad et al., 2016; Smith & Lewis, 2011). The theory of paradox highlights that paradoxes tend to persist over time because the salience of the dualities tends to shift, notably depending on the situational factors (Mick & Fournier, 1998). Therefore, a fixed and definitive equilibrium is not achievable, and paradoxical tensions can only be managed in a short-term perspective (Smith & Lewis, 2011).

Based on the theory of paradox, individuals tend to adopt acceptance and resolution strategies to cope with these paradoxical tensions (Smith & Lewis, 2011).

In an acceptance strategy, individuals tend to accept that they must live with paradoxes (Poole & Van de Ven, 1989). Such a strategy implies that individuals change their expectations and accept that paradoxical tensions are unsolvable and persistent over time (Lewis, 2000). Although an acceptance strategy can imply a passive customer who tends to avoid confronting tensions (Murnighan & Conlon, 1991), it can also imply a proactive customer who reduces defensiveness to reduce anxiety (Cameron, 1986; Smith & Lewis, 2011).

In a resolution strategy, individuals do not tend to eliminate tensions but rather tend to find means of meeting conflicting perceptions to regain a short-lived equilibrium (Slotegraaf & Dickson, 2004; Smith & Lewis, 2011). Poole and Van de Ven (1989) identify three resolution strategies: spatial separation, temporal separation, and synthesis. First, individuals can operate a spatial separation that enables them to distribute tensions across different units. This strategy is particularly used with paradoxical tensions within organizations. Second, individuals can operate a temporal separation in such a way that they choose one pole at a defined time and then switch to the other later. Finally, individuals can favor a synthesis where conflicting tensions are accommodated under a unified and common view. Synthesis integrates similarities between dualities to find an equilibrium but tends to favor one element over the other over time (Poole & Van de Ven, 1989; Smith & Lewis, 2011).

Unlike the privacy calculus framework, the theory of paradox highlights that customers can adopt different strategies to cope with paradoxical tensions. In these management strategies, emotions and cognitions play key roles (Smith & Lewis, 2011).

This research attempts to better understand the process underlying the triggering and management of personalization paradoxes. Specifically, it first attempts to explore different

paradoxes of personalization and the way they are triggered. Second, this research investigates the management of these paradoxical tensions by identifying the different strategies that customers adopt to manage paradoxical tensions of personalization, drawing on the theory of paradox, and how companies can mitigate these tensions.

Method

To gain a better understanding of the process underlying the triggering and management of personalization paradoxes, we adopted a qualitative research methodology and conducted in-depth interviews. In-depth interviews particularly aim to uncover rich knowledge of customer perceptions, opinions, and motivations (Rubin & Rubin, 2011; Stokes & Bergin, 2006).

Data collection procedure

We conducted 20 semi-structured in-depth interviews (Miles & Huberman, 1994) with Belgian customers who reported using online channels. These customers were different in terms of age, gender, socio-professional categories, and web expertise. Table 8 presents a detailed description of the informants' profiles.

We recruited customers based on purposive sampling (Robinson, 2014). The purposive criterion involved informants being required to have at least weekly experience with online channels, which was confirmed before the day of the interview. We recruited informants through Facebook and gave them a brief overview of the study before participating in the interview to ensure their qualifications (Riedel et al., 2018).

In-depth interviews were conducted in informants' homes in order to collect data in natural settings (Miles & Huberman, 1994) and were conducted by the same interviewer to ensure consistency (Riedel et al., 2018).

We developed an interview guide based on the literature review (Miles & Huberman, 1994). Although the guide provided some structure, we conducted interviews in a semistructured manner to allow informants to communicate their perceptions about some predefined topics while letting them discuss other topics that were not included in the interview guide (Rubin & Rubin, 2011). Informants were first invited to describe their recent online experience with websites and to describe their favorite website. The aim was to let them speak

freely about their recent online experience and explore what they liked and disliked during this experience.

Table 8: Sample characteristics

Name	Gender	Age	Occupation	Self-evaluation of web usage frequency	Self-evaluation of web expertise
Samuel	man	33	Consultant in internal auditing	2-3 hours every day	Very good
Clémence	woman	30	Consultant in European affairs	Every day	Good
Valentin	man	21	Student	Every hour	Very good
Johnny	man	59	Real estate manager	Every day	Sufficient
Maryse	woman	59	Nurse	Every day	Good
Angela	woman	53	Executive assistant	Every day	Very good on the websites she knows/ complicated on other websites
Hervé	man	64	Retired	2-3 hours every day	Good
Jenny	woman	23	Teacher	Every day	Basics
Cécile	woman	47	Cashier	3 times a week	Bad
Raphaël	man	43	Self-employed worker	Every day	Correct
Amélie	woman	29	Regional officer	Several times a day	Good
Lidia	woman	40	Computer specialist	Every day	Good
François	man	31	Management accountant	Every day	Good
Eric	man	44	Computer specialist	Every day	More than good
Mirella	woman	50	Administrative agent	Every day	Basics
Olivier	man	37	Administrative agent	Every day	Good
Silvio	man	41	Validation coordinator	Every day	Good
Anthony	man	27	Doctor	Every day	Correct
Manon	woman	21	Student	Every day	OK
Maxime	man	23	Student	Every day	Normal, average

Then, elicitation techniques were used during the interviews. Given the affective nature of customer experience, using eliciting elements was important to help informants verbalize their internal perceptions and uncover their feelings (Day, 1989; Hair et al., 2009) about personalization. In our research, websites served as eliciting elements.

After discussing their recent online experience, informants were invited to navigate different websites (selected by the research team prior to the interviews) on their computer and describe their experience while navigating. We decided to select the websites to ensure that informants would browse both personalized and non-personalized websites. Selected websites included two news websites, two travel websites, two media-services providers, and two e-

commerce websites. One site in each category was a personalized website. The aim was to uncover informants' perceptions of websites while surfing and determine if they would talk spontaneously about personalization. After navigating these websites, informants were asked to return to specific websites they had visited, and they were pointed to certain personalized content. They were asked to describe the content and were asked about their perceptions with open-ended questions, such as "Can you describe the content you see?" and "How do you feel about this content?" The aim was to capture their perceptions about personalized content. Following this, informants were asked to define personalization in their own words and to suggest words that they felt related to personalization (Riedel et al., 2018). For a few informants who had not been able to grasp the concept of personalization, we described what a personalized website was before going further in the interview: "A personalized website is a website that automatically provides adapted content for each user." Following this, all informants were invited to describe how they felt about personalized websites and provide examples of personalized content they liked and disliked. Finally, they were asked about how personalization works and about their perceptions of personalization mechanisms. After the interviews, informants were asked sociodemographic questions and were asked to evaluate their web usage and digital expertise.

As suggested by Strauss and Corbin (1990), the interview guide has evolved throughout the data collection phase to ensure that it integrated any new topic that emerged. We conducted interviews until we reached theoretical saturation, and no additional information would emerge from continuing the interviews (Lincoln & Guba, 1985). By the 17th interview, no new information had been identified, and we concluded that we had reached saturation. However, following Riedel et al. (2018), an additional three interviews were conducted to ensure that theoretical saturation had been achieved, which was confirmed to be the case. Interviews lasted from 30 to 90 minutes and were audio-recorded and transcribed, producing 369 pages with 141,746 words.

Data analysis

We used thematic analysis to analyze and interpret the corpus of data. Thematic analysis is a method that identifies, analyses, and reports patterns (themes) within data to obtain a rich and detailed description of data (Boyatzis, 1998; Braun & Clarke, 2006). The analysis was both deductive and inductive (Valos et al., 2017) by adopting a "theory-driven" approach, with

themes and codes identified in prior literature and a “data-driven approach” with other codes emerging from the data (Braun & Clarke, 2006).

Based on Braun and Clarke (2006), we analyzed data following six phases. First, we became familiar with the data by transcribing the interviews and reading the different transcripts closely. This enabled us to obtain a holistic understanding of the informants’ experience (Bowen, 2009). Second, we coded the interview transcripts using NVivo 11 software to generate initial codes. Open coding was used to identify core categories and codes in individual transcripts to group data. Third, we searched for themes by sorting the different codes and collating them with potential themes. Axial coding was used to explore relationships between concepts and themes (Bowen, 2009; Strauss & Corbin, 1990). Fourth, we reviewed the themes at the level of the coded data extracts and the entire data set. Fifth, we named and defined the themes. Finally, we produced a report that presented and interpreted the findings. In this last phase, we related findings to relevant theories and literature to enhance the interpretation of the findings (Braun & Clarke, 2006).

As suggested by Lincoln and Guba (1985), we have considered four trustworthiness criteria as part of the research design during data collection and analysis: credibility, transferability, dependability, and confirmability. Credibility is enhanced in two ways to guarantee the internal validity of the results (Lincoln & Guba, 1985). First, the data analysis was supported by literature searches and discussions with other researchers to challenge ideas. Second, we engaged in peer debriefings about the findings during data analysis (Riedel et al., 2018). In terms of transferability, the detailed presentation of the sample and thick descriptions of the data enabled us to contextualize the findings, enabling readers to interpret the interview data by themselves and enhancing the transferability of the findings (Decrop & Derbaix, 2010). Then, four researchers from different fields examined both the process and product of the study as external auditors and affirmed the confirmability and the dependability of the results (Decrop & Derbaix, 2010; Riedel et al., 2018). To enhance confirmability, we also employed a reflexive approach and critically considered all the decisions made during the analysis process (Riedel et al., 2018).

Findings

The findings section presents the process underlying the triggering and management of personalization paradoxes and is organized around two subsections. The first subsection presents the different paradoxes of personalization that have been identified and the way they

are triggered. The second subsection presents the management of paradoxical tensions of personalization by highlighting the strategies that customers adopt to manage paradoxical tensions and by presenting the levers that companies can use to mitigate these tensions.

Paradoxes of personalization

This study identifies three paradoxes of personalization: the personalization-influence paradox, the personalization-stereotype paradox, and the personalization-privacy paradox. In the next sections, we detail these paradoxes and the way they are triggered.

Personalization-influence paradox

This study identifies a previously unknown paradox of personalization: the personalization-influence paradox. This paradox reflects how customers are torn between the guidance of personalization and the feeling of being influenced. Informants spoke of these paradoxical tensions when recounting their experience on a personalized website or when talking about their interaction with personalized advertising.

From a cognitive point of view, most informants considered personalization to be a quick and easy way to gain access to the information (“guide”, “helps you limit”). Instead of wasting time browsing many pages, they can find the information they need quickly. From an affective point of view, however, personalization may at the same time lead them to feel influenced (“unconsciously”, “subliminal”, “push”, “touch a nerve”), as if the website forces them to view certain content or purchase products in spite of themselves. In the words of François:

With personalization, they guide you in your choices. It becomes a little bit subliminal. They try to guide you to something that unconsciously will work on you. They try to touch a nerve so they can eventually push you to buy. But, at the same time, it is nice because it helps you limit your searches and avoid spending 50 hours to search something you are looking for. It saves you time, it guides you to things you like and so you know that you will click on it, but at the same time, you can't do what you want anymore. They place you in a kind of funnel, and they tell you where you need to go.

These findings echo the concept of domination, which represents the extent to which customers feel restricted in their ability to act when exposed to content (Mehrabian & Russell, 1974). When experiencing domination, customers may feel influenced in their actions (Mehrabian & Russell, 1974; Russell & Mehrabian, 1977) and feel suspicious and distrustful

(Holbrook & Batra, 1987). By being automated, personalization does not require customers' explicit control to generate adapted content (Ho & Bodoff, 2014). Although personalization enables customers to be guided in their search for information, it also leads them to feel controlled and influenced in their decisions and actions.

Personalization-stereotype paradox

This study also introduces another paradox of personalization: the personalization-stereotype paradox. This paradox reflects how customers are torn between the arousal enabled by personalization and the feeling of being stereotyped. Informants spoke of these tensions when they recalled past experience with web personalization and personalized advertising.

Personalization is based on the creation of customer profiles in order to adapt content (Liang et al., 2006). Such categorization may help customers discover products that may be of interest to them (“interesting”, “might not have thought of”), which echoes the concept of arousal. Arousal represents the extent to which customers feel aroused, interested and playful (Holbrook & Batra, 1987; Mehrabian & Russell, 1974). Nevertheless, this categorization may also lead customers to feel stereotyped. A stereotype is defined as a “shorthand, blanket judgment containing evaluative components” (Aaker et al., 2010, p. 225). Such stereotyping is perceived as a form of domination, as customers feel restricted to the evaluation that the company made about them and even locked into this shorthand evaluation (“put a label on me”). Although personalization may lead customers to feel aroused because content interests them, they may feel that they are limited to continually seeing the same type of content (“the same thing all the time”) because of the shorthand evaluation that the company made about them, as Lidia and Jenny described:

Lidia: Depending on your readings, Amazon suggests to you other books. As there are many, it's hard to know which one you should look at. So, they suggest some, and you can see books you might not have thought of if you hadn't been recommended them. It can be interesting, but it may be nice if they recommend to you things outside what you usually look at so you can branch out. For books, for example, if I read a lot of thrillers, they could also suggest to me other things, because someday I might want to read other books than thrillers and not the same thing all the time.

Jenny: I had once ordered a bottle of perfume. Before that, they never recommended perfume to me, but since I ordered that perfume, well, now they keep recommending perfumes, like, they put a perfume label on me.

Personalization-privacy paradox

The personalization-privacy paradox has already been identified in the literature (e.g., Aguirre et al., 2015; Karwatzki et al., 2017). However, the analysis highlights how this paradox is triggered. The personalization-privacy paradox appears to be triggered for most informants when they sequentially interact with web personalization and personalized advertising.

When they see personalized ads showing the exact same product they searched on a company's website, they feel tracked and even harassed by companies. This tracking is perceived as a form of domination, as customers feel that they have lost some freedom ("leave me alone"), which leads them to feel afraid ("disturbing", "creepy") and angry ("bother me", "annoying"). As Angela and Manon described:

Angela: Actually, what is annoying on these kinds of websites is the harassment they give you if you go on another website afterwards. For example, I'm going to buy a wardrobe, well, a page of Booking.com will pop up saying, 'There are rooms for this price if you look' See, that's it. That's what bother me the most. When I'm on the website because I need something, I don't mind that I get a lot of suggestions, but when I leave the website, they have to leave me alone.

Manon: When personalization is on the website, it's good because if you lost the page, you can come back to that later. But once, when I went on a news website, I think, there was an advertising for Athens from Booking. We see that it really goes from one website to another, that it retains well the things we search. It's a little creepy to find exactly what I searched.

Whereas prior research has generally investigated the personalization-privacy paradox either in an advertising context (e.g., Aguirre et al., 2015) or in a website environment (e.g., Karwatzki et al., 2017), these findings show that it is important to have a holistic view of customer experience through the customer journey to understand the personalization-privacy paradox. Some informants spoke spontaneously about the fact that the exposure to personalized advertising backfired on their online experience with a company by recalling their interactions with a company on different websites. They considered personalized ads and web personalization to be parts of the same experience. They felt that this was tracking and harassment because they interacted with companies' content on different platforms.

When customers interact with personalized ads, data collection becomes salient, and they start worrying about how their data are collected and used to track them, especially when companies collect their data implicitly. In the words of Amélie:

They advertise the paper version of the newspaper linked to my region. I guess it's because they detect that I'm connecting from a place in this region, which is logical. But then you wonder 'where did they get all this information?' You feel a little bit violated in your privacy in the sense that your information is being milked without you really knowing it. For Booking, I wonder less because I did the search, you know? It was something that really interested me, and I know that I asked this website to do that search. The fact that the website retains this information doesn't shock me as much as the fact that the news website knows where I live. I didn't say that I live in this region.

The type of data being collected to personalize content also matters and seems to accentuate the personalization-privacy paradox. Some informants distinguished the data they deliberately gave to websites from the data inferred by websites. In the example above, the website apparently inferred her location based on her IP address and adapted the ad content accordingly. Customers appeared to be more concerned about this implicit data collection. This type of data collection raised concerns among informants because they did not actually know how it worked. This lack of awareness leads them to "feel violated in their privacy", which is a strong, negative feeling. This feeling even leads them to speculate about the way their data are being collected and used. Some informants worried that companies share their data with other companies.

This finding corroborates past research showing that customers are aware that companies collect and use their data but only in a general sense. Most customers do not realize that companies collect data implicitly (Morey et al., 2015). Unlike deliberate, explicit data collection, implicit data collection raises questions about how data are collected and used by companies, which increases privacy concerns (Kim et al., 2018).

Summary of the paradoxes of personalization

We have identified three paradoxes of personalization through the analysis and have highlighted the process in which they are triggered. By being automated, personalization gives customers less control. This loss of control induced by personalization may be experienced positively (guidance and arousal) but may also be experienced negatively (domination). Domination refers to the extent to which customers feel restricted in their ability to act when exposed to content (Holbrook & Batra, 1987; Mehrabian & Russell, 1974; Russell & Mehrabian, 1977). In the context of personalization, customers experience domination in three ways: influence, stereotyping, and a loss of freedom, leading to three paradoxes: the

personalization-influence paradox, the personalization-stereotype paradox, and the personalization-privacy paradox. Whereas the first two paradoxes are triggered through interactions with personalized content, regardless of whether it is web personalization or personalized advertising, the personalization-privacy paradox appears to be triggered when customers sequentially interact with companies on other platforms through personalized advertising. The way data are collected to personalize content also matters. Implicit data collection seems to accentuate the personalization-privacy paradox.

As such, this research consolidates past findings about the personalization-privacy-paradox (Karwatzki et al., 2017) but extends prior research by identifying two previously unknown paradoxes of personalization and providing a better understanding of the process underlying the triggering of paradoxes of personalization.

However, how do customers manage these paradoxical tensions? In the next section, we explain the different strategies that customers adopt to cope with the paradoxical tensions of personalization.

Management of paradoxical tensions

This study also provides a better understanding of the management of paradoxical tensions of personalization. In this section, we present the strategies that customers adopt to manage these tensions and the levers that companies can use to mitigate these tensions.

Customer strategies

In light of the theory of paradox (Schad et al., 2016; Smith & Lewis, 2011), this study identifies two strategies that customers adopt to manage paradoxical tensions of personalization: resolution and acceptance strategies.

Resolution strategy. Some informants appear to operate a resolution strategy when facing paradoxical tensions of personalization. Resolution strategy doesn't imply eliminate tensions but rather involves confronting paradoxical tensions to find responses to these tensions. This can be achieved either by splitting and choosing between poles (separation) or finding ways to accommodate paradoxical tensions (synthesis). Such a strategy enables one to regain a short-term equilibrium (Poole & Van de Ven, 1989; Smith & Lewis, 2011). In the case of paradoxical tensions of personalization, informants appear to accommodate dualities about personalization through synthesis, as Cécile and Samuel described:

Cécile: There are two ways of looking at it. In a way, you can tell yourself that it's good they adapt to me, that they show me what I'm interested in, and in a way, you think you're a bit traced; they scan you. It's 50/50.

Samuel: There are always positive and negative sides. On the positive side, it makes access to information easier. On the negative side, it locks me in, it might put me in a box. But my willingness to have easy access to information is much higher than the fact I sometimes mind being categorized.

Acceptance strategy. Although some informants adopt a synthesis strategy, others favor an acceptance strategy to manage paradoxical tensions of personalization. An acceptance strategy involves living with paradoxical tensions (Lewis, 2000). It implies that individuals shift their expectations and accept that paradoxes are persistent over time and unsolvable (Smith & Lewis, 2011). An acceptance strategy is seen in organizations as a way to embrace dualities with a “working through” strategy (Smith & Lewis, 2011). Such a strategy implies opening tensions to discussion to encourage more creative considerations (Beech et al., 2004). Nevertheless, in the case of personalization paradoxes, the acceptance strategy appears to be a strategy that customers adopt because they feel they do not have an alternative (“I feel that I don’t have a choice anymore”). They must live with the paradoxical tensions that personalization triggers because they need to access the website, as François described:

Some personalized websites can guide you so you can go faster to things you are going to be interested on. But for some websites, I don’t see the point and I find it sad that they have all our data on the internet, and we don’t know what to do with it...I feel that I don’t have a choice anymore. You must communicate your address, your marital status, your phone number, and e-mail address when you order on a website. However, you never know what they do with your data. Will they keep all your data? Will they retain your data and share them with others? You don’t know...it is so opaque. But today, it’s not possible not to go on the internet, even for my job.

These two types of strategies enable customers to manage the paradoxical tensions of personalization in the short term. However, in the long term, if tensions remain or reappear, customers may favor one element over time and may lose the equilibrium they have gained (Poole & Van de Ven, 1989; Smith & Lewis, 2011). Valentin explained that, for example, he had installed an adblocker when the negative aspects of personalization finally outweighed the positive aspects. Such behavior is considered as a manifestation of reactance (Brinson et al., 2018). Psychological reactance is a negative reaction that occurs when customers perceive an

imposition on their freedom and autonomy (Brehm, 1966, 1989; Brinson et al., 2018). In such a situation, customers tend to regain their freedom and autonomy by rejecting companies' actions, such as personalized ads (Brinson et al., 2018).

Although prior research suggests that customers operate a calculus when facing paradoxical tensions of personalization and therefore resolve these tensions by weighing the benefits and costs of personalization, following the privacy calculus theory (Dinev & Hart, 2006; Dinev et al., 2008), the findings here suggest that customers instead manage these paradoxical tensions with different strategies. In light of the theory of paradox, this research highlights that customers adopt either resolution or acceptance strategies to cope with these paradoxical tensions. The strategy adopted does not seem to be related to the type of paradox of personalization but rather to the customers who adopt one strategy over the other.

From a customer's perspective, paradoxical tensions of personalization can be managed either through a resolution strategy (synthesis) or through an acceptance strategy. From a company's perspective, levers can be used to mitigate these tensions.

Companies levers

The study also identifies levers that companies can mobilize to help customers manage paradoxical tensions of personalization: valuable personalized content, trust, affinity, and signaling cues.

Valuable personalized content appears to be a lever that companies can use to help customers manage paradoxical tensions. However, what constitutes valuable personalized content? Customers appear to value personalized content when it is relevant and/or is unexpected.

Relevance refers to the extent to which personalized content matches customers' preferences (Tam & Ho, 2006). Prior research (Li & Unger, 2012) identified relevance as an important factor in the perceived quality of personalized content. Our analysis shows that relevant personalized content helps customers gain quick access to the content they are looking for by saving them time and effort during their navigation. Conversely, irrelevant personalized content can lead customers to feel influenced. Therefore, this dimension of personalized content appears to play a role in the management of the personalization-influence paradox.

The relevance dimension is important because informants often noted that personalized content is not always accurate in terms of reflecting their preferences. For instance, Valentin explained that just because he might have clicked on content one time, it does not mean that he liked that content:

I would find it more interesting if the websites I visit regularly do an analysis and suggest to me more personalized content based on what I like. For example, when I go to a website, if I've ever clicked once on a link about reality TV, I would like that it stops suggesting to me other news about reality TV. I haven't clicked on such content for years, but I've been getting this information again for years. I'd find it interesting if such information disappears. I'd find personalization more interesting if we go faster to the very heart of what we're interested in. It might save time that is wasted scrolling in vain. I think that it should be the purpose of a well-designed website. We go to websites to see things we are interested in, and in the end, if it is interesting, it encourages you to come back to the website to keep having things that interest us.

In addition, informants often complained that some personalized content presents products that they have already bought and no longer corresponds to what they are looking for. In the excerpt below, Olivier explains that such irrelevant personalized content can lead to feeling influenced ("push to buy"):

I think Amazon is both good and not good because sometimes the offers they send are a little bit ridiculous because when I buy a book, they will still suggest the same book that I already bought. They know I bought it. For me, it's to push you to buy.

Prior research has already identified relevance as an important dimension of personalized content (e.g., Li & Unger, 2012; Tam & Ho, 2006), which is more cognitive. However, the data analysis identifies another dimension of valuable personalized content: the unexpected dimension.

For customers, valuable personalized content should also ideally provide recommendations outside their usual interests. The unexpected dimension reflects the extent to which personalized content arouses interest and enables them to discover additional content on the website. While unexpected personalized content favors discovery, expected personalized content that always presents the same type of products hinders discovery and can lead customers to feel stereotyped, as described by Samuel below. Therefore, this dimension of personalized content appears to play a role in the management of the personalization-stereotype paradox.

I'm only suggested things that are in line with what I have watched. I'm not offered the opportunity to discover something extraordinary. If I take the example of electro music, I listen to it all the time and they only suggest to me electro music. I would like them to recommend something else to me. I'd still listen to electro music, but I want to know that openness and diversity are accessible to me. It should be less obvious to feel locked up into categories. What bothers me the most is that I feel that I've listened to techno music three times, and now I'm forced to listen to techno music only.

Expected personalized content even leads customers to worry that they will miss some information if personalized content only presents products related to their prior searches. In the words of Eric:

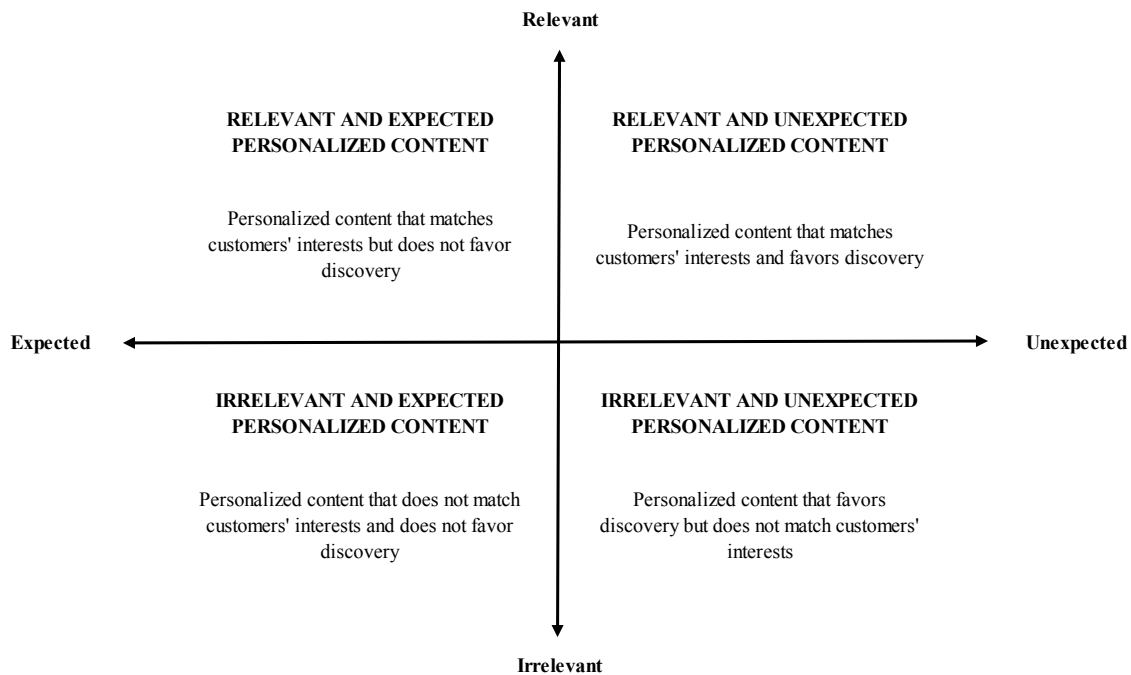
Personalization can be interesting if you always want to look for the same thing, but don't you risk missing things sometimes?

Therefore, to be perceived as valuable by customers, personalized content needs to be relevant by matching customer preferences but should, ideally, also be unexpected. This finding echoes the concept of moderate incongruence (Fleck & Quester, 2007). Whereas congruence stems from a match between two entities, moderate incongruence is at a middle position between congruence and incongruence and combines both relevant and unexpected aspects (Fleck & Maille, 2010; Fleck & Quester, 2007).

The emergence of this additional dimension of personalized content enables us to capture the dimensions of valuable personalized content better and to propose a typology of personalized content (Fig. 6) with four categories according to two dimensions: the extent to which personalized content favors discovery by presenting products outside customers' usual interests (unexpected) and the extent to which that content matches customers' preferences (relevant).

While past research (Li & Unger, 2012) shows that quality personalized content can mitigate the personalization-privacy paradox, our research here highlights that providing relevant and/or unexpected personalized content can mitigate the personalization-influence paradox and the personalization-stereotype paradox by increasing the value of the personalized content. While the relevance dimension appears to play a role in the management of the personalization-influence paradox, the unexpected dimension appears to play a role in the management of the personalization-stereotype paradox.

Figure 6: Typology of personalized content



Besides these content levers, companies can also use different contextual levers (trust, affinity, and signaling cues) to help customers manage paradoxical tensions of personalization.

Trust and affinity. Trust is an important affective factor in overcoming uncertainty related to data collection (Aguirre et al., 2015; Bart et al., 2005; Bleier & Eisenbeiss, 2015b). Trust is defined as the “willingness to rely on an exchange partner in whom one has confidence” (Moorman et al., 1993, p. 82). For instance, Milne et al. (2008) found that customers are more permissive toward data collection and use with trustworthy and well-known companies. Through this data analysis, some informants explained that trustworthy websites and their favorite websites appear more respectful in the collection and use of their data. Therefore, they feel less concerned when they see personalized ads, as Hervé explained:

From my favorite website, it doesn't bother me so much because I decided to mark this website as my favorite one and because there is a reason, a hobby, a sympathy, an affinity. When I don't have a strong affinity, which is a deliberate choice to do so, I feel tracked.

Signaling cues. Some informants also explained that signaling cues can balance negative perceptions about personalization. Based on the signaling theory, effective signaling cues reduce information asymmetry between two parties (Spence, 1973, 2002) and empower customers by balancing the relationship between companies and customers (Connelly et al.,

2011). Using a signal, the signaler—a company—transfers information to the party who has less access to information—customers (Spence, 2002). In the context of the paradoxes of personalization, some informants identified two kinds of signaling cues, textual and visual, as Samuel suggested:

I think that transparency would help me a lot because there are a lot of rumors in all directions. If we had transparency on the way it is done, the methodology, and if we were aware of everything that was going on, if they say that they created a category based on our profiles and that we say, ‘Okay, I accept that I am locked in a box’ and that I’m suggested things related to my profile. But there should be another part that I know is the same for everyone. In fact, we would need both something completely personalized and something not personalized at all, and we would have to be able to distinguish between the two. If we take a website like Facebook, we know very well that a banner is linked to our profile, and we know that another banner is visible for everyone. If we could distinguish the two parts, like that, we could see what comes from our profile. Maybe there should be a little flag to indicate what ad is personalized and what ad is the same for everyone. I would accept it more easily.

Visual cues may help customers identify what content is personalized and what content is not and may reduce the feeling of being stereotyped, while textual signaling cues, such as information transparency, may help customers understand how personalization works and reduce speculation (“rumors”) about the way their data are collected and used. Information transparency refers to signaling cues giving customers information about data collection and use (Aguirre et al., 2015; Awad & Krishnan, 2006). By implementing information transparency, companies may reduce information asymmetry with customers (Connelly et al., 2011) and decrease some negative responses to personalization.

Summary of the management of paradoxical tensions of personalization

Through the data analysis, we identified strategies that customers adopt to manage paradoxical tensions of personalization and levers that companies can use to mitigate these tensions.

In light of the theory of paradox (Poole & Van de Ven, 1989; Smith & Lewis, 2011), this research identified resolution (synthesis) and acceptance strategies that customers adopt when they face paradoxical tensions of personalization. As such, this research consolidates past findings about the adoption of a resolution strategy (Chellappa & Sin, 2005) but extends prior research by identifying another strategy that other customers adopt: the acceptance strategy.

Through this research, we also identified content and contextual levers that companies can use to mitigate the different paradoxical tensions of personalization: valuable personalized content, trust and affinity toward websites and signaling cues. As such, the current research first consolidates past findings about personalized content (Li & Unger, 2012; Strycharz et al., 2019; Tam & Ho, 2006) but also extends it by identifying an additional dimension of personalized content (unexpected dimension) and by providing a typology of personalized content. It also consolidates past findings about the role of trust and signaling cues (Aguirre et al., 2015) but extends past findings by identifying affinity and visual signaling cues.

General discussion and conclusion

In this analysis, we investigated the process underlying the triggering and management of paradoxical tensions of personalization. This paper contributes to research on the paradoxes of personalization in two ways.

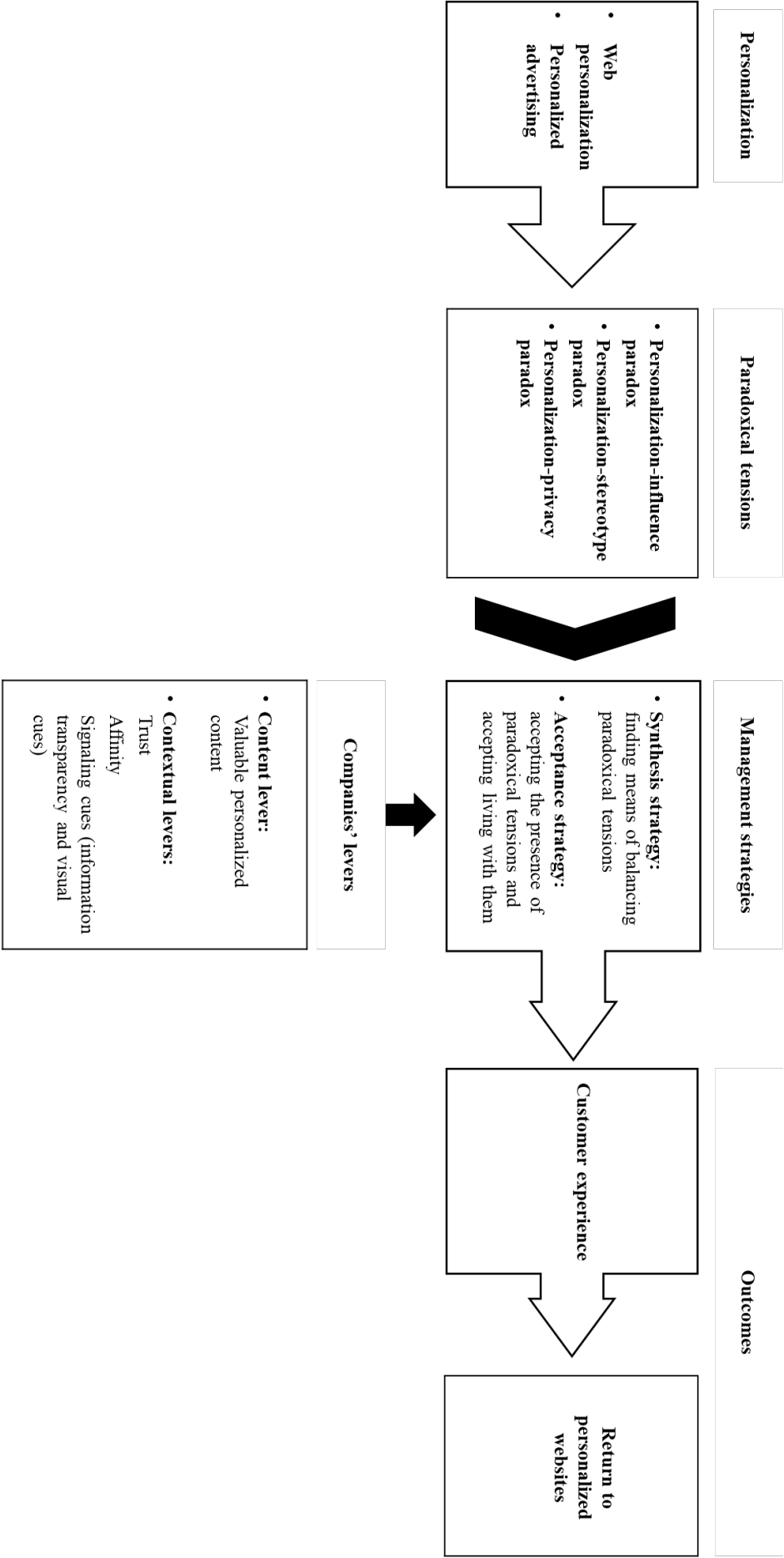
First, this study contributes to prior research by providing a better understanding of the process underlying the triggering of paradoxes of personalization and by identifying two previously unknown paradoxes of personalization. By being automated, personalization gives customers less control over their actions, which can be experienced both positively and negatively. Although this personalization may bring guidance to customers and arouse their interest, it may also backfire and lead customers to feel less in control (dominated). This last finding highlights that negative responses to personalization are mainly affective. Personalization is expected to be a relational process (Peppers & Rogers, 1997) that supports customer experience management in a personal way (Lemon & Verhoef, 2016). However, by being automated, personalization also appears to dehumanize the relationship with customers by categorizing them as predictable beings and leading customers to feel dominated. Such domination is experienced as influence, stereotyping, and a loss of freedom, which leads to three paradoxes of personalization: the personalization-influence paradox, the personalization-stereotype paradox, and the personalization-privacy paradox. Through this research, perceived loss of control (domination) has been identified as a key variable for understanding the backfire effects of personalization.

While the first two paradoxes appear to be triggered when customers interact with personalized content, regardless of whether it is web personalization or personalized advertising, the personalization-privacy paradox appears to be triggered when customers interact sequentially with web personalization and personalized advertising. Whereas prior

research has generally investigated the personalization-privacy paradox either in an advertising context (e.g., Aguirre et al., 2015) or in a website environment (e.g., Karwatzki et al., 2017), this research shows the importance of adopting a holistic view of customer experience to gain a deeper understanding of the personalization-privacy paradox.

Second, this research contributes to prior research on the management of paradoxical tensions of personalization. Unlike prior research suggesting that customers operate a calculus to resolve paradoxical tensions of personalization (Awad & Krishnan, 2006; Li & Unger, 2012), this research shows that customers instead adopt different strategies to manage these tensions. In light of the theory of paradox (Smith & Lewis, 2011), it highlights that customers adopt either resolution (synthesis) or acceptance strategies to cope with the dualities that personalization triggers. While some customers accommodate conflicting perceptions to find a short-term equilibrium with a synthesis strategy, other customers adopt an acceptance strategy and admit that they must live through these tensions because they need to access online platforms. This last finding shows that customers do not always resolve paradoxical tensions of personalization. To mitigate paradoxical tensions, companies can use content and contextual levers: valuable personalized content, trust and affinity toward websites and signaling cues. The use of these levers can help mitigate the backfire effects of personalization on customer experience and encourage customers to return to personalized websites. Figure 7 presents a conceptual model summarizing all of the findings.

Figure 7: Process underlying the triggering and management of paradoxical tensions of personalization



Managerial contributions

Although advances in personalization technologies enable companies to track customer data more closely to adapt their websites accordingly (Ho & Bodoff, 2014), this research highlights that personalization triggers paradoxical tensions for customers. There are ways that companies can mitigate these paradoxical tensions to improve customer experience and encourage customers to return to personalized websites. From this perspective, our managerial contributions are twofold.

First, companies can use valuable personalized content to balance negative responses to personalization. This research provides a typology of personalized content. To be perceived as valuable, personalized content should include relevant and unexpected dimensions. Such content might help reduce the feeling of being stereotyped and the feeling of being influenced. On the one hand, the relevance dimension might reduce the complexity of navigating the site and make it easier for customers to find what they are seeking quickly. On the other hand, playing on the unexpected dimension with recommendations for additional content might arouse interest and discovery and help keep website visitors intrigued.

Second, companies can use contextual levers, such as signaling cues, to reduce information asymmetries with customers (Connelly et al., 2011) and mitigate privacy concerns and the feeling of being stereotyped. In the context of growing privacy concerns, governments enact policies to protect customer data. For instance, the European General Data Protection Regulation (GDPR) was enacted in May 2018 to delineate the boundaries of data protection for European customers. Since the GDPR applies to all companies dealing with European customers' personal data, companies worldwide need to adapt their data-related practices and engage in information transparency (Kumar, 2018). In the context of personalization, companies can use two types of signaling cues: visual and textual cues. These signals can be used to meet different objectives. Textual cues, such as information transparency, inform customers about how companies collect and use their data for personalization purposes and may help customers manage privacy concerns. Such a lever is already being used by companies to mitigate privacy concerns (Aguirre et al., 2015; Kim et al., 2018). However, some companies do not specify which content is personalized. As a result, customers may not clearly identify which content is personalized and which is not (Li, 2016; Rimer & Kreuter, 2006). Visual cues, such as flags, may help customers identify what content is personalized and what content is generic and may help reduce the feeling of being stereotyped.

Avenues for future research

This research enables us to gain a better understanding of the process underlying the triggering and management of paradoxes of personalization. Nevertheless, this research is not exempt from limitations that represent avenues for future research.

First, this research highlighted the potential backfire effect of personalized advertising on customer experience. Further research is needed to investigate the connections between personalized advertising and web personalization content further. Especially, this study's findings highlight that the personalization-privacy paradox is triggered when customers sequentially interact with web personalization and personalized ads presenting the same content. However, this research did not investigate the effect of timing in this process. The timing and stage of exposure to personalized content are important in the personalization of content (Aguirre et al., 2016; Ho et al., 2011). This sequential interaction with the company might affect customer experience differently, depending on the timing between the interaction with web personalization and personalized ads but also between personalized ads and future interactions with the company throughout the customer journey. Personalized advertising presenting the same content will likely perform poorly in the early stages of the customer journey (Aguirre et al., 2016). One should try to understand how these two factors may affect customer experience.

Second, as customers are increasingly concerned about their privacy (Krafft et al., 2017; Martin & Murphy, 2017), future research should also further investigate how information transparency – signaling cues giving customers information about data collection and use (Awad & Krishnan, 2006) – can help mitigate privacy concerns by reducing information asymmetry between customers and companies. This research highlights information transparency as a lever that companies can use to mitigate the personalization-privacy paradox. However, based on signaling theory (Spence, 1973, 2002), signaling cues, such as information transparency, need to be efficient to reduce information asymmetry. Such efficiency relies on the characteristics of the signaling cues, company, and customers (Connelly et al., 2011). Future research could, therefore, investigate how different characteristics of information transparency messages, such as its position, content, and form, can influence its efficiency. In addition, characteristics of the company, such as its perceived honesty and reliability, can influence the efficiency of signaling cues (Connelly et al., 2011). Therefore, future research should investigate how companies can influence the efficiency of information transparency to help

reduce privacy concerns. In addition, prior research has shown that customers can react differently depending on the type of data collected to personalize content (Kim et al., 2018). Therefore, one might build on Kim et al. (2018) to further investigate why customers react differently to explicit and implicit data collection and to examine under what conditions customers consider implicit data collection to be an acceptable strategy.

Third, this research highlights different strategies that customers adopt to manage paradoxical tensions of personalization. The strategy adopted does not seem to be related to the type of paradoxical tensions but rather to the customers who adopt one strategy rather than another. Nevertheless, this research did not identify the individual characteristics that influence the adoption of a strategy. Future research should investigate the individual factors that may influence the adoption of a management strategy.

Finally, future research should also try to generalize some of the qualitative findings above. For instance, one should try to understand the importance given to each of the levers that can be used by companies, namely, content and contextual levers, to help manage paradoxical tensions of personalization. Furthermore, one could investigate and develop a scale that reflects the two dimensions of personalized content that emerged in this study.

Chapter 3: Backfire effects of personalization: why information transparency and need for cognition matter

Laetitia Lambillotte, Yakov Bart, and Ingrid Poncin

Introduction

Companies increasingly personalize their website content to deliver an optimal customer experience (Bodoff & Ho, 2016). 89% of marketers consider improving customer experience to be the biggest driver in personalization (Evergage, 2020), and 40% of companies report that personalization has positively directly impacted their direct-to-customer channels, such as e-commerce (Forbes, 2019).

However, personalization has also been found to have downsides, such as privacy concerns (Cloarec, 2020). According to the RSA data privacy and security report (2019), 59% of customers recognize enjoying the benefits of personalization but also worry about how their data are collected and used for personalization purposes and find such practices intrusive and unethical.

In this context of growing privacy concerns, companies expect that signaling how customer data are collected and used will help them to reduce these negative reactions to personalization (Kim et al., 2018). For instance, eBay's website informs customers about its use of cookies in a box displayed on the homepage (www.ebay.com).

Prior research found that information transparency may improve click-through rates of personalized ads (Aguirre et al., 2015) but may also decrease behavioral intentions with personalized ads and generate privacy concerns depending on the type of data being collected (Kim et al., 2018).

Although prior studies enabled a better understanding of the effect of information transparency on the effectiveness of personalization, they mainly investigated this process in an advertising context. Further research is needed to understand the downsides of personalization. Especially, the understanding of the relationship between personalization and privacy outside the domain of advertising and the role of information transparency in this process have been identified as requiring further investigation (Kim et al., 2018).

In addition, these studies did not investigate the role of individual characteristics in this process. Based on signaling theory, the effectiveness of a signal, such as information transparency, mainly relies on a customer's individual characteristics (Connelly et al., 2011; Perkins & Hendry, 2005; Srivastava, 2001).

To address these gaps, this research intends to investigate the backfire effects of personalization and the role of information transparency and customers' individual characteristics in this process. With two experiments, the present research specifically intends to further investigate the downsides of personalization using the measures of perceived control and privacy controls that have been identified as key variables in the understanding of the downsides of technologies (Hoyer et al., 2020). In addition, it intends to examine the interaction effect of personalization and information transparency on perceived control depending on customer need for cognition. This individual characteristic has been recognized as one of the most important personality traits in the evaluation of a message (Cacioppo & Petty, 1982; Sicilia & Ruiz, 2010) and the processing of personalized content (Tam & Ho, 2005).

The contributions of this research are twofold. First, by responding to the call of Hoyer et al. (2020), we further investigate the downsides of personalization. Perceived control and privacy concerns have been identified as two key measures to assess the downsides of technologies (Hoyer et al., 2020). However, it has not been established if they were part of the same process. In line with prior research, we show that personalization generates privacy concerns for customers (Chellappa & Sin, 2005; Sutanto et al., 2013) and show that this is an indirect effect and that perception of control mediates the relationship between personalization and privacy concerns. By being automated, personalization gives companies more control over the content customers will see and their navigation (Lavie & Meyer, 2010; Montgomery & Smith, 2009) and may lead customers to perceive that they are less in control of personalized websites, which may raise privacy concerns.

Second, by responding to the call of Kim et al. (2018) to further investigate the effect of information transparency, this research highlights that information transparency may mitigate the downsides of personalization depending on customer need for cognition. For customers with a low or intermediate level of need for cognition, when there is not a transparency message, the effect of personalization on perceived control is significant and negative. When there is a message, personalization does not affect perceived control. For these customers, the mere presence of a message, regardless of whether it discloses implicit or explicit data collection,

appears to create a heuristic of signal strength. For customers high in need for cognition, we do not observe this effect.

These findings show the importance for practitioners to consider the downsides of personalization and the presence of transparency messages. Even if most customers often do not read transparency messages (Milne & Culnan, 2004) and are therefore in a situation of low need for cognition, the presence of such messages matters as they can mitigate the downsides of personalization.

In the next sections, we present the theoretical background and the methodology of the two studies. Then, we report and discuss the results. Finally, we outline the theoretical and managerial implications of this research and future research opportunities.

Theoretical background

Personalization

Personalization refers to a customer-oriented technological process that enables companies to automatically adapt their website content to every customer based on their data (Arora et al., 2008; Vesanen & Raulas, 2006).

A key element underlying personalization is automation (Ho & Bodoff, 2014). Unlike customization, which enables customers to tailor content themselves based on their needs, personalization is initiated by the system that automatically adapts content based on customer data (Arora et al., 2008; Montgomery & Smith, 2009). Therefore, it does not require the explicit control of the customer (Ho & Bodoff, 2014).

The personalization process consists of three steps: learning, matching, and evaluating (Murthi & Sarkar, 2003). In the learning stage, companies collect data to achieve a better understanding of their customers and infer their preferences (Murthi & Sarkar, 2003). Such data may be collected explicitly or implicitly. Explicit data collection implies that customers deliberately provide information to companies by completing a form, for instance. Implicit data collection involves the tracking of customers' behavior online. Companies use these data to infer customers' preferences and build customer profiles (Fay et al., 2009; Liang et al., 2006). For instance, companies can infer customer interests based on the contents they previously consulted. In the matching phase, companies personalize their content to match customers' inferred preferences with prediction models and/or clustering methods (Murthi & Sarkar, 2003).

In the evaluation phase, companies evaluate the effectiveness of the personalization process (Murthi & Sarkar, 2003).

Prior research has examined the benefits of personalization. For instance, personalization may reduce information overload (Ansari & Mela, 2003), render websites more useful for customers (Tam & Ho, 2006), and increase customer satisfaction (Rust & Chung, 2006) and loyalty (Ansari & Mela, 2003).

However, although technological processes can improve customer experience, it is important to consider the potential downsides they may generate (Hoyer et al., 2020). In their research, Hoyer et al. (2020) identify perceived loss of control and privacy concerns as important variables to acknowledge negative reactions to technologies. Therefore, this research will use these two key variables to assess the downsides of the personalization process.

Perceived control

Control has often been defined as “the perceived ability to significantly alter events” (Burger, 1989, p. 246). From this perspective, individuals do not necessarily have control over their environment but have the perception that they control it (Burger, 1989).

Perceived control responds to an individuals’ need to feel competent and masterful over their environment (Burger, 1989; Hui & Bateson, 1991; White, 1959). Averill (1973) identified three types of perceived control: cognitive control, behavioral control, and decisional control. Cognitive control represents the cognitive reinterpretation of an event. Behavioral control reflects an individual’s perceived ease of performing a behavior (Ajzen, 2002). Finally, decisional control represents the selection of outcomes among different possible actions (Averill, 1973).

In environmental psychology, Mehrabian and Russell (1974) consider perceived control or dominance to be an affective customer response to the environment, along with pleasure and arousal. It represents the extent to which customers feel in control of their environment (Lunardo, 2011; Lunardo & Mbengue, 2009; Mehrabian & Russell, 1974; Russell & Mehrabian, 1976). Customers feel in control when they feel that they can exert some influence over their environment, whereas they feel a loss of control when they feel influenced by their environment (Lunardo, 2011; Russell & Mehrabian, 1976).

Perceived control is widely considered to be a driving force influencing customer behavior (Hui & Bateson, 1991; Lunardo, 2011; Lunardo & Mbengue, 2009). It has been found to have a positive influence on task performance (Burger, 1987), well-being (Langer & Rodin, 1976), self-report of stress and anxiety (Averill, 1973; Staub et al., 1971), pleasure (Hui & Bateson, 1991), and satisfaction (Wathieu et al., 2002). Increased perceived control also helps customers cope with stress (Lazarus & Folkman, 1984; Paterson & Neufeld, 1995). Conversely, when customers perceive that they have lost some control, they feel influenced in their actions (Mehrabian & Russell, 1974; Russell & Mehrabian, 1977), distrustful and suspicious (Holbrook & Batra, 1987), and also stressed (Lunardo & Mbengue, 2009).

Perceived control has been identified as a key variable in assessing customer experience with technologies and evaluating their downsides (Hoyer et al., 2020). Technologies can carry out processes and operations to reach task-specific goals without external control (Beer et al., 2014; Hoyer et al., 2020).

In their study, Nunes and Kambil (2001) found that most customers would rather be in control of adaptations made on a website. Personalization technologies do not require customers' explicit control to generate adapted content (Ho & Bodoff, 2014). By being automated, they control the content customers will be exposed to while browsing the website (Lavie & Meyer, 2010; Montgomery & Smith, 2009). Therefore, customers may perceive that they are less in control on personalized websites. We thus hypothesize that:

H1: Perceived control is lower on personalized websites than on non-personalized websites

Besides perceived control, privacy concerns are another important variable to consider in evaluating the downsides of technological processes (Hoyer et al., 2020).

Privacy concerns

Privacy is often considered as an individual "right" (Martin & Murphy, 2017) and has been identified as one of the most ethical issues of the information age (Mason, 1986; Smith et al., 1996). Privacy refers to "the ability of the individual to personally control information about one's self" (Stone et al., 1983, p. 460). For customers, it implies the ability to control the collection, use, and storage of their data (Martin & Murphy, 2017; Plangger & Montecchi, 2020).

Emergent technologies may raise privacy concerns among customers (Hoyer et al., 2020). Privacy concerns represent “the anxiety individuals experience regarding their personal data in the consumption context” (Plangger & Montecchi, 2020, p. 34) and can trigger negative customer reactions and influence customer purchase intentions and willingness to disclose information (Martin & Murphy, 2017).

Privacy concerns stem from a perceived loss of control by customers over information (Bandyopadhyay, 2009; Dinev & Hart, 2004; Malhotra et al., 2004) and can be mitigated by environmental cues (John et al., 2011).

Personalization may trigger privacy concerns (Krafft et al., 2017; Plangger & Montecchi, 2020). Although customers may value personalization, they may simultaneously worry about how their data are collected and used for personalization purposes. These tensions have been identified as the personalization-privacy paradox (Cloarec, 2020; Sutanto et al., 2013). Therefore, based on prior research, we hypothesize that:

H2: Privacy concerns are higher on personalized websites than on non-personalized websites

Hoyer et al. (2020) identified perceived control and privacy concerns as two drawbacks of technologies but did not test these variables and determine whether they were part of the same process or distinct processes. Increased perception of control exerts a positive influence on customers’ psychological responses (Hui & Bateson, 1991) and can help reduce self-reported anxiety and stress (Averill, 1973; Lunardo & Mbengue, 2009; Staub et al., 1971). As privacy concerns reflect customer anxiety about how their data are collected and used (Plangger & Montecchi, 2020), we assume that increased perceived control will help reduce privacy concerns. Thus, we hypothesize that:

H3: Perceived control mediates the relationship between personalization and privacy concerns

A company’s control of the process underlying data collection and use to personalize content can trigger an asymmetric information situation, in which one party (the company) has more information than the other (the customer) (Connelly et al., 2011; Dinev et al., 2008). In this context, companies expect that signaling data collection and use will empower customers and help mitigate negative responses to personalization (Aguirre et al., 2015; Kim et al., 2018).

Signaling theory and information transparency

Signaling theory (Spence, 1973, 2002) applies when there is information asymmetry between companies and customers.

The use of effective signals enables to reduce information asymmetry between customers and companies and to empower the customer by balancing the company-customer relationship (Connelly et al., 2011). Using a signal, the signaler, a company, transfers information to the party who has less access to information, customers (Spence, 2002).

With the advent of the General Data Protection regulation (GDPR), companies are required to provide information transparency about data collection and use (Kumar, 2018). Information transparency refers to signaling cues giving customers information about data collection and use (Awad & Krishnan, 2006; Karwatzki et al., 2017) and is expected to reduce information asymmetries between customers and companies (Zhou et al., 2018). The presence of such cues may help customers gain some control by increasing their awareness and understanding (Karwatzki et al., 2017).

Prior research has investigated how information transparency may influence the effectiveness of personalized advertising. Aguirre et al. (2015) show that information transparency may improve click-through rates on personalized ads. In a recent study, Kim et al. (2018) show that information transparency may decrease behavioral intentions depending on the type of data being collected and used to personalize advertising. Their results show that when companies disclose implicit data collection and use, customers have higher privacy concerns, decreasing behavioral intentions.

However, the effectiveness of a signal largely relies on customer interpretation (Connelly et al., 2011; Perkins & Hendry, 2005), which represents the way customers process and interpret a signal. Customer interpretation varies among customers depending on their individual characteristics (Connelly et al., 2011; Perkins & Hendry, 2005; Srivastava, 2001).

The literature identifies the need for cognition as one of the most salient personality traits in the evaluation of a persuasion message (Areni et al., 2000; Cacioppo & Petty, 1982; Cohen et al., 1955; Epstein et al., 1996; Haugtvedt et al., 1992; Sicilia & Ruiz, 2010) and the processing of personalized content (Tam & Ho, 2005).

Need for cognition

Need for cognition is defined as “a stable personality trait that describes individuals’ tendency to engage in and enjoy effortful cognitive activity” (Lins de Holanda Coelho et al., 2018, p. 1) and that may be influenced by situational factors (Cacioppo et al., 1996).

Differences in need for cognition represent customer differences in their tendency to engage in effortful activities (Cacioppo & Petty, 1982; Haugtvedt et al., 1992; Petty et al., 1983). Customers high in need for cognition seek knowledge and enjoy effortful cognitive activities (Lins de Holanda Coelho et al., 2018; Sicilia & Ruiz, 2010). They tend to be curious and unlikely to reduce their efforts on cognitive tasks in situations where reduced efforts occur (Cacioppo & Petty, 1982). They are motivated to seek information (Lin et al., 2011) and tend to search for more information to make a decision (Verplanken et al., 1992). They are less likely to be influenced by external sources than customers low in need for cognition. They tend to rely on themselves to search, process, and understand information (Li & Browne, 2006) and are resistant to attempts to persuasion (Haugtvedt et al., 1992; Tam & Ho, 2005).

Conversely, customers low in need for cognition do not enjoy effortful cognitive activities (Lins de Holanda Coelho et al., 2018; Sicilia & Ruiz, 2010). They tend to rely on others’ opinions, especially experts, when facing complicated issues (Kaynar & Amichai-Hamburger, 2008) and tend to interpret information using simple cues offered by the environment (Lins de Holanda Coelho et al., 2018). They are also influenced by peripheral attributes of a message rather than attributes related to its strength and veracity (Petty & Cacioppo, 1981). For instance, the number of arguments present in a message can serve as a simple acceptance cue and affect such customers’ agreement with the message (Petty & Cacioppo, 1984). They are also influenced by the appearance of a message and other heuristics in their interpretation of messages (Lins de Holanda Coelho et al., 2018).

Several prior studies investigated the need for cognition in online environments in many different areas and topics. Therefore, it was important to propose a synthesis of the existing literature in marketing and information systems. Table 9 summarizes the existing knowledge about the need for cognition in online environments in marketing and information systems⁸. Based on prior research (Sicilia & Ruiz, 2010; Xu & Huang, 2019), we posit that the presence

⁸ To develop this summary table of literature, we searched for published research articles in ranked journals whose title or keywords included the terms “need for cognition” and “online” or “website” or “internet” and that appeared between 2005 and September 2020. We ran queries in two research databases: Science Direct and Taylor and Francis.

of a message signaling data collection and use will moderate perception of control on personalized websites depending on customers' need for cognition. Indeed, the need for cognition has been identified as a personality trait that moderates customer information processing, attitudes, and behaviors (Sicilia & Ruiz, 2010; Xu & Huang, 2019). Thus, we hypothesize that:

H4: The presence of information transparency moderates the effect of personalization on perceived control depending on customer need for cognition

Specifically, we assume that the presence of information transparency will not influence the effect of personalization on perceived control for customers high in need for cognition. These customers feel more in control when interacting with the web (Li & Browne, 2006). They tend to use more information services online (Kaynar & Amichai-Hamburger, 2008) than customers low in need for cognition. They have more internet experience, are knowledgeable and skilled about the internet (Kaynar & Amichai-Hamburger, 2008; Richard & Chebat, 2016). They are little influenced by external sources (Li & Browne, 2006) and are resistant to attempts to persuasion (Haugtvedt et al., 1992; Tam & Ho, 2005). We thus hypothesize that:

H4a: For customers high in need for cognition, the presence of information transparency does not influence the effect of personalization on perceived control

However, for customers low in need for cognition, we posit that the presence of information transparency will reduce the negative effect of personalization on perceived control. These customers are weakly involved in visiting websites (Richard & Chebat, 2016) and have less internet experience (Kaynar & Amichai-Hamburger, 2008; Richard & Chebat, 2016). They tend to make sense of the world by using simple cues offered by the environment (Lins de Holanda Coelho et al., 2018) and depend on others' opinions when facing complicated issues (Kaynar & Amichai-Hamburger, 2008). Therefore, we hypothesize that:

H4b: For customers low in need for cognition, the presence of information transparency reduces the negative effect of personalization on perceived control

However, when a message signaling data collection and use is present on a website, we posit that the type of content (disclosing implicit or explicit data collection) will not influence the effect of personalization on perceived control for customers low in need for cognition. We believe that the mere presence of information transparency will create a heuristic of signal strength for these customers, whatever the type of content. Customers low in need for cognition

are influenced by peripheral attributes of a message, such as the appearance of a message, rather than attributes related to the content, such as the veracity of the arguments (Lins de Holanda Coelho et al., 2018; Petty & Cacioppo, 1981). For them, the number of arguments of a message can serve as an acceptance cue (Petty & Cacioppo, 1984). We thus hypothesize that:

H5: For customers low in need for cognition, when a transparency message is present, the type of content does not influence the effect of personalization on perceived control

The hypotheses developed through the conceptual review are presented in Figure 8.

Figure 8: Conceptual model

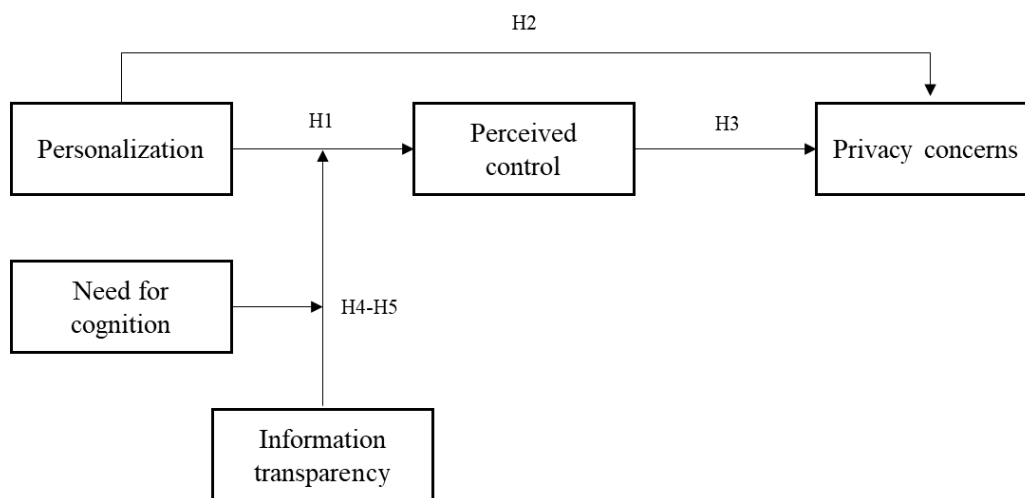


Table 9: Summary table of literature

Study	Objective	Theory	Method	Key findings
Sicilia et al. (2005)	Investigate how website processing and achievement of a flow state are influenced by the interactivity of a website and examine the moderating role of customer need for cognition in this process	-	Experiment	Website interactivity especially increases information processing for customers low in need for cognition. Website interactivity might be acting as a peripheral cue.
Li and Browne (2006)	Examine need for cognition and mood and their relationship with online flow	-	Surveys	Need for cognition is positively associated with perceived control, focused attention, and curiosity. Individuals high in need for cognition perceive that they have higher control when interacting with the web.
Amichai-Hamburger et al. (2007)	Investigate the impact of the need for cognition on the level of interactivity of a website	-	Experiments	Customers low in need for cognition tend to want to return to interactive websites than non-interactive websites. This tendency was not observed for customers high in need for cognition. The interactive website was more appealing and might serve as a peripheral cue for customers low in need for cognition.
Kaynar and Amichai-Hamburger (2008)	Examine need for cognition and its relationship with the use of information services and the perceived importance of information in creating a convincing website	-	Survey	Positive correlation between need for cognition and the use of information services, and the perceived importance of information in creating a persuasive website.
Sicilia and Ruiz (2010)	Investigate the effects of the amount of information provided on a website on customers' processing and attitudes	-	Experiment	Need for cognition moderates the influence of the amount of information on information processing and attitudes.

Table 9: Summary table of literature (continued)

Study	Objective	Theory	Method	Key findings
Keng and Liu (2013)	Explore changes in online advertising's verbal and visual stimulation of customers' cognitive processes.	Personality-trait theory and resource matching theory	Experiments	High-sensation seekers and viewers low in need for cognition prefer "3D advertising elements with an avatar" while low-sensation seekers and viewers high in need for cognition prefer "2D advertising elements with self-referencing."
Richard and Chebat (2016)	Develop a model of online consumer behavior and test the moderating effect of need for cognition and optimum stimulation level.	-	Survey	Emotions (pleasure, arousal, dominance) precede cognition in the context of online visiting. Dominance particularly plays an important role in the model. Customers high in need for cognition appear to be knowledgeable and skilled in using the internet. Need for cognition, and optimal stimulation levels have moderating effects on the model.
Skulmowski et al. (2016)	Investigate if differences in color saturation can influence website judgments.	-	Experiment	Website evaluation appears to be independent of cognitive styles. Customers low in need for cognition were not more influenced by color saturation than customers high in need for cognition.
Xu and Huang (2019)	Examine how restaurant-generated information cues in online-to-offline mobile apps influence diners' expectations.	Elaboration likelihood model	Experiments	Restaurant-generated information cues influence diners' expectations depending on their need for cognition. With initial positive arguments, customers high in need for cognition do not reduce their expectations after reading negative arguments, while customers low in need for cognition reduce their expectations after reading two-sided messages because they rely on the more recent and accessible information.

Overview of studies

To test our hypotheses, we carried out two experiments. In Study 1, we aimed to assess the effect of personalization on perceived control and privacy concerns, as well as the mediating role of perceived control in the relationship between personalization and privacy concerns. We also aimed to assess the interaction effect of personalization and information transparency, depending on the customer's need for cognition.

In Study 1, we investigated the effect of information transparency by manipulating the absence and presence of a message about the collection and use of data. In the groups where a message was present, we presented a message signaling implicit data collection. In this first study, we did not manipulate the content of the transparency message.

Given the role of information transparency on personalized websites, we wanted to investigate its effect further in a second study. Study 2 aimed to replicate the results found in Study 1 for the effect of personalization on perceived control and privacy concerns but also to assess the effect of information transparency in this process by manipulating the content of the message signaling data collection and use (message signaling explicit data collections vs. message signaling implicit data collection).

Study 1

Study design and sample

We recruited European participants on Prolific and randomly assigned them to a 2 (personalization vs. absence of personalization) x 2 (information transparency vs. absence of information transparency) between-subjects design. Research has shown that responses collected from online platforms are similar in quality to responses provided by populations sampled in laboratory experiments (Goodman et al., 2013). Appendix 3 presents our manipulations and stimuli for this study. Audio devices were chosen as the product category as it can be of interest to both women and men.

201 European participants completed the study. Before analyzing the data, we removed 45 participants who failed the attention check (Bleier & Eisenbeiss, 2015b; Huang et al., 2012). After this data cleansing, 156 valid questionnaires remained (69% female; Mage=34.4 years; SD=10.597).

Table 10 presents the composition of the sample and the groups. Groups were equivalent in terms of age, gender, general privacy practices, and digital skills. However, the mean of familiarity with GDPR was significantly higher in the control group (no personalization x no information transparency (M=5.17), compared to the no personalization x information transparency group (M=4.27; $F(3;152)=4.404$; $p=0.03$). Therefore, we added this variable as a covariate in the tests.

Table 10: Study 1 sample and groups composition

Sample		
N	156	
Age mean	34.38	(SD=10.597)
Digital skills mean	4.86	(SD=1.107)
General privacy practices	4.23	(SD=1.002)
Familiarity with GDPR	4.69	(SD=1.176)
Gender (female)	69%	

No personalization x no information transparency		
N	40	
Age mean	34.02	(SD=8.523)
Digital skills mean	5.06	(SD=.952)
General privacy practices	3.97	(SD=.924)
Familiarity with GDPR	5.17	(SD=1.127)
Gender (female)	70%	

No personalization x information transparency		
N	42	
Age mean	31.6	(SD=9.559)
Digital skills mean	4.81	(SD=1.252)
General privacy practices	4.18	(SD=1.155)
Familiarity with GDPR	4.27	(SD=1.158)
Gender (female)	71%	

Personalization x no information transparency		
N	35	
Age mean	35.23	(SD=10.628)
Digital skills mean	4.77	(SD=1.054)
General privacy practices	4.33	(SD=.907)
Familiarity with GDPR	4.57	(SD=.999)
Gender (female)	66%	

Personalization x information transparency		
N	39	
Age mean	37	(SD=12.939)
Digital skills mean	4.77	(SD=1.151)
General privacy practices	4.48	(SD=.947)
Familiarity with GDPR	4.75	(SD=1.244)
Gender (female)	69%	

Measures

We operationalized the constructs of perceived control, privacy concerns, and need for cognition using established multi-item scales. Appendices 5 and 6 report the measures we used and statistics. Perceived control was measured with an adaptation of the scale developed by Mehrabian and Russell (1974) that includes 4 items ($\alpha=0.73$). Privacy concerns were assessed

using the 7-item scale developed by Sheng et al. (2008) ($\alpha=0.95$). Finally, the need for cognition was measured with the 5-item scale developed by Epstein et al. (1996) ($\alpha=0.78$).

Our manipulation of personalization was checked with the item “Electronics.com homepage was personalized based on my favorite headphones.” Our manipulation of information transparency was checked with the item “Electronics.com homepage indicated transparently what information about me is collected.” All variables were measured on 7-point Likert scales. We checked attention with the statement, “What is the product you finally decided to purchase on the website?” A GPS navigator – black headphones – red headphones.

We also controlled some individual traits: digital skills, familiarity with GDPR, and general privacy concerns. Digital skills were measured with an adaptation of the 4-item scale developed by Rose et al. (2012) ($\alpha=0.87$). To assess familiarity with GDPR, we used a 3-item ad hoc scale ($\alpha=0.89$). General privacy practices were measured with the 6-item scale developed by Smith et al. (1996) ($\alpha=0.80$).

Pretest

We pretested the comprehensibility of the design and checked manipulations using a sample of 60 participants (73% female; Mage=36.6 years; SD=13.062), also recruited through Prolific. In this pretest, we assigned participants to one of the four conditions. As expected, participants in the personalization condition reported a higher perception of personalization ($M_{np}=3.40$; $M_p=5.90$; $t=-6.063$; $p=.000$). Similarly, participants in the transparency condition reported a higher perception of transparency ($M_{nit}=2.53$; $M_{it}=4.87$; $t=-6.109$; $p=.000$).

Results

To check the manipulation of personalization, we performed a one-way ANOVA. Results show that manipulation of personalization was as expected ($M_{np}=3.54$; $M_p=5.86$; $F(1;154)=65.861$; $p=.000$). We performed the same test to check the manipulation of information transparency. Similarly, results show that manipulation of information transparency was also as expected ($M_{nit}=2.77$; $M_{it}=4.94$; $F(1;154)=73.229$; $p=.000$). Familiarity with GDPR was added as a covariate⁹ in all tests using a general linear model. In all cases, it did not change the significance of the results.

⁹ Familiarity with GDPR was added as covariate in all the tests we performed as its mean was significantly higher in the control group (no personalization x no information transparency), compared to the no personalization x information transparency group. In all cases, it didn't change the significance.

To test that perceived control is lower on personalized websites than on non-personalized websites (H1), we performed a one-way ANOVA. Results support this hypothesis, as perceived control is significantly lower in the personalization condition ($M_p=3.75$) compared to the no-personalization condition ($M_{np}=4.15$; $F(1;154)=7.596$; $p=.007$).

To test the effect of personalization on privacy concerns and the mediating role of perceived control in the relationship between personalization and privacy concerns (H2 and H3), we used Preacher and Hayes's (2008) mediation model (model 4; bootstrapped samples = 5,000). Results show that personalization has an indirect effect on privacy concerns. Personalization has a negative effect on perceived control ($\beta=-.40$; $t=-2.7561$; $p=0.007$) and perceived control has a negative effect on privacy concerns ($\beta=-.30$; $t=-2.5468$; $p=0.01$), leading to an overall positive, indirect only, effect of personalization on privacy concerns ($\beta=.12$; 95% CI=[+.0135, +.2896]).¹⁰

Finally, to test the moderating role of the presence of information transparency on the effect of personalization on perceived control depending on customer need for cognition (H4)¹¹, we used Preacher and Hayes's (2008) moderated moderation model (model 3; bootstrapped samples = 5,000). A regression of perceived control by the independent variables of personalization, information transparency, and need for cognition shows a three-fold interaction effect ($\beta=-.65$; $t=-2.16$; $p=.03$). For customers high in need for cognition (5.6¹² on a 7-point scale), there is no interaction between personalization and information transparency about implicit data collection on perceived control ($p=.43$). However, for customers presenting a lower level of need for cognition, the interaction between personalization and information transparency is significant. For customers low in need for cognition (3.4¹² on a 7-point scale), when there is no information transparency, the effect of personalization on perceived control is significant and negative ($\beta=-1.12$; $t=-2.4877$; $p=0.002$). For customers with an intermediate level of need for cognition (4.6¹² on a 7-point scale), we see the same trend ($\beta=-.53$; $t=-3.1770$; $p=0.01$). When there is information transparency, there is no effect of personalization on

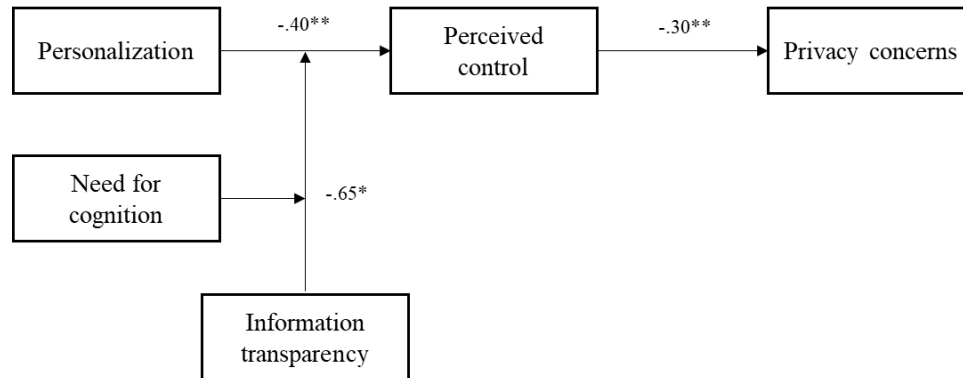
¹⁰ Since the general privacy practices variable had a direct effect on privacy concerns, we added it as a co-variable in the test. It didn't change the significance.

¹¹ We performed the same test to control for the effect of personalization and information transparency on perceived control depending on gender, digital skills, general privacy practices, and the familiarity with GDPR and there was no three-fold interaction effect.

¹² These values are the 16th, 50th, and 84th percentiles. Prior research has shown the importance of considering the level of need for cognition in the interpretation of messages: high vs. low in need for cognition. Based on the literature, we aimed to investigate the extreme levels: the responses of clients low vs. high in need for cognition. By default, PROCESS conditions on the 16th, 50th, and 84th percentiles of the distribution (Hayes, 2018), which was relevant for our analysis in order to investigate the extreme levels.

perceived control. Figure 9 illustrates these results. Familiarity with GDPR was added as a covariate in the model. It did not change the significance of the results.

Figure 9: Study 1 results



* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

Discussion

In summary, the results of Study 1 support our hypotheses. Customers feel less in control on personalized websites compared to non-personalized websites. They also feel more privacy concerns when surfing on personalized websites, compared to non-personalized websites. Personalization has an indirect positive effect on privacy concerns, and perceived control mediates the effect of personalization on perceived control. With its automated nature, personalization gives companies more control over the content customers will be exposed to while browsing (Lavie & Meyer, 2010; Montgomery & Smith, 2009), which leads customers to perceive that they are less in control of personalized websites. Such a perceived loss of control may raise privacy concerns.

Nevertheless, the results of Study 1 also show that the mere presence of information transparency may reduce the negative effect of personalization on perceived control, depending on customer need for cognition. For customers with a low or intermediate level of need for cognition, when there is no information transparency, the effect of personalization on perceived control is significant and negative, but when there is a transparency message, there is no negative effect of personalization on perceived control. Customers with a lower need for cognition tend to use simple cues offered by the environment to make sense of the world (Lins de Holanda Coelho et al., 2018).

We do not observe this effect on customers with a high need for cognition. This can be explained by the fact that these customers feel more in control on websites (Li & Browne, 2006). They are also less influenced by external sources and are more resistant to persuasion attempts than customers lower in need for cognition (Haugtvedt et al., 1992; Li & Browne, 2006; Tam & Ho, 2005).

Given the role of information transparency on personalized websites, we further investigated its effects in a second study. In Study 1, we investigated the presence and absence of a message, but we did not manipulate the content of the transparency message (signaling implicit data collection vs. explicit data collection). In the groups where a message signaling data collection and use was present, we displayed a message signaling implicit data collection. In Study 2, we investigated the effect of information transparency by manipulating the content of the transparency message.

Study 2

Study design and sample

We recruited European participants on social networks and randomly assigned them to a 2 (personalization vs. absence of personalization) x 2 (message signaling explicit data collection vs. message signaling implicit data collection) between-subjects design. Appendix 4 presents our manipulations and stimuli for this study. Smartphones were chosen as the product category as it can be of interest to both women and men.

194 participants completed the study. Before analyzing the data, we removed 27 participants who failed the attention check (Bleier & Eisenbeiss, 2015b; Huang et al., 2012). After this data cleansing, 167 valid questionnaires remained (63% female; Mage=28.62 years, SD=11.221).

Table 11 presents the composition of the sample and the groups. Groups were equivalent in terms of age, gender, general privacy practices, digital skills, and familiarity with GDPR.

Table 11: Study 2 sample and groups composition

Sample			
N	167		
Age mean	28.62	(SD=11.221)	
Digital skills mean	4.13	(SD=1.480)	
General privacy practices	4.53	(SD=.984)	
Familiarity with GDPR	4.01	(SD=1.429)	
Gender (female)	63%		

No personalization x message about explicit data collection			
N	39		
Age mean	29.31	(SD=11.098)	
Digital skills mean	4.06	(SD=1.482)	
General privacy practices	4.39	(SD=.945)	
Familiarity with GDPR	3.63	(SD=1.455)	
Gender (female)	77%		

No personalization x message about implicit data collection			
N	38		
Age mean	27.95	(SD=10.823)	
Digital skills mean	4.43	(SD=1.347)	
General privacy practices	4.57	(SD=1.037)	
Familiarity with GDPR	4.05	(SD=1.204)	
Gender (female)	61%		

Personalization x message about explicit data collection			
N	47		
Age mean	28.91	(SD=11.415)	
Digital skills mean	4.22	(SD=1.714)	
General privacy practices	4.69	(SD=1.030)	
Familiarity with GDPR	4.26	(SD=1.610)	
Gender (female)	55%		

Personalization x message about implicit data collection			
N	43		
Age mean	28.26	(SD=11.798)	
Digital skills mean	3.82	(SD=1.289)	
General privacy practices	4.46	(SD=.925)	
Familiarity with GDPR	4.05	(SD=1.356)	
Gender (female)	60%		

Measures

Similarly to Study 1, we operationalized the key studied constructs of perceived control, privacy concerns, and need for cognition using established multi-item scales. Appendices 5 and 6 report the measures we used and the statistics.

Our manipulation of personalization was checked with the item “Electronics.com homepage was personalized based on my favorite smartphones.” Our manipulation of the message signaling data collection was checked with the item “The message on the homepage stated that my data was collected using cookies/a form.” All variables were measured on 7-point Likert scales. We checked attention with the statement, “What is the product you finally decided to purchase on the website?” A GPS navigator – a smartphone – I do not remember.

Similarly to Study 1, we controlled for some individual traits: digital skills, familiarity with GDPR, and general privacy concerns. In addition, we controlled for some variables related to the message: perceived transparency and perceived complexity. Perceived transparency was assessed with the 4-item scale developed by Karwatzki et al. (2017). We measured the complexity of the message with the item “The message explaining the data collection to me was difficult to understand.” Finally, we controlled attention to the message with an adaptation of the 3-item scale developed by Kim and Lakshmanan (2015).

Results

To check the manipulation of personalization, we performed a one-way ANOVA. Results show that manipulation of personalization was as expected ($M_{np}=3.66$; $M_p=5.54$; $F(1;165)=47.977$; $p=.000$). We performed the same test to check the manipulation of the message signaling data collection. Similarly, results show that manipulation of the message was also as expected ($M_{impl}=2.14$; $M_{expl}=4.10$; $F(1;165)=43.483$; $p=.000$).

We controlled the perceived complexity and transparency for both messages signaling data collection with a one-way ANOVA. As expected, results do not show any significant difference in terms of perceived complexity ($M_{impl}=3.20$; $M_{expl}=3.27$; $F(1;165)=0.063$; $p=.802$) and perceived transparency ($M_{impl}=4.34$; $M_{expl}=4.30$; $F(1;165)=0.028$; $p=.867$). We performed the same test to control attention to both messages. As expected, results show that attention to the message was not significantly different ($M_{impl}=4.07$; $M_{expl}=4.40$; $F(1;165)=1.465$; $p=.228$).

We also controlled privacy concerns and perception of control for both messages signaling data collection with a one-way ANOVA. Unlike Kim et al. (2018), who showed that privacy concerns were higher when companies disclose implicit data collection than when they disclose explicit data collection, results do not show any significant difference between the two messages ($M_{impl}=4.46$; $M_{expl}=4.79$; $F(1;165)=2.228$; $p=.137$). In addition, results show that customers perceived more control when companies disclose implicit data collection than when they disclose explicit data collection ($M_{impl}=4.42$; $M_{expl}=3.85$; $F(1;165)=7.476$; $p=.007$).

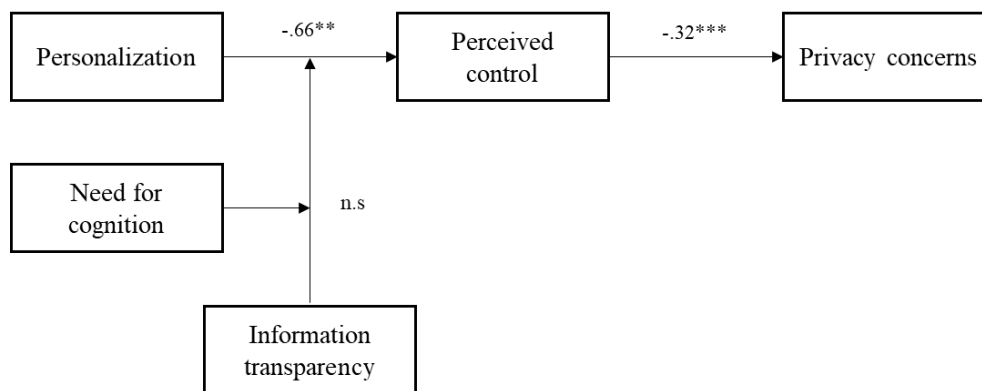
To test that perceived control is lower on personalized websites than on non-personalized websites (H1), we performed a one-way ANOVA. Results support this hypothesis and confirm the results found in Study 1, as perceived control is significantly lower in the

personalization condition ($M_p=3.82$) compared to the no-personalization condition ($M_{np}=4.48$; $F(1;165)=10.026$; $p=.002$).

To test the effect of personalization on privacy concerns and the mediating role of perceived control in the relationship between personalization and privacy concerns (H2 and H3), we used Preacher and Hayes's (2008) mediation model (model 4; bootstrapped samples = 5,000). Results confirm the results found in Study 1 and show that personalization has an indirect effect on privacy concerns. Personalization has a negative effect on perceived control ($\beta=-.66$; $t=-3.1664$; $p=0.002$) and perceived control has a negative effect on privacy concerns ($\beta=-.32$; $t=-3.9506$; $p=0.001$), leading to an overall positive, indirect only, effect of personalization on privacy concerns ($\beta=.21$; 95% CI=[+.0675, +.3862]).¹³

Finally, to further test the moderating role of information transparency on perceived control for customers low in need for cognition (H5)¹⁴, we used Preacher and Hayes's (2008) moderated moderation model (model 3; bootstrapped samples = 5,000). A regression of perceived control by the independent variables of personalization, information transparency, and need for cognition do not show a three-fold interaction effect ($\beta=.46$; $t=1.26$; $p=.21$), which confirms our hypothesis. Figure 10 illustrates these results.

Figure 10: Study 2 results



* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

¹³ Since the general privacy practices and the gender variables had a direct effect on privacy concerns, we added them as a co-variables in the test. It didn't change the significance.

¹⁴ We performed the same test to control for the effect of personalization and information transparency on perceived control depending on gender, digital skills, general privacy practices, and the familiarity with GDPR and there was no three-fold interaction effect.

Discussion

In summary, these results replicate those of Study 1 for the main effects of personalization and provide a further understanding of the effect of information transparency. The results of Study 2 do not show a three-fold interaction effect between personalization, information transparency, and need for cognition. In contrast to Study 1, we manipulated the content of the message signaling data collection (i.e., messages signaling explicit and implicit data collection) rather than the absence and presence of a transparency message as in Study 1. These results show that when a transparency message is present, the content of the transparency message does not influence the effect of personalization on perceived control.

In addition, unlike Kim et al. (2018), the message disclosing implicit data collection did not generate more privacy concerns than the message signaling explicit data collection. Results show that customers perceive more control when companies disclose implicit data collection than when they disclose explicit data collection.

General discussion

This research investigates the downsides of personalization through the measures of perceived control and privacy concerns and examines the role of information transparency and customer need for cognition in this process.

The findings of Study 1 show that customers feel that they are less in control on personalized websites than on non-personalized websites and feel more concerned about their privacy. They also show that perceived control mediates the relationship between personalization and privacy concerns. The perceived loss of control felt on personalized websites triggers privacy concerns among customers. In Study 2, we replicated these findings.

However, the findings reveal that information transparency can mitigate these downsides on personalization depending on the customer's need for cognition. This research shows that for customers with a low or intermediate level of need for cognition, the simple absence or presence of a transparency message moderates their perception of control. For these customers, when there is no transparency message, the effect of personalization on perceived control is significant and negative. When there is a transparency message, there is no negative effect of personalization on perceived control. We do not observe this effect on customers high in need for cognition. While customers low in need for cognition use simple cues presented in their environment and rely on external sources when facing complicated issues (Kaynar &

Amichai-Hamburger, 2008; Lins de Holanda Coelho et al., 2018), customers high in need for cognition feel more in control on websites and are less influenced by external sources present in their environment (Li & Browne, 2006).

However, when a message signaling data collection and use is present on the website, the content of the message (i.e., explicit and implicit data collection) does not influence the effect of personalization on perceived control. For customers low in need for cognition that tend to focus on peripheral attributes of a message rather than its content (Petty & Cacioppo, 1981), the mere presence of a transparency message appears to provide a heuristic of signal strength.

Finally, unlike Kim et al. (2018), we show that messages disclosing implicit data collection do not generate higher privacy concerns than messages signaling explicit data collection. We also show that customers perceive that they have more control when a message discloses implicit data collection than when it discloses explicit data collection. These contradictory findings can be explained by the fact that since 2018, companies dealing with European customers' data widely use messages disclosing data collection and use with cookies (Utz et al., 2019). Therefore, customers may now be more familiar with messages signaling implicit data collection.

Theoretical contributions

In the context of growing privacy concerns, companies expect that being more transparent about data collection and use will help mitigate negative responses to personalization (Aguirre et al., 2015; Kim et al., 2018). With two experiments, this research responds to the recent call by Hoyer et al. (2020) to further investigating the negative effects of technologies. It also responds to the call by Kim et al. (2018) to offer a better understanding of the process underlying the effect of personalization on privacy concerns, as well as the role of information transparency in this process outside the domain of advertising.

This research first investigates the downsides of the personalization process further. Personalization has been recognized as an important process to support the management of customer relationships in a personal way (Peppers & Rogers, 1997; Shen & Ball, 2009). Prior research has shown that personalization may improve customer experience. For instance, personalization can increase customer satisfaction and reduce information overload (Ansari & Mela, 2003).

However, technological processes also have downsides (Hoyer et al., 2020). Hoyer et al. (2020) identified perceived control and privacy concerns as key variables to assess customer experience with technologies and, especially, the drawbacks they may trigger. Nevertheless, the authors did not test these variables and did not determine if these two variables were part of the same process or distinct ones.

In line with prior research, we show that personalization generates privacy concerns for customers (Chellappa & Sin, 2005; Sutanto et al., 2013), but our results reveal that this is an indirect effect and that perception of control mediates the relationship between personalization and privacy concerns. Our findings show that perceived control is lower on personalized websites than on non-personalized websites. By being automated, personalization technologies enable companies to adapt website content to every customer. However, it also gives companies more decisional control over the content customers will see and their navigation (Lavie & Meyer, 2010; Montgomery & Smith, 2009). Such automated process may backfire and leads customers to feel less in control of personalized websites, which can also raise privacy concerns among customers. From this perspective, personalization may undermine customer experience.

However, the present research also highlights that information transparency may mitigate these negative reactions to personalization depending on the customer's need for cognition. Prior studies investigating the role of information transparency in the personalization process were mainly conducted in an advertising context. Further investigation was needed to understand the role of information transparency in the personalization process outside the advertising context (Kim et al., 2018).

In addition, we still had limited knowledge about the influence of individual customer characteristics in this process. Based on signaling theory, the effectiveness of a signal, such as information transparency, relies on individual customer characteristics (Connelly et al., 2011; Perkins & Hendry, 2005; Srivastava, 2001). Among these, the literature identifies the need for cognition as one of the most salient individual traits that influence customer responses to a persuasion message (Cacioppo & Petty, 1982; Epstein et al., 1996; Haugtvedt et al., 1992; Sicilia & Ruiz, 2010).

In this research, we show that information transparency may mitigate the backfire effects of the personalization process, depending on the customer's need for cognition. For customers presenting with low and intermediate levels of need for cognition, the mere absence or presence of a transparency message moderates their perception of control. For these

customers, when there is no transparency message, the effect of personalization on perceived control is significant and negative. When there is a message, personalization has no effect on perceived control. For them, the mere presence of a transparency message, regardless of whether it discloses implicit or explicit data collection, can create a heuristic of signal strength. For customers with a high need for cognition, we do not observe this effect.

Managerial contributions

From a managerial point of view, our contributions are twofold. First, this research shows the importance for companies to consider the downsides of personalization. Companies expect that personalization will improve customer experience on their website (Tam & Ho, 2006; Tong et al., 2020). However, personalization may also backfire and decrease customers' perceived control. This negative effect of personalization is particularly important to consider given that the perception of loss of control can lead to privacy concerns for customers.

Second, since the advent of the GDPR, companies dealing with European customer data must be transparent about data collection and use (Kumar, 2018). This research shows that the presence of a transparency message is important to reduce the downsides of personalization, especially for customers with a lower need for cognition. Prior research shows that most customers often do not read transparency messages (Milne & Culnan, 2004), suggesting a situation where the need for cognition is particularly low. However, this research reveals that the mere presence of information transparency, whether it discloses explicit or implicit data collection, can create a heuristic of signal strength for customers low in need for cognition. For these customers, in the absence of such a signal, we observe a negative effect of personalization on perceived control.

Limitations and avenues for future research

Despite our rigorous experimental approach, some limitations in our work persist. In this research, we investigated the effect of information transparency depending on individual customer characteristics. However, based on signaling theory (Spence, 1973, 2002), the effectiveness of a signal, such as information transparency, may also vary depending on the characteristics of the signal and the signaler.

Characteristics of the signal relate to its form, content, and visibility (Connelly et al., 2011). In our research, we explored information transparency by manipulating its presence and absence, and its content (message signaling implicit data collection vs. explicit data collection).

Therefore, further research is needed to investigate the effect of other characteristics of the message, such as the effect of message length on customer responses. Prior research has shown that customers tend to prefer shorter transparency messages (Milne & Culnan, 2004), but longer messages also give an impression of signal strength (Sundar, 2008). Therefore, research is needed to understand the effect of the signal length on the processing and evaluation of a transparency message and its impact on the personalization process.

Besides the characteristic of the signal, the characteristics of the signaler (the company) also influence the effectiveness of a signal. This research is based on an experimental design and mobilizes a fictive website of an unknown brand. Following signaling theory, the signaler's honesty and reliability influence how the signal is perceived (Connelly et al., 2011). Therefore, further research is needed to investigate the relationship with the brand and its influence on the effectiveness of information transparency on the personalization process.

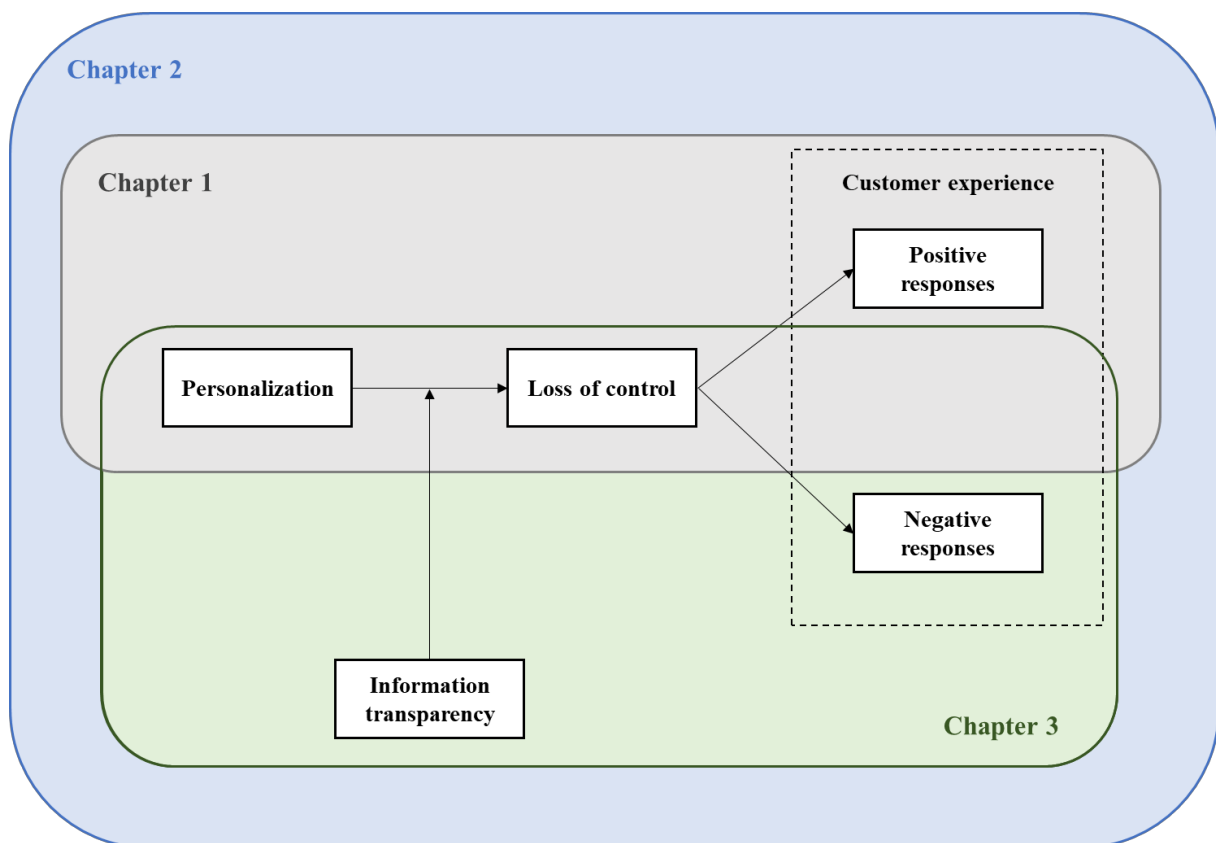
General conclusion

In this general conclusion, we provide an overview of the three essays presented in the previous chapters, summarize and discuss their key findings and present their implications. We conclude this chapter by presenting the limits of this doctoral thesis and providing suggestions for future research.

Summary of the findings

This doctoral dissertation aimed to gain a better understanding of customer experience on personalized websites and the underlying processes (Fig. 11).

Figure 11: Outline of the three essays



Using complementary quantitative and qualitative methods and techniques, the psychological mechanisms underlying customer experience on personalized websites have been explored and studied. Three essays have addressed different yet complementary research questions to obtain a better understanding of this process. Table 12 summarizes these three essays and depicts each essay's related research question, methods, and provides key findings.

Essay 1 aimed to investigate the effects of personalization on customer experience and to understand the underlying processes. This research specifically examined the effects of actual and perceived personalization on playful customer experience with a laboratory experiment, using subjective and objective measures. While subjective playfulness was used to explore conscious responses to personalization and was assessed with verbal measures, objective playfulness was used to capture unconscious responses to personalization and was assessed with eye-tracking data. This essay shows the influence of personalization on playful customer experience and highlights the presence of two concomitant processes. Consistent with Li (2016), we show that customers need to perceive that content is personalized to influence subjective playfulness, but unlike Li (2016), we show that actual personalization does influence objective playfulness (unconscious responses). When the content is actually personalized, customers tend to focus more of their attention on their favorite products during navigation, and such attention leads them to select these products for purchase. Therefore, this essay shows that personalization, whether perceived or not, influences playful customer experience and that actual personalization of content is still worthwhile for companies, even if customers are not conscious of it.

Essay 2 further investigated the mechanisms underlying customer experience on personalized websites by addressing positive and negative customer responses to personalization. Specifically, it aimed at gaining a better understanding of the process underlying the triggering and management of paradoxical tensions of personalization. In this research, we first identified different paradoxical tensions that personalization triggers and how they are triggered. Two previously unknown paradoxes were identified in addition to the already known personalization-privacy paradox: the personalization-influence paradox and the personalization-stereotype paradox. By being automated, personalization gives customers less control over their actions. Although this personalization may bring guidance to customers and arouse their interest, it may also backfire and lead customers to feel less in control (dominated). Such domination is experienced as influence, stereotyping, and loss of freedom. This finding highlights that negative responses to personalization are mainly affective. In addition, we showed how these personalization paradoxes are triggered. While the already identified personalization-privacy paradox appears to be triggered when customers interact with companies on other platforms through personalized advertising, the two other paradoxes are triggered regardless of the form of interaction. The triggering of these paradoxical tensions arises when customers perceive personalization. For instance, the personalization-privacy

paradox arises when customers are exposed to personalized advertising after they visit a company's personalized website and become aware of data collection. Customers suddenly realize that their data was collected and used and that they do not control what is actually done by the company with their data. Second, this research highlighted acceptance and resolution strategies that customers adopt to cope with these tensions, in light of the theory of paradox (Schad et al., 2016; Smith & Lewis, 2011) and showed that customers do not always resolve paradoxical tensions of personalization. Finally, this research identified content and contextual levers that companies can use to mitigate paradoxes of personalization: valuable personalized content, trust and affinity toward websites, and signaling cues, such as information transparency.

With two online experiments, Essay 3 first aimed to further examine some downsides of personalization on customer experience that emerged from Essay 2, namely perceived loss of control and privacy concerns and how to reduce them. Consistent with prior research, we showed that personalization generates privacy concerns among customers (Chellappa & Sin, 2005; Dinev & Hart, 2004). However, we showed that this is an indirect effect and that perceived control mediates the relationship between personalization and privacy concerns. The automated aspect of personalization gives companies more control over the content customers will be exposed to during navigation, which leads customers to feel that they are less in control on personalized websites. Such loss of control raises privacy concerns among customers. Second, Essay 3 aimed to examine the role of information transparency and the need for cognition in this process. Information transparency emerged from Essay 2 as a contextual lever that could help mitigate negative responses to personalization. This research shows that information transparency may reduce the perceived loss of control and subsequent privacy concerns depending on the customer's need for cognition. For customers with low and intermediate levels of need for cognition, when there is not a transparency message, the effect of personalization on perceived control is significant and negative. However, when there is a transparency message, personalization has no negative effect on perceived control. We do not observe this effect on customers with a high need for cognition.

Table 12: Summary of the three essays

Research question	Method	Key customer responses investigated	Key measures to assess customer experience	Key findings
Essay 1 : How does personalization influence customer experience?	• Creation of a personalized website	• Affective responses	• Subjective playfulness	• Holistic view of the process underlying the effects of actual and perceived personalization on playful customer experience by highlighting customers conscious and unconscious responses to personalization
	• Laboratory experiment	• Behavioral responses	• Objective playfulness	• Perceived personalization influences customers' subjective and conscious responses
	• Eye-tracking techniques			• Actual personalization influences customers' objective and unconscious responses
Essay 2: What is the process underlying the triggering and management of paradoxical tensions of personalization?	• In-depth interviews	• Affective responses	• Arousal	• Negative customer responses to personalization are mainly affective
	• Elicitation techniques		• Dominance (perceived control)	• Identification of two previously unknown paradoxes of personalization
Essay 3: How does information transparency impact customer experience on personalized websites?		• Cognitive responses	• Guidance	• Identification of levers that companies can use to mitigate these tensions
	• Online scenario-based experiments	• Affective responses	• Perceived control	• Proposition of a typology of personalized content
			• Privacy concerns	• The process underlying the triggering and management of the personalization paradoxes is summarized through a conceptual model
				• Highlighting the process underlying the backfire effects of personalization on customer experience
				• Perception of control is lower on personalized websites, which raises privacy concerns among customers
				• Information transparency may reduce the downsides of personalization depending on customer need for cognition

Contributions

Collectively the essays included in this doctoral dissertation provide new insights on customer experience on personalized websites and the underlying processes. These insights bring several theoretical, methodological, and managerial contributions.

Theoretical contributions

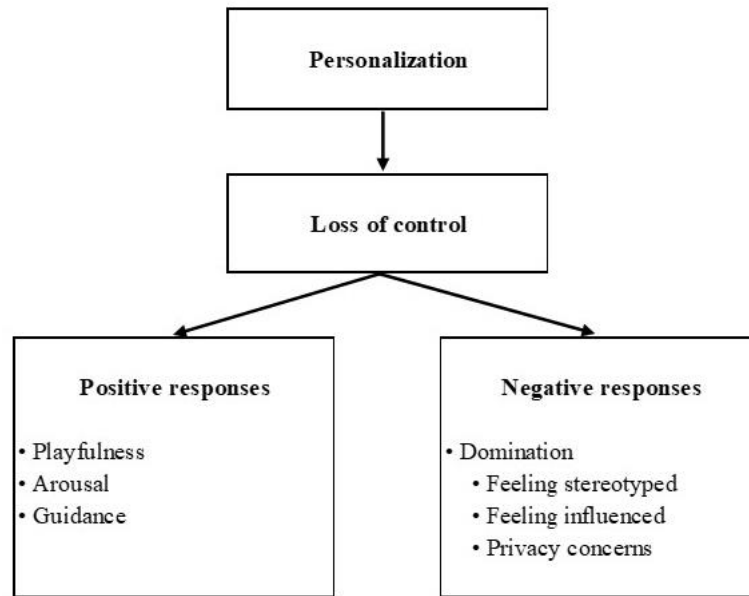
Beyond the contributions specific to each paper, the essays included in this doctoral thesis collectively enable us to respond to the call of the Marketing Science Institute (2018, 2020) to gain a better understanding of customer experience on personalized websites. Specifically, it enables us to obtain a more holistic and iterative view of the mechanisms underlying customer experience on personalized websites. This research enables us to bring four main theoretical contributions to existing research on personalization.

First of all, this doctoral research contributes to prior research by capturing customer responses to personalization, both conscious and unconscious. Li (2016) has recently called the personalization process into question, suggesting that perceived personalization, instead of actual personalization, influences customer attitude and behavioral intentions regarding ad content. Nevertheless, the author investigated the effect of personalization in an advertising context, not in a website context. In addition, customer experience exists at both conscious and unconscious levels (Joy & Sherry, 2003; Lemke et al., 2011). Li (2016) investigated the mechanisms underlying the effectiveness of personalization using subjective verbal measures, which only enables the customer's conscious responses to be captured (Derbaix & Poncin, 2005). Taking this holistic perspective enabled us to obtain a more comprehensive view of the process underlying customer experience on personalized websites by highlighting that the personalization process influences customer experience at both conscious and unconscious levels. While perceived personalization influences customers' conscious responses, actual personalization influences customers' unconscious responses. This highlights that the personalization process, regardless of whether it is perceived or not, influences customer experience.

Second, this doctoral dissertation contributes to existing research by exploring both positive and negative responses to personalization. Prior research in marketing and information systems has mainly highlighted the benefits of personalization. For instance, personalization can increase the usefulness of websites (Ho & Bodoff, 2014), customer satisfaction (Rust &

Chung, 2006), and generate a positive attitude toward websites (Kalyanaraman & Sundar, 2006). However, as companies use personalization to improve customer experience (Forbes, 2019), it is also important to consider the negative reactions that personalization may generate (Hoyer et al., 2020) and the way customers manage them (Dinev & Hart, 2006). In this doctoral research, we first explored the process underlying customers' positive and negative responses to personalization. Personalization is an automated process that gives customers less control on websites (Lavie & Meyer, 2010). Through this research, we have highlighted that this loss of control induced by personalization can trigger both positive and negative customer responses. Figure 12 presents an overview of both positive and negative responses to personalization. On the one hand, the personalization process improves website playfulness, brings guidance to customers on websites, and arouses their interest by providing relevant and unexpected content. On the other hand, the personalization process may lead customers to feel dominated. Domination refers to the extent to which customers feel restricted in their ability to act in their environment (Holbrook & Batra, 1987; Russell & Mehrabian, 1977). This domination is experienced in three ways: customers may feel stereotyped, influenced, and concerned about their freedom and privacy. These tensions between positive and negative responses to personalization lead to three paradoxes of personalization: the personalization-stereotype paradox, the personalization-influence paradox, and the personalization-privacy paradox. Personalization is supposed to be a customer-oriented process (Peppers & Rogers, 1997) that supports the management of customer experience in a personal way (Lemon & Verhoef, 2016). Although its automated nature can bring positive responses, it may also backfire on customer experience. The investigation of both positive and negative reactions to personalization also enabled us to explore different strategies that customers use to manage the paradoxical tensions that personalization induces. These strategies do not seem to be related to the type of paradoxical tensions but rather to the customers who adopt one strategy rather than another. Prior research suggests that customers operate a calculus to resolve paradoxical tensions (e.g., Dinev & Hart, 2006). However, in light of the theory of paradox (Schad et al., 2016; Smith & Lewis, 2011), this doctoral research identifies acceptance and resolution strategies that customers adopt to manage these tensions and shows that customers do not always resolve these tensions.

Figure 12: Overview of positive and negative responses to personalization



Third, this doctoral research contributes to existing research by considering multiple dimensions of customer experience in the investigation of customer experience on personalized websites. Customer experience is a challenging and complex construct to capture as a whole (Lemon & Verhoef, 2016). Most prior research on customer experience in online environments has, therefore, focused on defined dimensions and measures of customer experience (e.g., Bridges & Florsheim, 2008; Rose et al., 2012), and prior research on personalization has mainly investigated the cognitive and behavioral responses to personalization (e.g., Ho & Bodoff, 2014; Kalyanaraman & Sundar, 2006; Tam & Ho, 2006). In this research, we have considered the affective, cognitive, and behavioral dimensions of customer experience. The combination of multiple dimensions of customer experience in investigating positive and negative customer responses to personalization highlights that negative customer reactions to personalization are mainly affective. On the one hand, the personalization process triggers positive affective, cognitive, and behavioral responses. Personalization enables the improvement of objective playfulness (behavioral response), subjective playfulness (affective and cognitive response), and may bring guidance (cognitive response), and arousal (affective response). On the other hand, the personalization process leads customers to feel that they are less in control, dominated, which is a negative affective response (Russell & Mehrabian, 1977). Through this research, perceived loss of control (domination) has been identified as a key to investigating the backfire effects of personalization.

Finally, considering the interactions customers have online with companies on their websites and other platforms through advertising enabled us to understand how the tensions between positive and negative responses to personalization are triggered. While the personalization-stereotype paradox and the personalization-influence paradox are triggered regardless of the form of interaction with the company (personalization of the website content or personalized advertising), the personalization-privacy paradox is triggered when customers sequentially interact with personalized content on companies' websites and personalized content on subsequent platforms. These interactions with the same personalized content on different platforms may lead customers to feel tracked and harassed. The personalization-privacy paradox had already been identified in prior research (e.g., Awad & Krishnan, 2006; Sutanto et al., 2013). Nevertheless, these prior studies investigated it either in an advertising context or in a website environment. By taking a holistic and iterative view of customer experience, this research enables us to gain a better understanding of how this paradox of personalization is triggered and how advertising may influence customer experience. Lemon and Verhoef (2016) explain that the understanding of the effect of advertising on customer experience in an online environment is limited. With this research, we have extended this understanding by showing that personalized advertising may backfire on the experience customers have with the company.

Methodological contributions

In addition to the theoretical contributions, this doctoral thesis makes several methodological contributions. In this doctoral research, we combined original methods and techniques to capture customer experience on personalized websites more holistically and reach our research objectives.

The flow of customer experience is dynamic and iterative (Lemon & Verhoef, 2016). To capture the dynamic aspect of customer experience, we decided to adapt repertory grid techniques (Hair et al., 2009; Tan & Hunter, 2002) to analyze eye-tracking data and understand unconscious customer responses to personalization. We developed a repertory grid with a nomothetic approach (Tan & Hunter, 2002) in order to systematically analyze behavioral manifestations of customer experience. Then, we coded every customer fixation and interaction with the 72 products displayed on the website we created, leading to 4,248 lines of coded data. Prior research mostly focused on analyzing aggregated eye-tracking data with fixed scan paths (e.g., Kahn, 2017) and heat map analysis (e.g., Wang et al., 2014) to analyze customer

experience. However, such analyses of eye-tracking data do not capture the dynamic aspect of customer experience on dynamic websites. The original use of repertory grid techniques to analyze eye-tracking data also enabled us to focus our analysis on the focused attention on the products and not on all fixations made on the website. Unlike web analytics that considers the whole time customers spend on pages and websites (Bucklin & Sismeiro, 2003), this technique enables us to distinguish between the whole time spent on the website and the time spent on their favorite products. This measure represents a more efficient use of time. Customer attention is considered one of the most valuable items in the information age (Koiso-Kanttila, 2005; Shapiro et al., 1999). The Nobel prize-winning economist Simon (1971) also explained that “a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it” (pp. 40-41). Individuals have limited attention, and it is important to assess their efficient use of time among the amount of information available on a website (Koiso-Kanttila, 2005).

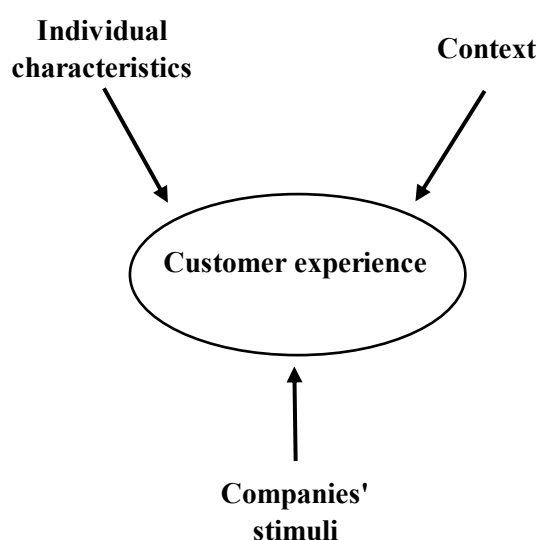
Finally, to capture the iterative aspect of customer experience, we used elicitation techniques during the interviews we conducted. Given the sensory and affective dimensions of customer experience, the use of eliciting techniques during the interviews was important to elicit internal perceptions and feelings (Hair et al., 2009) and help informants verbalize these perceptions and feelings (Day, 1989; Hair et al., 2009). Within the framework of this doctoral research, we selected different personalized and non-personalized websites and invited informants to navigate them during the interview. Through this technique, we were able to observe customer navigation and capture their perceptions during their interactions on different platforms. In addition, we were able to observe the effect of personalized advertising on customer experience. During their navigation, informants were exposed to personalized advertising while they browsed the websites during the interviews. Some websites unexpectedly used some informants’ data to personalize advertising on subsequent websites. Although some informants explained their perceptions by recalling previous experience, other informants were able to directly express their perceptions of how these sequential interactions affected their experience.

Managerial contributions

Customer experience is influenced by individual factors, context-related factors, and companies’ stimuli, as depicted in Figure 13 (Becker & Jaakkola, 2020; Lemon & Verhoef, 2016). For instance, customer characteristics, such as personality, values, and

sociodemographic characteristics, can influence customer experience (Becker & Jaakkola, 2020; Holbrook & Hirschman, 1982). Context-related factors also affect customer experience. Context includes situational contingencies (immediate context), such as the presence of customers in the store, but also sociocultural contingencies (the system in which customers are embedded), such as culture and societal norms and rules (Becker & Jaakkola, 2020). Companies cannot control customer responses, but they can assess, design, manage, and optimize a range of stimuli that influence customer experience (Becker & Jaakkola, 2020).

Figure 13: Factors influencing customer experience



This doctoral research investigated different influencing factors that companies can use. It provides practitioners with several insights on how to provide customers with an optimal customer experience with personalization and mitigate the downsides of personalization.

First, this research shows that personalization processes are worthwhile for companies. Prior research suggested that indicating that content is personalized influences customers' responses more than actual personalization made on the website (Vandenbulcke, 2019). However, our research shows that actual personalization influences customer responses, even if it is not accompanied by a message signaling personalization. Customers focus their attention more on their favorite products when content is personalized and are more likely to select their favorite products for purchase when they focus on them.

However, this doctoral research also shows the importance of companies acknowledging the downsides of personalization. With personalization, companies hope to

improve customer experience (Tam & Ho, 2006; Tong et al., 2020). Although personalization may be valuable for customers, it may also backfire, leading customers to feel dominated (not in control). In cognitive ergonomics (Bodart & Vanderdonckt, 1995; Scapin & Bastien, 1997), control and adaptation (of which personalization is a part) are among the ergonomic criteria to assess the quality of an interface. Control includes three forms: explicit control (customer is in control), implicit control (the system is in control), and mixed-initiative (customer and system collaborate) (Bodart et al., 1996). In this research, we have seen that by being automated, personalization gives companies more implicit control, which leads customers to feel they are less in control (explicit control). This negative effect of personalization is particularly important to consider for companies as the perception of the loss of control can lead customers to feel stereotyped, influenced, and concerned about their privacy.

This doctoral research has also highlighted different levers that companies can use to mitigate the backfire effects of personalization and increase the perception of control. Table 13 presents an overview of the levers that companies can use with regard to the paradoxical tensions that personalization triggers.

Table 13: Companies levers that can mitigate paradoxical tensions of personalization

Paradoxes of personalization	Companies levers
Personalization-influence paradox	Valuable personalized content (relevance dimension)
Personalization-stereotype paradox	- Valuable personalized content (unexpected dimension) - Visual signaling cues (flags)
Personalization-privacy paradox	- Valuable personalized content (relevance dimension) - Trust/affinity - Textual signaling cues (information transparency)

To improve customer experience on their websites, companies can first provide customers with valuable personalized content. Through this doctoral thesis, we identified that companies can assess the value of their personalized content depending on relevance and expected dimensions. Valuable personalized content is at least relevant to the customer, but it also allows for discovery. Such contents may help mitigate the personalization-stereotype paradox and the personalization-influence paradox. Relevant personalized content refers to suggested content that matches customer preferences. Conversely, irrelevant personalized content does not match their preferences. Such content may lead customers to feel influenced.

Unexpected personalized content refers to suggested content that enables customers to discover content outside their usual interests. Expected personalized content is of interest to the customers but remains within their usual sphere of interest. If customers are looking for novelty, such content may give them the impression of being locked into a box, stereotyped. Content that combines relevance and expectedness may be ideal to help a customer easily find content on a website, especially in a product search phase. For instance, Amazon suggests products on its homepage based on previous customer searches (Aguirre et al., 2015). Such suggested content may help customers who are still hesitating between products and who go back to the website to search for more information easily find the products that are of interest to them. Content combining relevance and unexpectedness may be ideal to arouse customer interest and keep website visitors intrigued. For instance, Spotify provides discoveries based on your preferences. These are not songs you have already listened to, but they match your style, your preferences, and allow you to discover new things (TechCrunch, 2019).

Besides the content lever, companies could use contextual levers, such as signaling cues, to mitigate negative responses to personalization. Companies could use two types of signaling cues: visual and textual cues. Such signals meet different objectives. Visual cues, such as flags, inform customers about what content is personalized and what content is generic and visible by all the customers visiting the website. Such a signal could reduce the feeling of being stereotyped. Textual cues, such as information transparency, inform customers about how companies collect and use their data for personalization purposes. Companies dealing with European customers' data must display transparency messages on their websites since the advent of the GDPR (Kumar, 2018). The presence of such a cue aims to reduce information asymmetries between companies and customers (Zhou et al., 2018). In this doctoral research, we have seen that the personalization-privacy paradox arises because customers realize that they do not control what is actually done by the company, especially regarding the collection and use of their data. Communicating with customers transparently via a signal about the collection and use of their data for various personalization purposes can, however, reduce this feeling of loss of control. Prior research has shown that most customers often do not read transparency messages on websites (Milne & Culnan, 2004), suggesting a situation where the need for cognition is low. Nevertheless, this research shows that the mere presence of a transparency message can create a heuristic of signal strength for customers with a low need for cognition and improve their perception of control on personalized websites, whether the transparency message discloses explicit or implicit data collection.

Finally, the qualitative research highlights that customers appear to worry less about data collection and use for personalization purposes on trustworthy websites and their favorite websites. To build customer trust regarding privacy, companies such as Forbes, Yamaha, and Kellogg's have decided to use a privacy compliance solution, such as TrustArc and OneTrust (Forbes, 2017), and display the logo of the solution on their website. Prior research (Aguirre et al., 2015) has shown that such icons signaling trustworthiness can create trust heuristics when customers face information asymmetry. Customers tend to assume they can trust the website displaying such trust-building icons, which improve website credibility, reduce negative responses to personalization, and make personalization more acceptable for customers (Aguirre et al., 2015).

Limitations and future research

Despite the use of multiple methods, techniques, and measures to understand the process underlying customer experience on personalized websites, some limitations to our work persist that can be addressed in future research. Table 14 presents the agenda for future research.

First, the qualitative research highlighted the importance of considering the different interactions customers have with personalized content in understanding customer experience on personalized websites. However, the experiments that we conducted focused on customer interactions with the company's website and put participants in situations where they visited the website twice. Customers now have access to multiple ways to interact with companies during their journey (Barwitz & Maas, 2018; Lemon & Verhoef, 2016). In this complex interaction environment, Lemon and Verhoef (2016) call for more research focusing on an omnichannel understanding of customer experience and how to manage this customer experience successfully. Future research on the personalized customer experience should consider the interactions customers have with companies across multiple platforms, whether on their own or other channels. For instance, future research should investigate how exposure to the company's personalized content on different channels influences customer experience. Besides this customer perspective, future research should also examine how companies can successfully manage their personalized content through different channels.

Second, although the qualitative research enabled us to highlight the potential backfire effect of personalized advertising on customer experience, further research is needed to understand the connections between personalized advertising and the personalization of the website content (Lemon & Verhoef, 2016). This doctoral thesis especially highlighted that the

personalization-privacy paradox is triggered when customers sequentially interact with personalized content on a company website and personalized advertising presenting the same content. However, this doctoral thesis did not investigate the effect of timing in this process. The timing of exposure matters in processing and evaluating personalized content (Ho et al., 2011). We could observe different effects on customer experience depending on the timing between a customer's first exposure to personalized content on the company website and their subsequent exposure to personalized advertising. In addition, as the process underlying customer experience is dynamic and iterative (Lemon & Verhoef, 2016), future research should also investigate how the timing between exposure to personalized advertising and future interactions with the company website may affect customer experience.

Third, although this qualitative research enabled us to gather customer perceptions regarding different websites (news websites, travel websites, media-services providers, and e-commerce websites), further research is needed to understand the brand's role in the process underlying the effect of personalization on customer experience. This doctoral thesis further investigated customer experience on personalized e-commerce websites, but these websites used fictive unknown brands. Research on brand websites is needed to investigate the effect of the relationship with the brand. For instance, as customer experience is an iterative process (Lemon & Verhoef, 2016), prior experience with the brand could influence the effect of personalization on customer experience. In this research, we also further examined customer experience on e-commerce websites. However, customers may experience personalization differently depending on the website category and the type of activity they are engaged in (Aguirre et al., 2016).

Fourth, this doctoral thesis mainly focused on the use of personalization during the pre-purchase stage of the customer journey. However, personalization can be used at different stages. For instance, Amazon also uses personalization at the purchase stage by recommending similar products to the ones in the cart when customers are at the checkout (Optinmonster, 2020). In addition, in the qualitative research, customers explained that some personalized content they are exposed to through advertising and the emails they receive presents products that they have already bought. Therefore, future research should investigate how personalization influences customer experience at other stages of the customer journey.

Fifth, customer experience has been recognized as a construct that exists at conscious and unconscious levels (Joy & Sherry, 2003; Lemke et al., 2011). In this doctoral thesis, we

captured customers' unconscious responses to personalization using eye-tracking techniques. Such techniques enabled us to capture the way customers focus their attention during navigation (Kahn, 2017). With the analysis of the eye-tracking data, we were able to understand playful customer experience objectively at the product-level by investigating focused attention on products, but we could not investigate this experience at the participant-level. Further research is therefore needed to capture unconscious responses to personalization more holistically. For instance, future research could include complementary objective measures, such as electroencephalography, to also analyze attention (Gordon et al., 2018; Léger et al., 2014) at the participant-level and investigate how these unconscious responses may affect future customer behaviors.

Sixth, this research focused on the effect of the personalization of the website content on customer experience. Such personalization is widely used by companies (Ho & Bodoff, 2014) and is part of the individualization process enabling the individualization of website features (Kumar et al., 2004), along with website morphing, which focuses on the adaptation of the website design (Hauser et al., 2009; Hauser et al., 2014), and adaptive menus (Al-Omar & Rigas, 2009). Further research is needed to understand how these other individualization processes may impact customer experience during navigation, especially on brand websites that may mix these approaches.

Seventh, this research examined the role of information transparency in the process underlying the effect of personalization on customer experience, depending on individual customer characteristics. Based on signaling theory (Spence, 1973, 2002), characteristics of the signal and the signaler (the company or the brand) may also influence the effectiveness of a signal, such as information transparency. Characteristics of the signal include its form, content, and visibility (Connelly et al., 2011). In this doctoral research, we explored the effect of the presence of information transparency in the process underlying the effect of personalization on customer experience and the effect of the content of the transparency message in this process. Future research should explore the effect of other signal characteristics, such as its form. For instance, prior research has shown that customers tend to prefer shorter transparency messages (Milne & Culnan, 2004). However, longer messages give the impression that a signal is stronger (Sundar, 2008). Research is therefore needed to understand the effect of the signal length on the personalization process. In addition, the signaler's characteristics can influence the interpretation of a signal, such as customer perception of the honesty and reliability of the signaler who discloses the signal (Connelly et al., 2011). Therefore, future research should

investigate how companies and brands may influence the interpretation of transparency messages to reduce privacy concerns on their personalized websites.

Finally, the qualitative research highlights different strategies that customers adopt to manage paradoxical tensions of personalization. The strategy adopted did not seem to be related to the type of personalization paradox but rather to the customers who adopt one strategy rather than another. However, this research did not identify which customer characteristics can influence the adoption of a strategy. Therefore, further research is needed to identify the individual factors that influence the adoption of a management strategy and understand how they affect the adoption of the strategy.

In conclusion, we hope that these promising research opportunities will inspire researchers to investigate the personalization process and its impact on customer experience further.

Table 14: Future research agenda

Topic	Research gap	Research questions	Expected contributions
Omnichannel perspective of personalized content	Existing research has little investigated customer experience with personalized content with an omnichannel perspective.	- How does the exposure to personalized content on different channels influence customer experience? - How can companies successfully manage personalized content through different channels?	- Omnichannel understanding of customer experience with personalized content. - Understanding how to manage customer experience successfully with personalized content.
Advertising and personalized customer experience	The effect of personalized advertising on personalized customer experience is still an underexplored area.	- How does advertising influence personalized customer experience? - What is the role of the timing of exposure in this process?	- Further understanding of the effect of personalized advertising on customer experience. - Understanding of the role of the timing of exposure in this process, a variable that has been identified as important in the evaluation of personalized content (Ho et al., 2011).
Customer experience on a brand personalized website	Limited knowledge about the role of the brand and the website category in the process underlying the effect of personalization on customer experience.	- What is the role of the brand in the processing underlying the effect of personalization on customer experience? - What is the role of the website category in this process?	- Understanding how prior interactions with the brand can influence further interactions with the brand on its personalized website. - Identify how the website category and the type of activity performed on different types of website influences customer evaluation of the personalization process.
Customer journey with personalized content	Lack of knowledge on the way personalization influences customer experience at other stages of the customer journey.	How does personalization influence customer responses at different stages of the customer journey?	Understanding of customer experience with personalized content at the purchase and postpurchase stages.

Table 14: Future research agenda (continued)

Topic	Research gap	Research questions	Expected contributions
Customer experience measurement	Lack of a holistic measure to assess objective customer experience.	• What measurement tools can be used to assess customer experience objectively?	• Investigate how physiological measures can assess customer experience objectively and holistically.
Individualization processes on websites	Existing research has barely investigated how the individualization of other website features affect customer experience.	• How does the individualization of other website features influence customer responses?	• Investigate how the individualization of the website design and the navigation can influence customer experience.
Personalization-privacy paradox and information transparency	Existing research has barely investigated the effects of the characteristics of the signal and the signaler on the process underlying the effect of personalization on customer experience.	• How does information transparency influence the personalization process depending on signal characteristics? • How does information transparency influence the personalization process depending on signaler characteristics?	• Investigate how characteristics of transparency message, such as its length, may moderate the effect of personalization on customer experience. • Investigate how characteristics of the signaler may moderate the effect of personalization on customer experience.
Customer management strategies	Lack of knowledge on customers' characteristics that can influence the adoption of a management strategy.	• What individual characteristics influence the adoption of a strategy in the management of paradoxical tensions of personalization? • How do individual characteristics influence the adoption of a management strategy?	• Identify individual characteristics that influence the adoption of management strategies. • Investigate how individual characteristics influence the adoption of management strategies.

Appendices

Appendix 1: Measurement scales

Construct	# items	Reference	Adapted scale	Cronbach's alpha	% variance explained
Digital skills	4	Rose et al. (2012)	• I consider myself knowledgeable about the internet and digital practices • I am extremely skilled at using the internet • I am an expert in the internet and digital technologies • I know somewhat more than my friends about the internet and digital practices	0.951	87.67%
Online shopping involvement	6	Strazzieri (1994)	• Online shopping means a lot to me • I attach particular importance to online shopping • I particularly like to talk about online shopping • I am interested in online shopping • I feel particularly drawn to online shopping • Just finding out about online shopping is a pleasure	0.963	84.50%
Perceived personalization	4	Maslowska et al. (2016)	• I have the impression that the organization of the proposed products was based on my wish list • I have the impression that the choice of products displayed took into account my wishes • The organization of the content was adapted to my preferences • The products highlighted on the first page of each category corresponded to my wish list	0.854	70.38%

Appendix 1: Measurement scales (continued)

Construct	# Items	Reference	Adapted scale	Cronbach's alpha	% variance explained
Perceived content congruence	6	Fleck and Quester (2007)	- I am not surprised by the content provided by the website based on my wish list - Given my preferences, I expected this website to display these products - Based on my wish list, it was foreseeable that this website would display these products - The products displayed correspond to my preferences - The displayed products are a good choice for me regarding my wish list - The content provided by the website fits well with my wish list	0.855	61.25%
Product category involvement	6	Strazzieri (1994)	- Furniture products mean a lot to me - I attach particular importance to furniture products - I particularly like to talk about furniture products - I am interested in furniture products - I feel particularly drawn to furniture products - Just finding out about furniture products is a pleasure	0.963	85.26%
Subjective playfulness	9	Ahn et al. (2007)	- When interacting with the website, I did not realize the time elapsed - When interacting with this website, I was totally absorbed in the task at hand - When interacting with this website, I forgot about everything else - Using this website gave enjoyment to me for my task - Using this website gave fun to me for my task - Using this website kept me happy for my task - Using this website stimulated my curiosity - Using this website stimulated my search for products - Using this website aroused my imagination	0.893	55.90%

Appendix 2: Repertory grid

Participant ID	Product category	Product	Favorite product [0-1]	Purchased product [0-1]	Pg. #	Position on page	All simple fixations	Simple fixations image	Simple fixations text	All long fixations	Long fixations image	Long fixations text	Inter-actions	Aggregate fixations	Aggregate fixations image	Aggregate fixations text
	Coffee tables	Christie														
	Coffee tables	Austen														
	Coffee tables	Defoe														
	Coffee tables	Conrad														
	Coffee tables	Wilde														
	Coffee tables	Tolkien														
	Coffee tables	Shakespeare														
	Coffee tables	Byron														
	Coffee tables	Shelley														
	Coffee tables	Dickens														
	Coffee tables	Rowling														
	Coffee tables	Orwell														
	Coffee tables	Eliot														
	Coffee tables	Joyce														
	Coffee tables	Spenser														
	Coffee tables	Keats														
	Coffee tables	Jonson														
	Coffee tables	Greene														
	Coffee tables	Atlas														
	Coffee tables	Helios														
	Coffee tables	Coeos														
	Coffee tables	Thethys														
	Coffee tables	Eos														
	Coffee tables	Asteria														
	Coffee tables	Gaia														
	Coffee tables	Thalassa														
	Coffee tables	Athene														
	Coffee tables	Aura														
	Coffee tables	Selene														
	Coffee tables	Demeter														
	Coffee tables	Ourra														
	Coffee tables	Damysos														
	Coffee tables	Palemon														
	Coffee tables	Bolina														
	Coffee tables	Minos														
	Coffee tables	Ino														

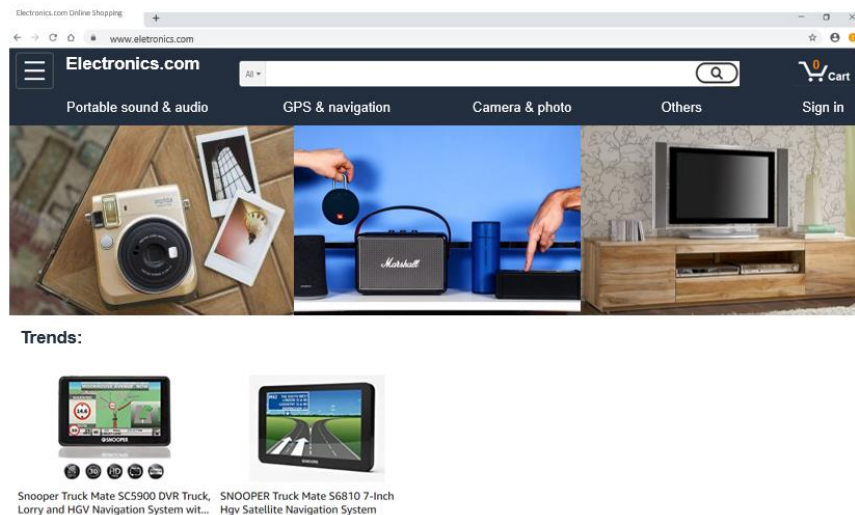
Appendix 2: Repertory grid (continued)

Participant ID	Product category	Product	Favorite product [0-1]	Purchased product [0-1]	Pg. #	Position on page	All simple fixations	Simple fixations image	Simple fixations text	All long fixations	Long fixations image	Long fixations text	Inter-actions	Aggregate fixations	Aggregate fixations image	Aggregate fixations text
	Lamp	Vega														
	Lamp	Canopus														
	Lamp	Pollux														
	Lamp	Rigel														
	Lamp	Deneb														
	Lamp	Aldebaran														
	Lamp	Alair														
	Lamp	Sirius														
	Lamp	Achernar														
	Lamp	Antares														
	Lamp	Capella														
	Lamp	Kappa														
	Lamp	Epsilon														
	Lamp	Mizar														
	Lamp	Zeta														
	Lamp	Alfard														
	Lamp	Almak														
	Lamp	Belatrix														
	Soià	Balzac														
	Soià	Camus														
	Soià	Flaubert														
	Soià	Moliere														
	Soià	Maupassant														
	Soià	Zola														
	Soià	Cornelle														
	Soià	Sartre														
	Soià	Hugo														
	Soià	Baudelaire														
	Soià	Racine														
	Soià	Prevert														
	Soià	Rimbaud														
	Soià	Musset														
	Soià	Montaigne														
	Soià	Gide														
	Soià	Apolinaire														
	Soià	Voltaire														

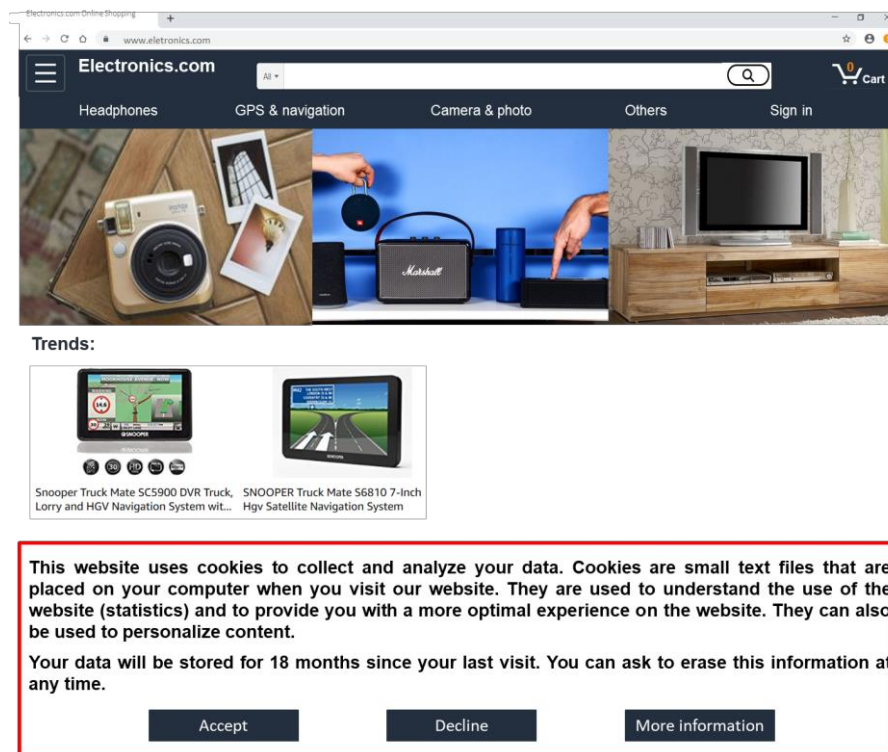
Appendix 3: Stimuli from Study 1

Participants were told, “Imagine that you want to purchase new headphones and that you decide to browse the website Electronics.com. The homepage of the website is presented as follows:”

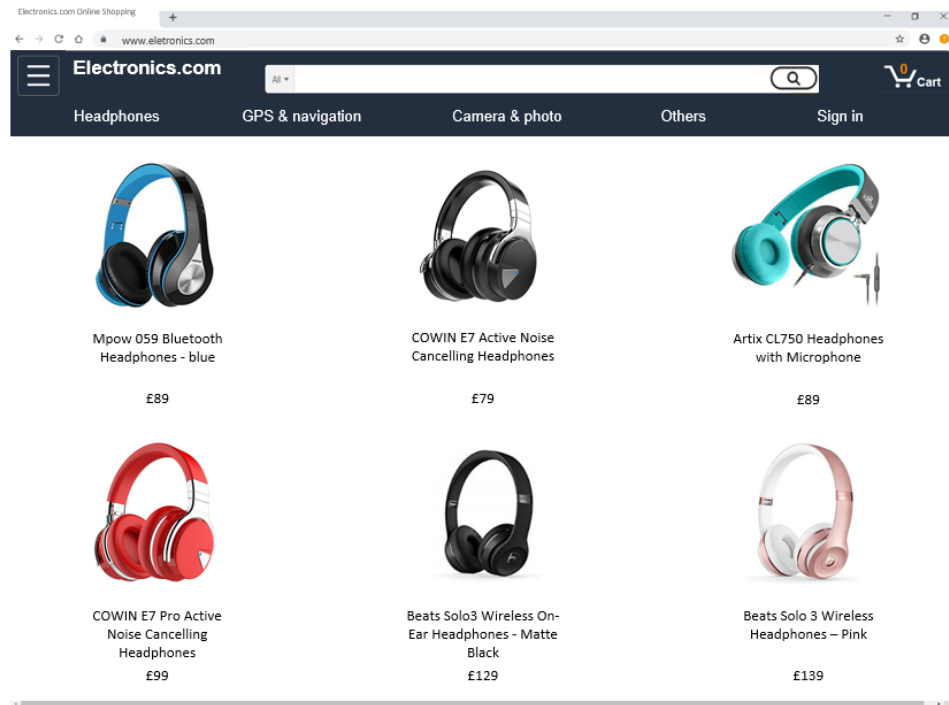
- Groups without information transparency



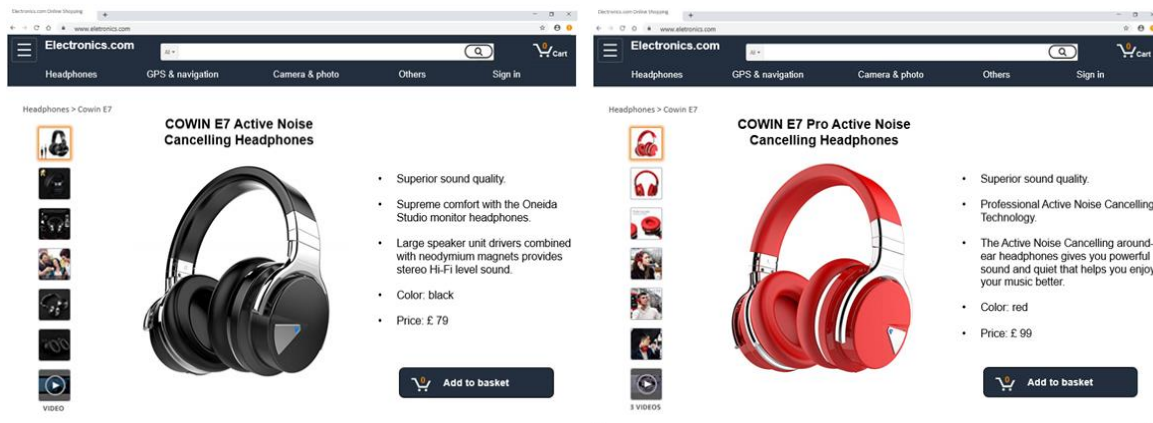
- Groups with information transparency



For the participants in the condition of information transparency, we added, “after reading the message, you click on ‘accept.’” Then, we continued the scenario: “You click on the ‘headphones’ category to browse the products.”

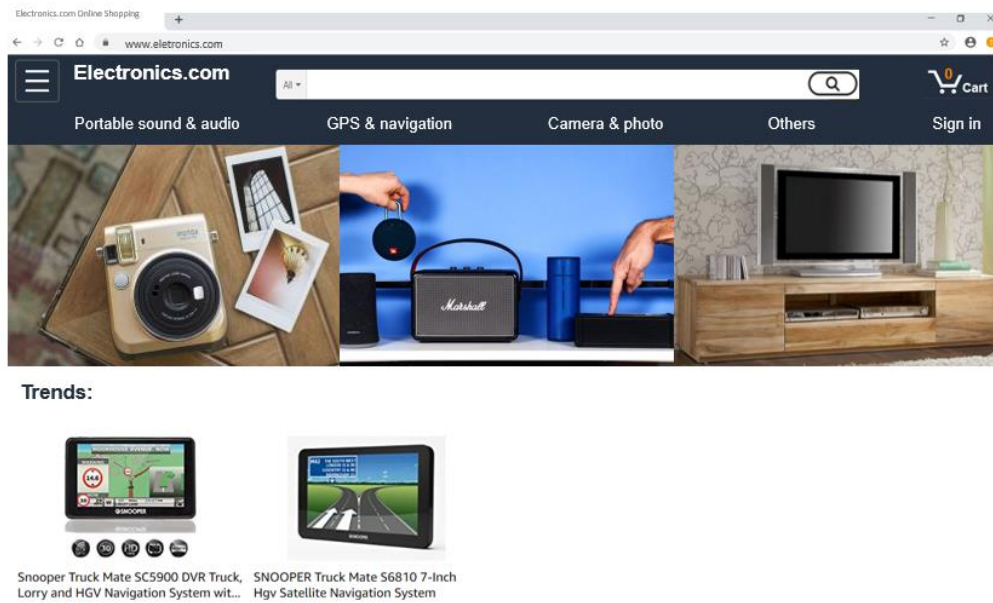


“You click on your favorite products in order to read details about them.”

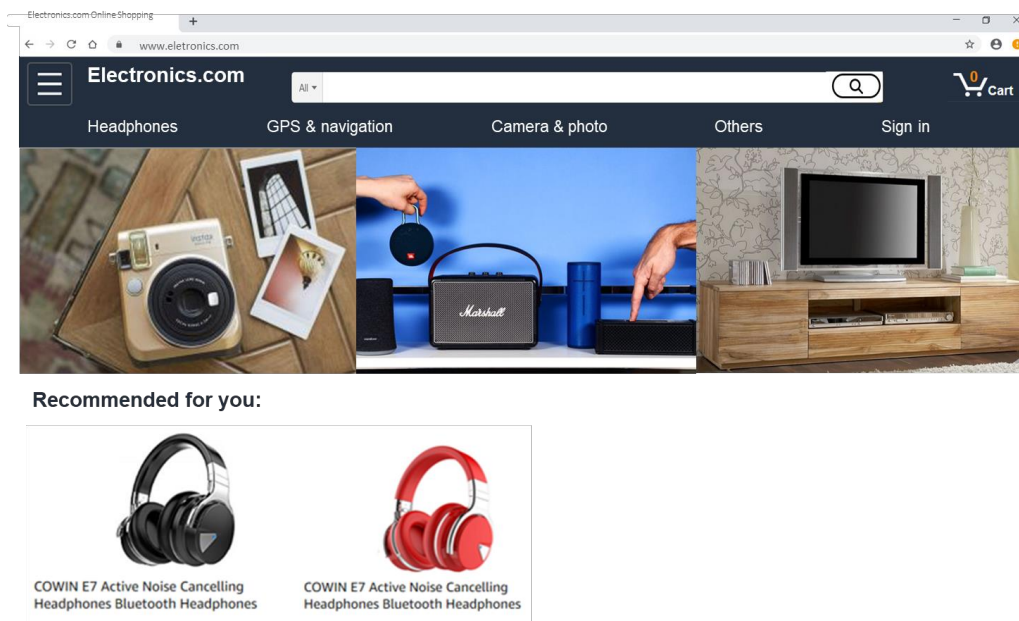


“However, you are still hesitating between these two headphones. You decide to leave the website to think about it.” Then, we continued the scenario: “The day after, you decide to return to the website to purchase the black headphones you like. The homepage of the website is presented as follows:”

- Groups without personalization



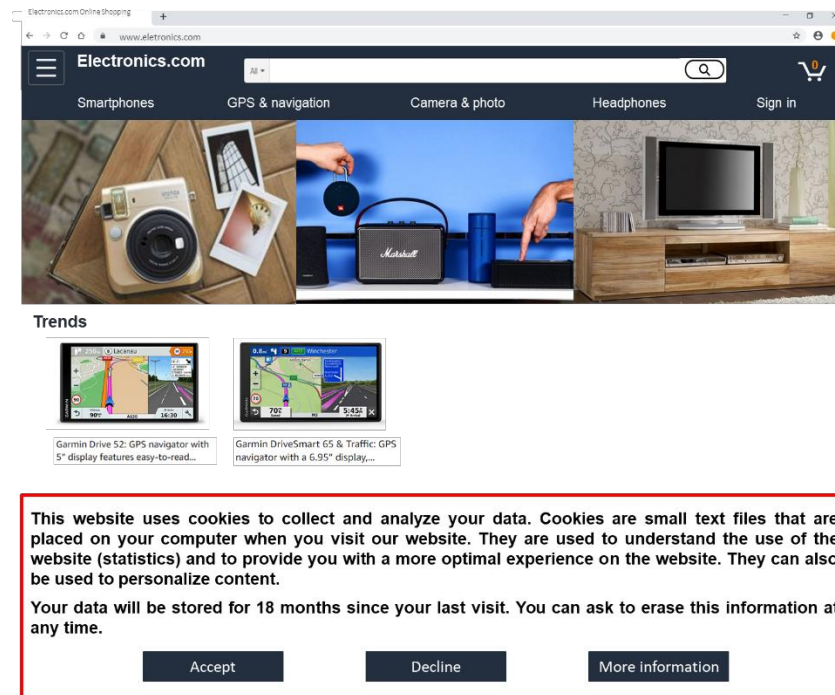
- Groups with personalization



Appendix 4: Stimuli from Study 2

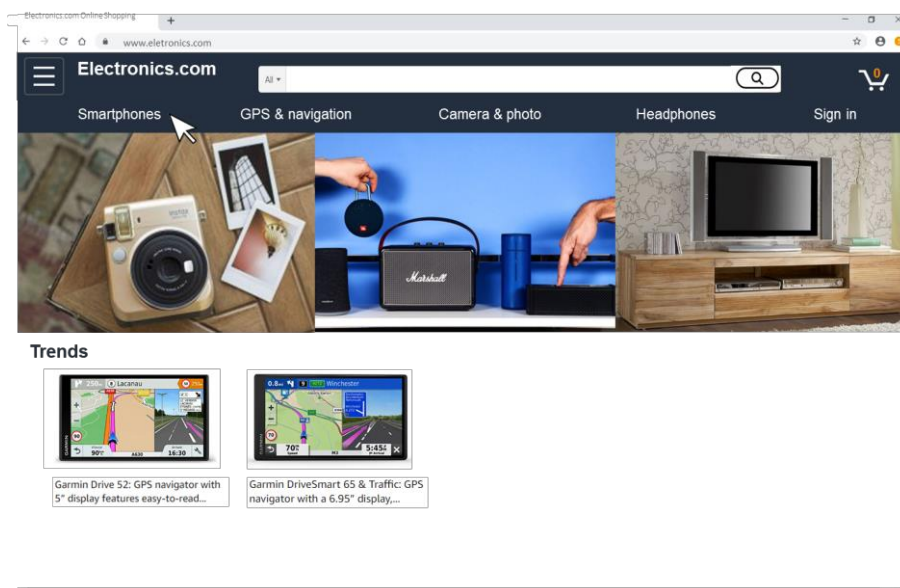
- Groups with a message about implicit data collection

Participants were told, “Imagine that you want to purchase a new smartphone and that you decide to browse the website Electronics.com. The homepage of the website is presented as follows:”

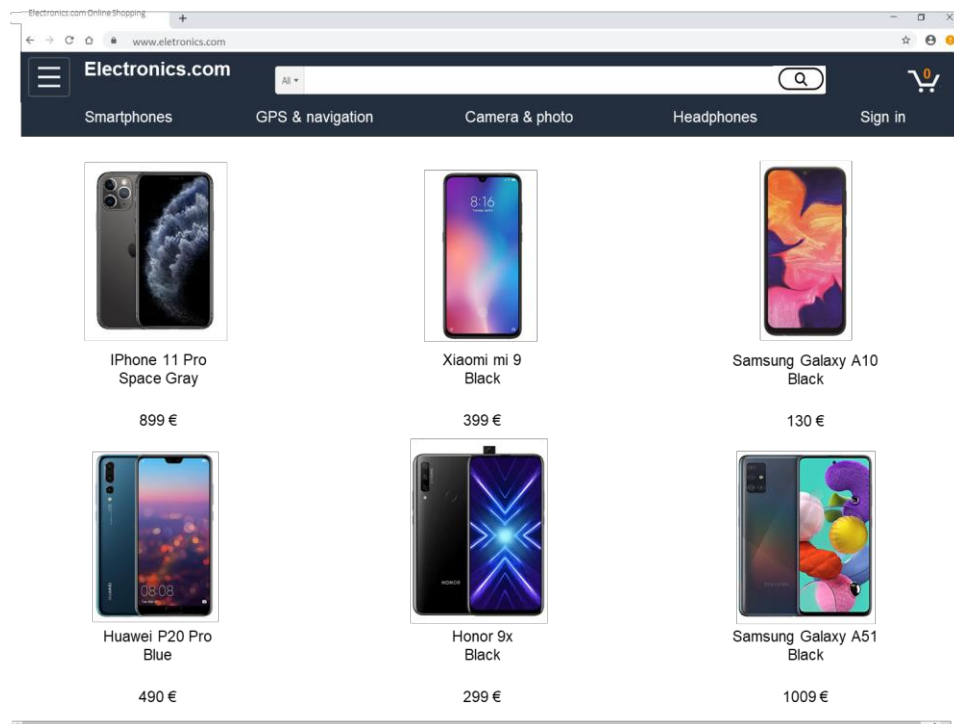


“After reading the message, you click on ‘accept.’” Then, we continued the scenario:

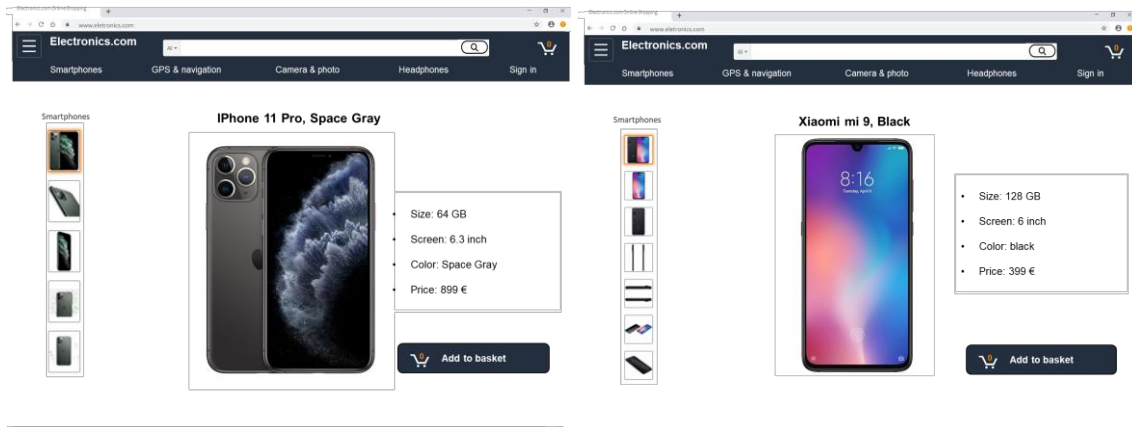
“Then you click on the ‘smartphone’ category in the menu.”



“Then, you browse the different smartphones available on the website:”

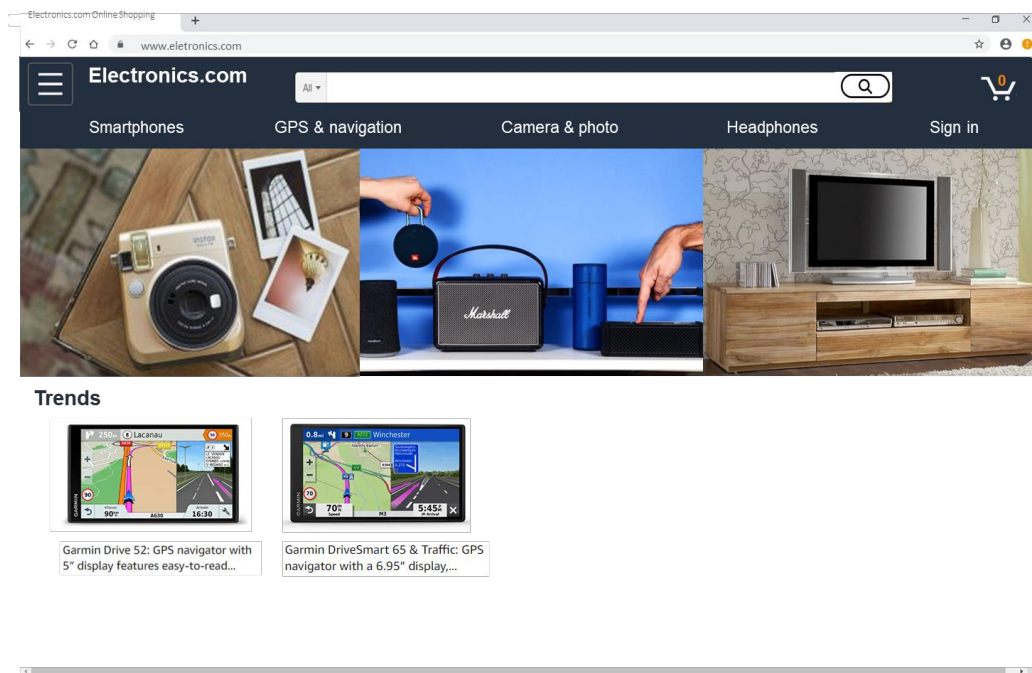


" You click on your favorite products in order to read details about them."

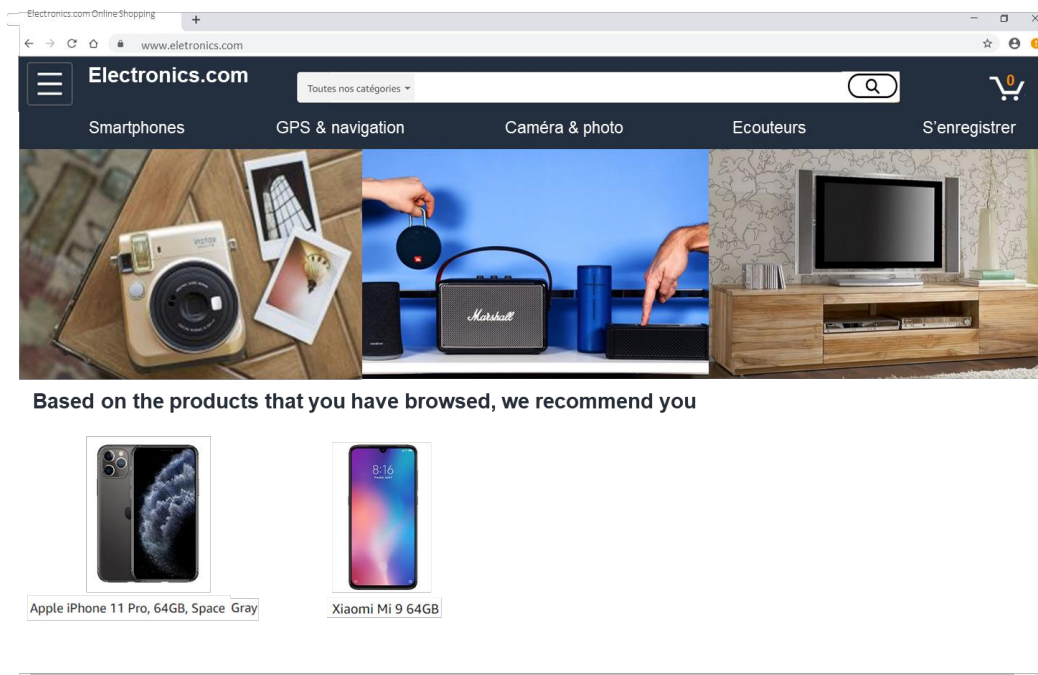


“However, you are still hesitating between these two smartphones. You decide to leave the website to think about it.” Then, we continued the scenario: “The day after, you decide to return to the website to purchase the iPhone you like. The homepage of the website is presented as follows:”

- Groups without personalization

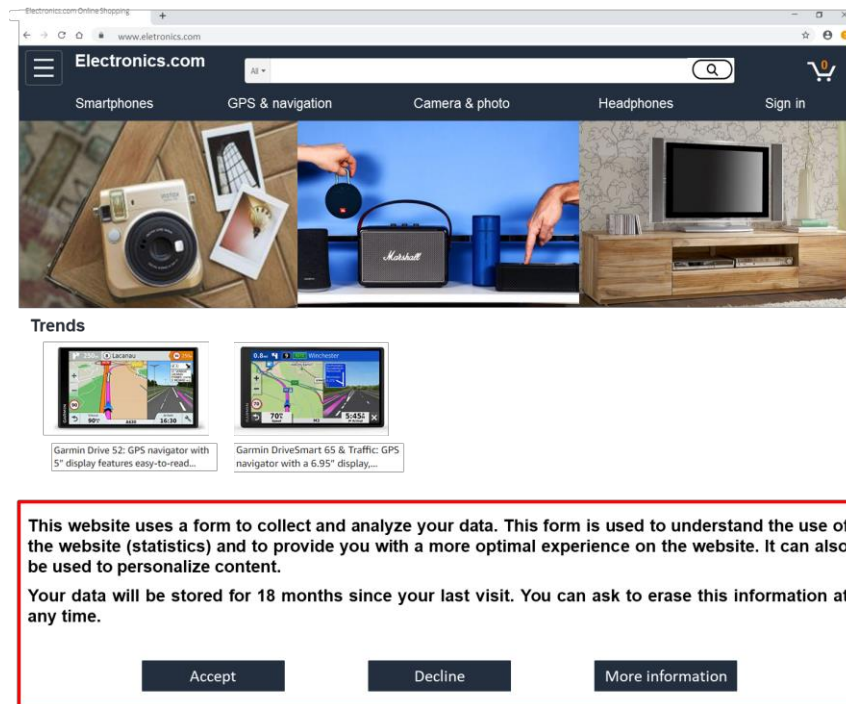


- Groups with personalization

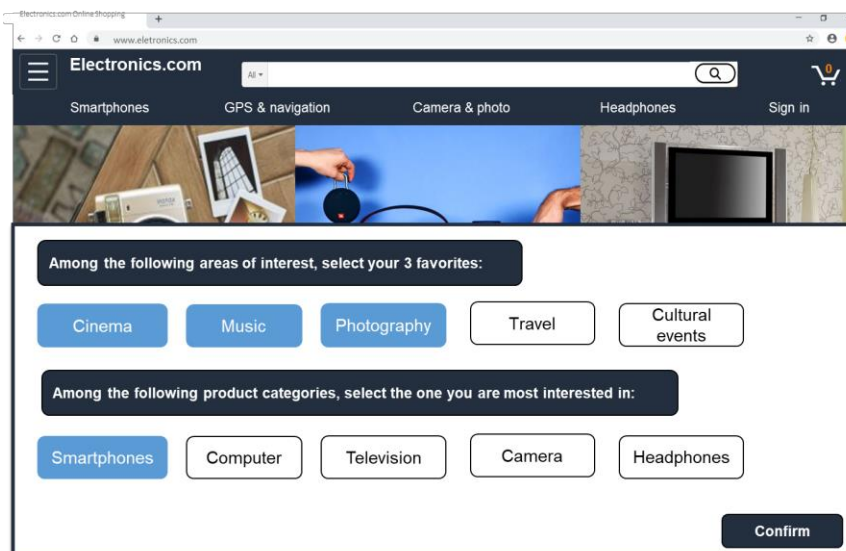


- Groups with a message about explicit data collection

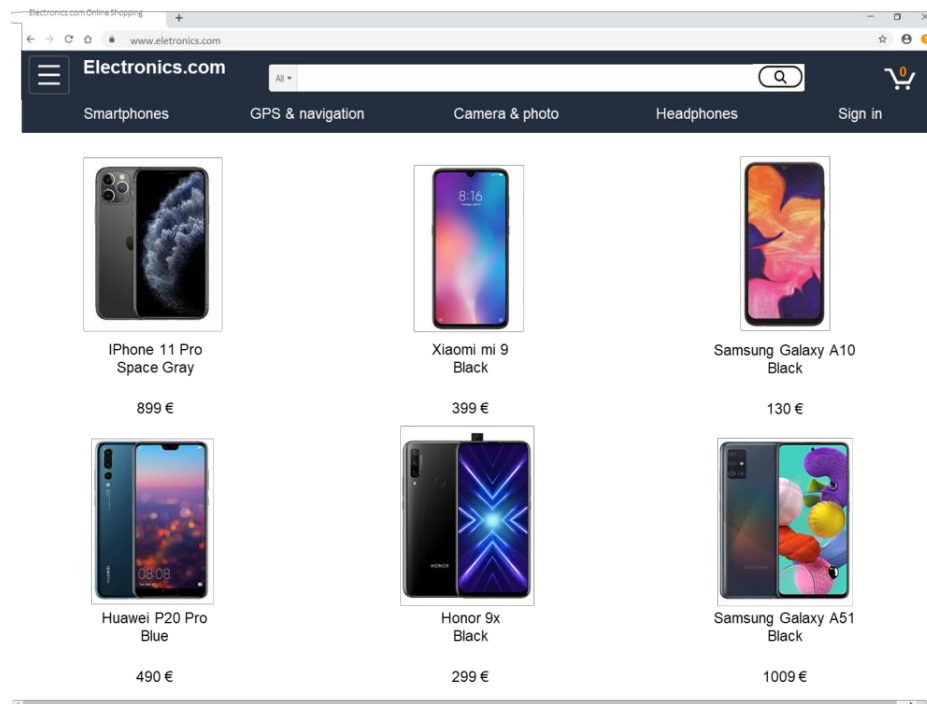
Participants were told, “Imagine that you want to purchase a new smartphone and that you decide to browse the website Electronics.com. The homepage of the website is presented as follows:”



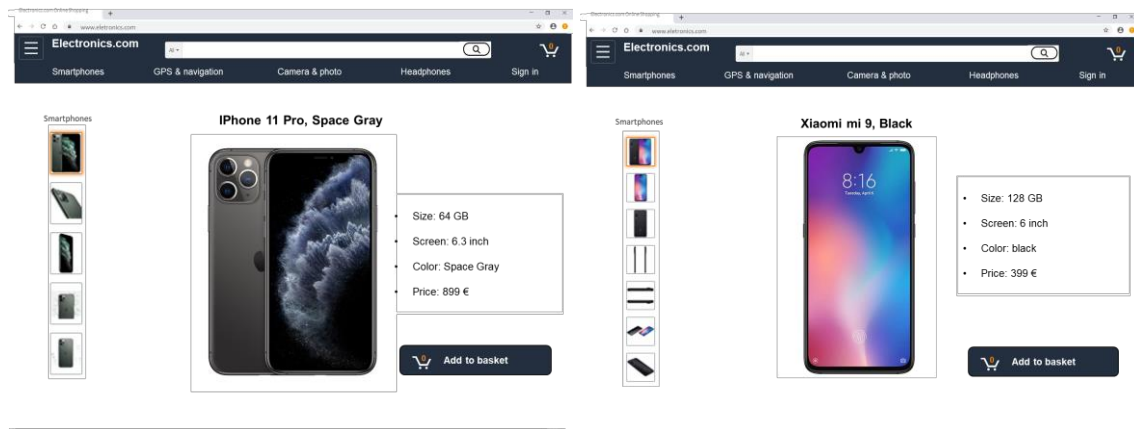
“After reading the message, you click on ‘accept.’” Then, we continued the scenario: “The website presents a form asking you more about your interests. Then, you select the propositions that interest you and click on ‘confirm.’”



“Then you click on the ‘smartphone’ category in the menu, and you browse the different smartphones available on the website:”

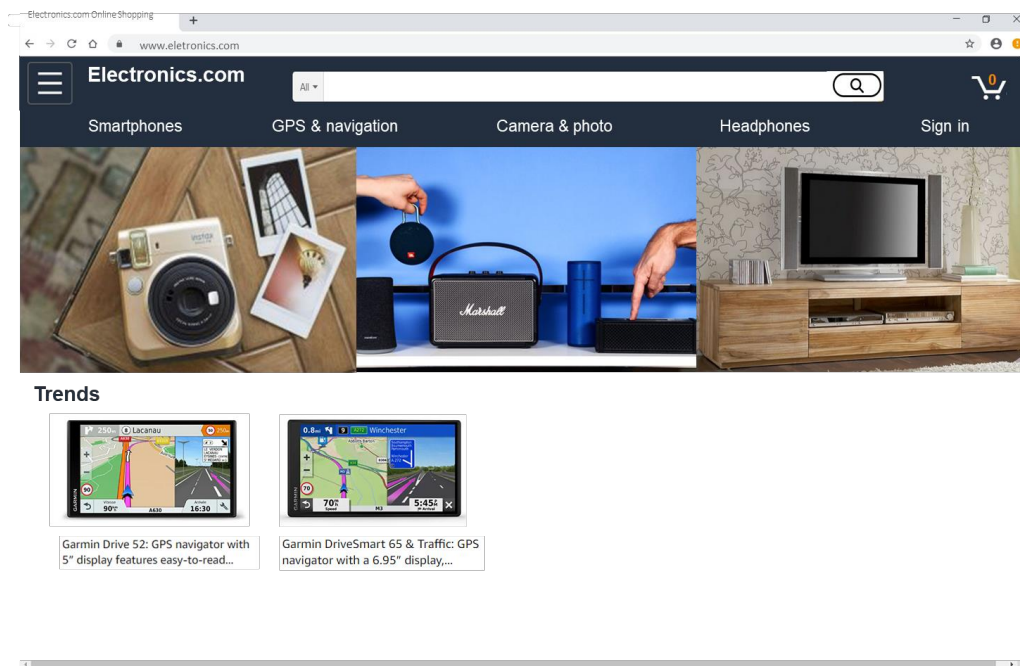


“You click on your favorite products in order to read details about them.”

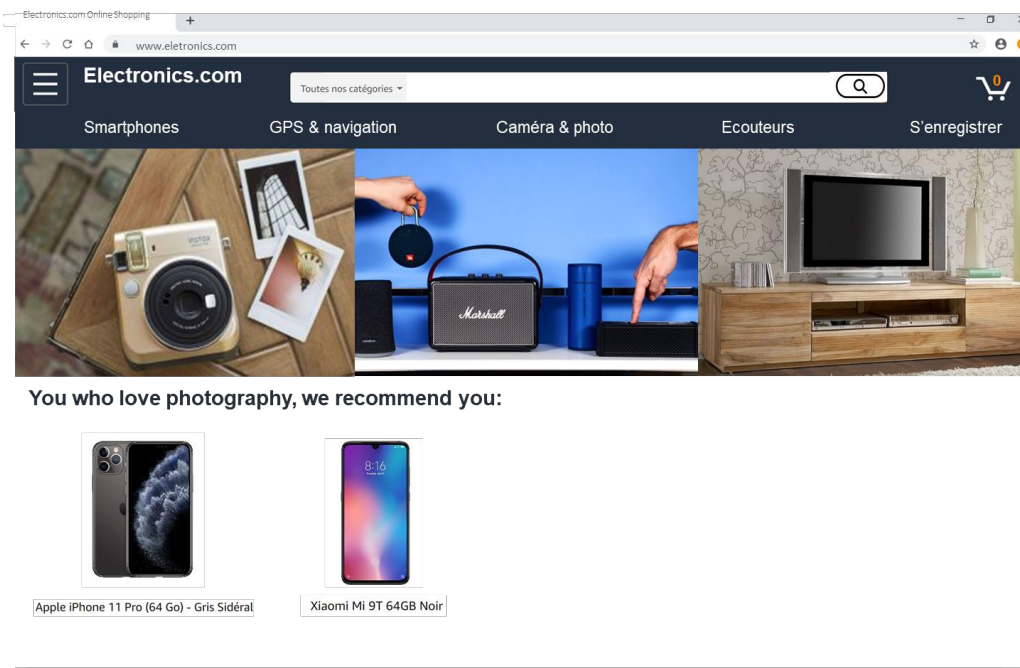


“However, you are still hesitating between these two smartphones. You decide to leave the website to think about it.” Then, we continued the scenario: “The day after, you decide to return to the website to purchase the iPhone you like. The homepage of the website is presented as follows:”

- Groups without personalization



- Groups with personalization



Appendix 5: Measurement scale items

Construct	# items	Reference	Adapted scale
Attention to the message	3	Kim and Lakshmanan (2015)	• I paid close attention to the message signaling data collection on the homepage • I fully concentrated upon the message signaling data collection on the homepage • I was deeply engrossed in the message signaling data collection on the homepage
Digital skills	4	Rose et al. (2012)	• I consider myself knowledgeable about the internet and digital practices • I am extremely skilled at using the internet • I am an expert in the internet and digital technologies • I know somewhat more than my friends about the internet and digital practices
Familiarity with GDPR	3	Ad hoc	• I consider myself knowledgeable about the General Data Protection Regulation • I know how online companies should disclose the way data are collected, processed, and used • I know somewhat more than most users about the General Data Protection Regulation
General privacy practices	6	Smith et al. (1996)	• All the things considered, the internet would cause serious privacy problems • Compared to others, I am more sensitive about the way online companies handle my personal information • To me, it is the most important thing to keep my privacy intact from online companies • I believe other people are too much concerned with online privacy issues • Compared with other subjects on my mind, personal privacy is very important • I am concerned about threats to my personal privacy today
Need for cognition	5	Epstein et al. (1996)	• I don't like to have to do a lot of thinking • I try to avoid situations that require thinking in-depth about something • I prefer to do something that challenges my thinking abilities rather than something that requires little thought • I prefer complex to simple problems • Thinking hard and for a long time about something gives me little satisfaction

Appendix 5: Measurement scale items (continued)

Construct	# items	Reference	Adapted scale
Perceived control	4	Mehrabian and Russell (1974)	• Restricted – Free • Guided – Autonomous • Controlled – Controlling • Influenced – Influential
Perceived transparency	4	Karwatzki et al. (2017)	• I can see at a glance which data are collected by the website • I can see what the data are used for • I can see how long the data will be stored • I can see how I can control the usage of my data
Privacy concerns	7	Sheng et al. (2008)	• I am concerned that I could be identified by Electronics.com when using the website • I am concerned with how information about me may be exploited by Electronics.com when using the website • I am concerned with how the information captured during my use of the website to find products can be employed by Electronics.com to identify me as an individual • It bothers me when information about me is gathered when I use the website • I am concerned that information about me gathered during my use of the website may be accessed by unauthorized people • I am concerned that information about me that is captured when I use the website may be kept in a non-accurate manner • I am concerned that my privacy will be compromised when using the website

Appendix 6: Measurement scale statistics

Construct	# items	Cronbach's alpha		% variance explained	
		Study 1	Study 2	Study 1	Study 2
Attention to the message	3	NA	0.94	NA	89.06%
Digital skills	4	0.87	0.92	72.41%	80.48%
Familiarity with GDPR	3	0.89	0.90	81.52%	83.54%
General privacy practices	6	0.80	0.76	51.15%	52.69%
Need for cognition	5	0.78	0.74	56.23%	51.21%
Perceived control	4	0.73	0.77	56.96%	60.02%
Perceived transparency	4	NA	0.81	NA	64.08%
Privacy concerns	7	0.95	0.93	78.59%	71.11%

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Customer responses to personalized websites: essays on the process underlying experience

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Companies increasingly personalize their website content with the aim of improving customer experience. Although the personalization process has been studied by prior research in marketing and information systems, the understanding of customer experience on personalized websites has been identified by the Marketing Science Institute as requiring further investigation. Therefore, this doctoral dissertation explores customer experience on personalized websites and the underlying processes with three essays combining quantitative and qualitative methods. The first essay shows the influence of personalization on customer experience and highlights the process underlying customers' conscious and unconscious responses to personalization. The second essay enables a better appraisal of the process underlying the triggering and management of paradoxical tensions of personalization. The third essay further examines the backfire effects of personalization on customer experience and the role of information transparency and customer need for cognition in this process. This doctoral research contributes to research on both customer experience and personalization by providing a more holistic and iterative view of customer experience on personalized websites and the underlying psychological mechanisms. It also provides practitioners with several insights on how to provide an optimal customer experience with the personalization of the website content and how to mitigate negative responses to personalization.