

CONSENT IS NOT JUST ABOUT ASKING: HOW YOU REQUEST CONSUMERS' AGREEMENT TO COOKIES MATTERS

Asli Gul Kurt
Department of Marketing
HEC Montreal
3000 Chemin de la Côte Ste-Catherine, Montreal, Quebec, Canada
asli-gul.kurt@hec.ca

Elsa Fresne
Department of Marketing
HEC Montreal
3000 Chemin de la Côte Ste-Catherine, Montreal, Quebec, Canada
elsa.fresne@hec.ca

Sylvain Senecal¹
Department of Marketing
HEC Montreal
3000 Chemin de la Côte Ste-Catherine, Montreal, Quebec, Canada
sylvain.senecal@hec.ca

Sylvain Amoros
Department of Marketing
HEC Montreal
3000 Chemin de la Côte Ste-Catherine, Montreal, Quebec, Canada
sylvain.amoros@hec.ca

ABSTRACT

Website cookie notices influence consent decisions by configuring multiple design cues within the privacy calculus consumers apply when evaluating data disclosure. Results of an online experiment (N = 776) suggest that freedom of choice and cookie notice placement influence consumers' perceived power. In addition, technical language influences perceived risk. Perceived power, perceived risk, and consumers' emotions influence behavioral intentions toward cookie notices. The findings show that cookie notice cues operate configurally rather than independently, revealing a configurational privacy calculus in which the impact of any single design element depends on the broader configuration of cues in which it appears.

Keywords: Cookies; Website; Configuration; Experiment; Privacy calculus.

1. Introduction

Due to privacy concerns, legislation such as the General Data Protection Regulation (GDPR) has restricted the use of third-party cookies. This has led to data loss for companies that seek to personalize their services. However, the need for data compels companies to rely on first-party cookies that track consumer traffic on their websites to target consumers more effectively. This creates tension between companies and consumers. The tension arises from the need to collect consumer consent to use cookies to gather the necessary data for improved service, while still maintaining consumer control over their data and, therefore, ensuring their satisfaction.

Recent reports on cookie consent show that only 32% of US consumers share their data while browsing online, yet 75% of marketers still rely on data from third-party cookies, with 45% spending at least half of their marketing

Cite: Kurt, A. G., Fresne, E., Senecal, S., & Amoros, S.. (2027) Consent is not just about asking: How you request consumers' agreement to cookies matters. *Journal of Electronic Commerce Research*, 28(1)

¹ Corresponding author.

budgets on cookie-based activities (Statista Research Department, 2024). The rising demand for privacy, therefore, makes data collection through cookie-based activities increasingly challenging (Lu, 2024).

Online privacy has long been a concern for consumers (Smit et al., 2014). With the increased use of online services, consumers are frequently asked to share personal information. In most cases, how their information is collected, managed, and used is not clearly disclosed. This lack of transparency may lead to mistrust if organizations are seen as profiting from the collection and use of personal information (McDonald & Cranor, 2010). Consumers find themselves in a vulnerable position when they have little control over how their personal information is used, given that data breaches can have severe repercussions, such as identity theft (McCallister et al., 2010). Services such as banking and insurance, which require consumers to disclose highly confidential data, pose particular risks in the event of a breach (Office of the Privacy Commissioner of Canada, 2014).

To address these concerns, there is a growing demand for greater transparency to ensure the security and protection of consumers' personal information. In 2018, the European Council introduced the GDPR to establish rules that companies must follow when collecting consumer data (European Council, 2024). According to these regulations, consumers must give “specific, informed, and unambiguous” consent to the collection of their data.

However, these regulations do not specify how consent should be obtained, leading companies to adopt varying approaches to obtaining consumer consent based on their interpretations of what compliance requires. Given the inconsistencies in notices, there is a need to investigate how to create a universally beneficial cookie notice for both consumers and organizations. This investigation involves examining how consumers perceive and interact with cookie notices. The goal is to lay the ground for developing mutual trust between consumers and the organizations that collect information about them.

This study addresses this research gap by examining how configurations of cookie notice cues and website context jointly shape consumers' perceived power, perceived risk, emotional reactions, and willingness to consent to data sharing. Prior research shows that even subtle design changes, such as variations in personalized advertising sources (De Keyser et al., 2022) or product visuals (Ryu & Vargas, 2025), can substantially influence consumers' disclosure decisions. However, most e-commerce studies examine individual notice features in isolation. While Bornschein et al. (2020) demonstrate that specific banner cues influence perceived risk and empowerment, we extend this work by investigating how multiple cues—including freedom of choice, notice placement, language technicality, and brand familiarity—interact to shape consumers' privacy perceptions, emotions, and consent decisions.

Our study makes three contributions to research on privacy calculus and digital consent. First, we identify how specific configurations of cookie notice characteristics influence consumers' perceived power, perceived risk, emotional reactions, and willingness to disclose personal data, thereby filling a research gap in consumer behavior studies. We conceptualize these effects as reflecting a configurational privacy calculus, in which consumers interpret privacy cues not in isolation but through the configuration in which they appear. Second, we propose a procedure that enables organizations to help consumers feel more empowered and less at risk when sharing personal data through cookies. This procedure involves modifying the characteristics of cookie notices. This approach may help address consumers' concerns about data privacy, assist them in making informed decisions about their personal information, and foster a trusting relationship between consumers and organizations by highlighting the importance of transparent data collection practices. Finally, we contribute to the broader discussion on government policies on online privacy by defining the characteristics of effective cookie notices. This could help policymakers better understand the role of notice design in supporting meaningful consent, lead to improved regulatory practices in this area, and result in consumer-friendly cookie notices.

In our research, we begin by discussing the use of cookies on websites. We then propose an experiment in which participants interact with a simulated online environment featuring different configurations of cookie notices. Next, we examine how these characteristics influence consumer emotions and intentions, as affected by perceptions of data sharing.

1.1. Hypotheses Development and Conceptual Framework

Privacy Calculus Theory (Dinev & Hart, 2006) provides a flexible framework for investigating how consumers evaluate decisions about the sharing of personal information, particularly in the context of cookie notices. These notices explicitly ask consumers to exchange personal data for access to website content and services, often with a limited understanding of the implications of their choice. In such situations, individuals rely on a privacy calculus, weighing the perceived benefits (e.g., familiarity, access to services) against the perceived costs (e.g., risk, loss of control) of disclosing personal data. The outcome of this privacy calculus determines their behavioral choices, including whether they consent to cookies being used on a given website.

This theory integrates risk perception, feelings of control, affective reactions, and behavioral intention into a unified decision-making framework. In the case of cookie notices, these components are influenced by specific features of the notice and the website. In our study, the freedom of choice offered by the notice, the complexity of the

language used, and the brand's familiarity all shape the perceived costs and benefits of data disclosure and affect emotional reactions to the consent request. Drawing on the Stimulus-Organism-Response perspective and research on affective decision-making, we conceptualize the features of cookie notices and websites as stimuli that shape cognitive appraisals of power and risk and, through the emotions they elicit, influence behavioral responses such as consent (Loewenstein et al., 2001; Mehrabian & Russell, 1974; Slovic et al., 2002).

Therefore, we adopt Privacy Calculus Theory (Dinev & Hart, 2006) as the overarching lens of our research, proposing that these characteristics of the cookie notice alter the privacy calculus by changing both cognitive appraisals of risk and benefit and the emotions associated with the decision to share data. By examining how these elements interact to shape risk, control, emotion, and consent decisions, we adopt an integrative view of Privacy Calculus Theory that connects cognitive evaluations to emotional responses and behavioral intentions in daily online consent decisions. Within this overarching structure, the Stimulus-Organism-Response framework provides the architectural logic: cookie notice and website features serve as stimuli, cognitive appraisals of power and risk constitute the organism-level responses, and consent behavior is the outcome. Affective decision-making research then explains the mechanism by which emotions enter this process — negative emotions triggered by risk and positive emotions fostered by power act as proximal drivers that transmit cognitive appraisals into behavioral intentions (Loewenstein et al., 2001; Slovic et al., 2002). Next, based on the literature through the lens of Privacy Calculus Theory, we propose how specific characteristics of websites and cookie notices influence consumers' perceptions of risk and control, their emotional reactions, and their consent decisions.

Freedom of choice. In contexts where consumers are exposed to cookie notices, their reactions depend on whether they feel that they can accept or refuse tracking. Perceived power captures the feeling that consumers have influence over who collects and uses their personal data, and that this power can shift from the website operator to them when they are given meaningful options (Bornschein et al., 2020; Magee & Galinsky, 2008). This construct is closely related to but conceptually distinct from perceived control, an inward-looking construct that assesses whether individuals feel capable of managing their own data and outcomes independently of others (Brandimarte et al., 2013). By contrast, perceived power is inherently relational: it captures the asymmetry between consumers and firms, reflecting the extent to which consumers believe the balance of influence over personal data has shifted in their favor (Bornschein et al., 2020; Magee & Galinsky, 2008). This distinction matters in the cookie consent context because the design of a notice does not merely affect what consumers can do with their own settings; it fundamentally alters who holds authority over data collection. A notice offering a genuine refusal option redistributes power from the firm to the consumer in a way that perceived control, focused on self-management, does not fully capture.

Having options in cookie notices allows consumers to draw on this power and manage the perceived risks and their ability to address them (Mousavizadeh & Kim, 2015). Perceived risk, defined as uncertainty about whether firms will misuse personal data (Dinev & Hart, 2006), is a key component of the privacy calculus cost. When consumers are given the freedom to refuse cookies, they tend to feel more empowered toward the firm, which in turn reduces their perceived risk (Hui et al., 2007; Brandimarte et al., 2013; Bornschein et al., 2020). On the other hand, when the data collection processes on websites offer no alternatives to sharing personal information, power remains concentrated in the hands of the firm, and this lack of choice can increase consumers' sense of risk (Utz et al., 2019). Hence, providing consumers with the ability to refuse cookies alters the privacy calculus by decreasing the perceived cost of disclosure through reduced risk and by increasing the perceived benefit of having power over access to personal data. Based on the above, we propose the following hypotheses:

H1a: The option to refuse (vs. providing no choice) a website's information privacy practices reduces consumers' perceived risk.

H1b: The option to refuse (vs. providing no choice) a website's information privacy practices enhances consumers' perceived power.

Placement. Often presented as banners, cookie notices are typically positioned at the top or the bottom of a website. According to Utz et al. (2019), visitors are more likely to interact with consent notices at the bottom of the browser window than at the top of the page. This difference may stem from the potential for bottom banners to cover important website content, thereby drawing more consumer attention. Conversely, full-page cookie notices are more visible than those placed at the top or bottom of the page. This increased visibility is likely to positively impact consumers' perceptions of risk (Bornschein et al., 2020). However, the more prominent these forms are, the more they raise consumers' awareness of the site's information collection practices, potentially leading them to feel they have lost control over their data. A clearly displayed cookie notice enables consumers to understand the severity of the threat. This enhances their understanding of how to manage the risk and creates a more accurate perception of it, while simultaneously boosting their sense of empowerment.

In summary, the visibility of the consent notice may increase awareness of data collection by raising the perceived costs associated with risk. However, it can also augment perceptions of power by enhancing perceived benefits, as users become better informed. Therefore, we suggest the following hypotheses:

H2a: Displaying cookie notices in full-screen mode (vs. at the top or bottom of the screen) increases consumers' perception of risk.

H2b: Displaying cookie notices in full-screen mode, instead of at the top or bottom of the screen, enhances consumers' perceived power.

Technicality of the language. The term “cookie” is frequently used in notices to inform consumers about privacy policies. However, the complexity of cookies often leads to misunderstandings among consumers (Ha et al., 2006). This confusion can obscure the risks associated with data collection, thereby diminishing consumers' perception of risk (Luzak, 2014). Conversely, if a company avoids the term “cookie” and opts for less technical language to describe how it collects data on its website, consumers gain a clearer understanding of the company's privacy practices. This enhanced understanding can heighten their perception of risk, especially since research has shown that consumers who are more aware of data collection are more concerned about privacy (Park et al., 2012). Therefore, we propose the following hypothesis:

H3a: Using technical (vs. non-technical) language in a website's cookie notice decreases consumers' perceived risk.

When consumers clearly understand what data are collected and how tracking operates, they can better evaluate a consent request and enact privacy-protective responses (e.g., refusing consent, limiting disclosure, or exiting), which increases their perceived influence over the firm's data practices—i.e., perceived power (Park, 2011). Non-technical, explicit language reduces informational asymmetry and makes the decision more actionable, strengthening consumers' sense of agency in the consumer–firm relationship and motivating them to assert their preferences rather than passively acquiesce. In contrast, technical “cookie” jargon can preserve informational asymmetry: consumers may recognize tracking is occurring without fully understanding what is collected, how it is used, or how to limit it, which makes the consent decision feel less actionable and weakens perceived power. Therefore, we propose:

H3b: Using technical (vs. non-technical) language in a website's cookie notice decreases consumers' perceived power.

Brand familiarity. Unlike placement, language, and freedom of choice, brand familiarity is not a feature of the cookie notice itself but a contextual property of the website that consumers bring to the consent decision. Brand familiarity has been shown to influence the perceived effectiveness of a privacy policy positively and to reduce perceived risk in online transactions by serving as an internal information source about the firm and its practices (Li, 2014; Park & Stoel, 2005). There is a virtuous cycle in which consumers who view a company favorably are more likely to trust its operations, including data management practices and website interfaces (Benedicktus et al., 2010). When consumers perceive a privacy policy as effective and protective, they are less likely to believe they are susceptible to information-disclosure threats. This increased trust implies that consumers believe they are less likely to face threats on the websites of well-known brands than on those of lesser-known ones (Li, 2014; Wang, 2019). Work on online information disclosure further indicates that when consumers trust a well-known provider, they judge the risk of sharing data as lower than with lesser-known firms that present similar information, suggesting that brand-related trust can dampen privacy concerns (Zimmer et al., 2010). From a privacy calculus perspective, brand familiarity therefore operates as a contextual boundary condition that primarily influences the cost side of the calculus by signaling a lower likelihood of opportunistic data use. Therefore, a familiar or reputable brand acts as a trust signal, lowering the perceived cost and raising the perceived benefit of data sharing. In line with this literature, we propose the following hypothesis:

H4a: A familiar (vs. unfamiliar) brand decreases consumers' perceived risk regarding the brand's website cookie notice.

Brand familiarity may also shape how consumers feel about their own influence over the handling of their data. Brand familiarity influences perceived control over online information disclosure and boosts confidence in the effectiveness of privacy policies associated with well-recognized companies. This increase in confidence enables consumers to feel more capable of protecting their data and mitigating threats. Therefore, when heightened by brand familiarity, the perceived effectiveness of privacy policies leads to a greater sense of control over personal information (Wang, 2019). As a result, we propose the following hypothesis:

H4b: A familiar brand (vs. unfamiliar) positively influences consumers' perceived power regarding the brand's website cookie notice.

In addition to these direct effects, we conceptualize brand familiarity as a contextual boundary condition that can alter consumers' responses to cookie notice design features. In our model, we therefore examine not only the main effect of brand familiarity on perceived risk and perceived power, but also its interaction with language technicality

and freedom of choice, to capture how brand familiarity may strengthen or weaken the influence of specific notice characteristics on privacy perceptions.

Drawing on schema congruence theory, the meaning consumers assign to any single cue depends on the context provided by the others (Mandler, 1982; Meyers-Levy & Tybout, 1989). Brand familiarity sets the baseline expectations consumers bring to the consent decision (Erdem & Swait, 1998; Park & Stoel, 2005), shaping how cookie notice design features are interpreted. For consumers visiting a familiar brand's website, technical language is congruent with pre-existing associations of corporate competence and legitimacy (Benedicktus et al., 2010; Gefen et al., 2003). In this context, the combination of technical language and freedom of choice is expected to maximize perceived power, as both cues reinforce the consumer's sense that the firm is trustworthy and that they hold genuine influence over data collection (Bornschein et al., 2020; Brandimarte et al., 2013). For consumers visiting an unfamiliar brand's website, however, technical language is incongruent with a lower trust context and may amplify perceptions of opacity (Milne & Culnan, 2004; Pollach, 2007), reducing perceived power even when a refusal option is present. Here, non-technical language paired with freedom of choice is expected to better support perceived power by reducing ambiguity in the absence of established brand familiarity (Acquisti et al., 2015). Therefore, we propose:

H4c: Brand familiarity moderates the joint effect of language technicality and freedom of choice on perceived power, such that for familiar brands, perceived power is highest when a refusal option is combined with technical language, whereas for unfamiliar brands, perceived power is highest when a refusal option is combined with non-technical language.

The effect of perceived power on risk perception. According to Bornschein et al. (2020), the feeling of control significantly influences the willingness to disclose sensitive information because it plays a central role in risk perception and risk-taking behavior. People tend to take more risks and perceive risks as less significant when they have control over the situation. Consumers' ability to cope with a threat can diminish the perceived severity of the threat during the evaluation process.

The influence of perceived control can obscure recognition of potential risks and lead to decisions with severe consequences. This phenomenon is known as the control paradox. It occurs when consumers who believe they have sufficient control over their privacy share more information, thereby becoming more vulnerable than if they perceive they have less control (Brandimarte et al., 2013). For example, drivers wearing a seatbelt may feel sufficiently protected to drive less carefully, inadvertently increasing their risk of an accident. Conversely, a perceived lack of control can deter consumers from sharing their information, even when the associated disclosure risks are minimal. According to Privacy Calculus Theory, a higher perceived power implies a greater ability to manage privacy, which in turn reduces the perceived cost of data disclosure. Therefore, we propose the following hypothesis:

H5: Consumers' perceived power reduces their perceived risk regarding cookie notices.

The effect of risk on emotions and behavioral intention. Research suggests that risky choices are associated with negative emotions (Bornschein et al., 2020). Moreover, Kim and Lennon (2013) find that perceived risk negatively affects consumers' emotions in online contexts. Comparable effects emerge for biometric hotel check-in interfaces, where low perceived control amplifies anticipated negative emotion (Morosan, 2020). Perceived threats provoke adverse reactions (Goldfarb & Tucker, 2011). Therefore, we propose that greater perceived risk increases the emotional cost of sharing information.

H6a: Perceived risk regarding cookie notices decreases positive emotional reactions.

From a Stimulus-Organism-Response view, perceived risk and related emotions are part of the internal process linking external cues to behavior. When consumers perceive cookie notices as risky, this triggers negative feelings such as anxiety, irritation, or distrust, which lead to protective actions, including reduced willingness to consent (Eroglu et al., 2003; Loewenstein et al., 2001; Mehrabian & Russell, 1974; Slovic et al., 2002). Consistent with affective decision-making research (Lerner et al., 2015; Traczyk et al., 2015), negative emotions partly mediate the effect of risk on consent, rather than being a separate outcome. Similarly, concerns about online privacy often make consumers hesitant to share personal information, thereby preventing them from consenting to the use of cookies on a website (Norberg et al. 2007). Moreover, perceived threats increase individuals' tendency to take protective action (Goldfarb & Tucker, 2011). Thus, we propose the following hypothesis:

H6b: Perceived risk decreases the willingness of consumers to consent to a website's cookie notice.

The effect of power on emotions and behavioral intention. There is a positive relationship between perceived power over privacy information and positive emotions, such as happiness and serenity, and a negative relationship with negative emotions, including fear, anger, and sadness (Bombari et al., 2017). This suggests that consumers who perceive they have greater control over their personal information generally experience more positive and fewer negative emotions. The literature also confirms that less severe perceived threats lead to fewer adverse reactions (Goldfarb & Tucker, 2011). Consequently, we hypothesize that higher perceived power enhances affective benefits:

H7a: Perceived power increases the positive emotions experienced by consumers.

Perceived power over personal data, from a Stimulus-Organism-Response view, influences emotional reactions to cookie notices. According to appraisal theory, emotions are not random reactions but arise from individuals' cognitive evaluations of whether a situation is favorable or threatening to their goals and well-being (Lazarus, 1991). When consumers view a cookie notice as giving them real control over data collection, feeling empowered leads to positive emotions such as comfort and confidence (Magee & Galinsky, 2008). Conversely, when consumers feel powerless, the unfavorable appraisal elicits avoidance-oriented emotions such as anxiety and distrust. A stronger sense of power, therefore, promotes positive feelings, reduces perceived threat, and encourages website engagement rather than withdrawal (Bagozzi et al., 1999; Lerner et al., 2015; Mehrabian & Russell, 1974). These emotions may extend the power's influence to behavioral intentions, making more powerful consumers more likely to consent because of positive feelings associated with their sense of power. Koehorst (2013) explores how perceived power influences the intention to disclose private information on social networks, finding that control over personal data enhances perceived power and the willingness to share personal information online. This suggests that increased confidence may reduce protective behaviors and encourage disclosure. Therefore, we propose:

H7b: Perceived power increases consumers' willingness to consent to a website's cookie notice.

The effect of emotions on behavioral intention. Positive emotions influence consumer behavior online. Deng and Gu (2021) found that positive emotions enhance consumers' attitudes toward and intentions to engage with a website. Conversely, these emotions reduce negative attitudes, making consumers less likely to leave the site. Furthermore, positive emotions increase consumers' willingness to give consent, particularly in interactions with unfamiliar websites. Positive emotions stemming from reduced concerns lead to greater acceptance of information collection practices (Goldfarb & Tucker, 2011; Wakefield, 2013). In line with affective decision-making research, these emotions act as proximal drivers of behavior, transmitting the influence of privacy-related appraisals of power and risk onto consent decisions (Loewenstein et al., 2001; Slovic et al., 2002). Based on this evidence, we propose that positive emotions signal a favorable cost-benefit balance and increase the likelihood of consent:

H8: Positive emotions increase consumers' willingness to consent to a website's cookie notice.

Although many of our hypotheses are formulated in terms of the separate effects of notice placement, freedom of choice, technicality of language, and brand familiarity on perceived power, perceived risk, emotions, and consent, retailers typically choose among complete notice configurations rather than adjusting individual elements in isolation. Our objective is therefore not only to identify which individual factors matter but also to determine which combinations of these factors form the most favorable recipe for cookie notices. This interest in configurations motivates the use of a factorial structure that allows us to observe how these cues work together, while still permitting estimation of their independent effects. In particular, the study integrates interface elements with brand familiarity so that the model can capture both the main effects central to the hypotheses and the joint patterns relevant for providing actionable guidance to retailers. The theoretical basis for expecting non-additive effects is that consumers do not process cookie notice cues sequentially in isolation; rather, they evaluate the notice as a holistic configuration, and the meaning of any single cue is shaped by the context provided by the others. Figure 1 presents our conceptual model.

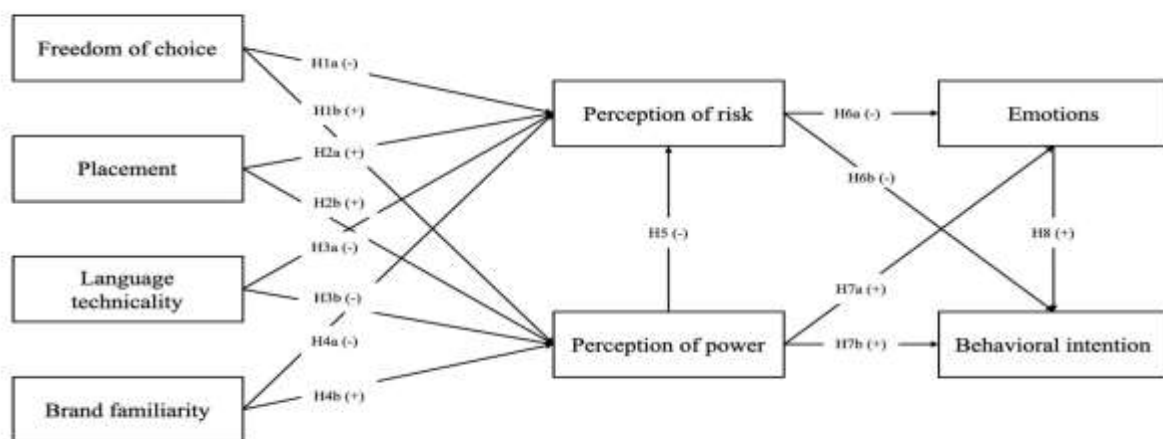


Figure 1. Conceptual Framework

2. Method

2.1. Experimental design

A 3x2x2 between-subject design was employed to examine the impact of four factors on participants' perceptions and behaviors regarding cookie notices: (I) placement of the cookie notice (at the top, bottom of the page, or full screen), (II) freedom of choice (accept only or accept/refuse), (III) language technicality (Technical: "This site uses cookies to ensure you get the best experience" or non-technical: "This site collects your data to ensure you get the best experience"), and (IV) website brand familiarity (familiar or unfamiliar). The dependent variables included perceived power, perceived risk, consumers' emotional reactions, and willingness to consent.

The three interface elements represent separate levers that retailers can adjust in practice, and crossing them in the design allows estimating their individual effects while holding the others constant. At the same time, the full factorial structure enables the identification of notice configurations that perform particularly well or poorly, which is essential for providing practical guidance to retailers who must implement a concrete recipe for placement, choice, and language on a given website. Brand familiarity is included as a contextual factor that may moderate the effects of these interface elements, so it is crossed with the three design features in the experimental conditions. This structure allows us to test hypothesized main effects and interactions involving brand familiarity. It provides the basis for exploratory configurational analyses examining how specific combinations of placement, choice, and language shape perceived power and perceived risk.

The stimulus was designed to manipulate variations in the cookie notice. Shopify web design tools were used to recreate the online clothing retailer's webpage (see Figure 2 for an example). To manipulate brand familiarity, we used two websites. Uniqlo was selected as the familiar brand, while a mock brand name was created for the unfamiliar condition. For the unfamiliar website, the Uniqlo logo was replaced with one specifically designed for this study. The homepage content was identical for both the known and unfamiliar websites, with the brand logo being the only distinguishing feature. Since the only difference between the unfamiliar and familiar brand conditions was the displayed logo, we opted for the familiar brand. Uniqlo is ranked 47th in the 2025 Interbrand global ranking (Interbrand, 2025), well below the most familiar brands (e.g., Amazon, ranked in the top 3). Selecting a moderately familiar brand helped avoid confusion by exposing participants to a familiar website design with an unknown brand logo.

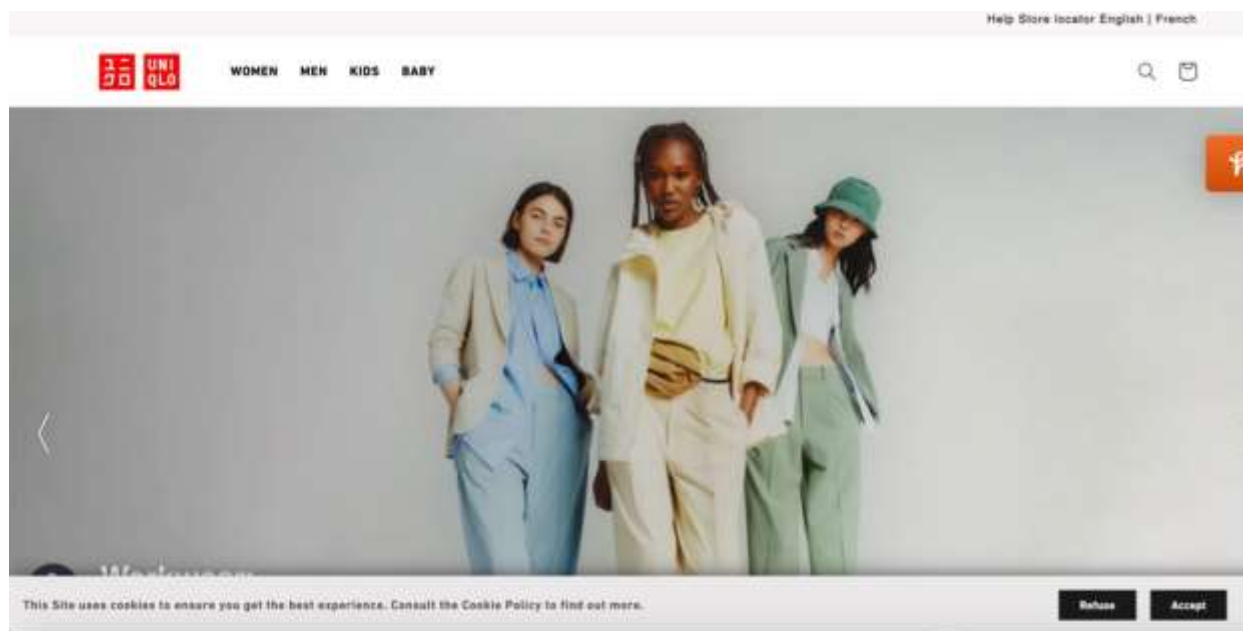


Figure 2. Experimental Stimulus Example.

2.2. Sample

A total of 812 participants residing in the United States were recruited for this study through Prolific's online recruiting platform. Each participant received monetary compensation proportional to the time spent completing the survey. Participants were required to be 18 years or older and possess a digital device to access the online survey. Eleven participants who completed the survey in exceptionally short or long durations were excluded from the analysis. An attention-check question was included to ensure the authenticity of responses. Twenty-five participants who failed

the attention check were excluded from the final sample. As a result, responses from 776 participants were retained for analysis. A priori power analysis (GPower, $f = .15$, $\alpha = .05$) indicated that a sample of 680 would be sufficient for 95% power; our final sample size of $N = 776$, therefore, exceeds this threshold. Table 1 provides the demographic information of these participants. Ethical approval for this study was obtained from the Research Ethics Board of our institution.

Table 1. Demographic Information of Participants

Demographic Variable	Category	Percentage
Gender	Female	44.1
	Male	53.7
	Non-binary/Other	2.2
Age Group	18-29	29.8
	30-39	33.8
	40-49	16.5
	50-59	12.6
	60-69	6.1
	70+	1.3

2.3. Procedure

Participants began the survey by providing consent. After completing the consent form, they were randomly assigned to one of the experimental conditions, each differing in the way the cookie notice was presented. They were then directed to a brand webpage, where they viewed the cookie notice according to their assigned condition. Subsequently, in the questionnaire, participants were asked what action they would take if given a choice: accept cookies, decline cookies, disregard the cookie notice and continue browsing the website without interacting with it, or leave the website. Following this, participants completed questions assessing their perceptions and emotions regarding the cookie notice. These included measures of perceived power related to cookies (Bornschein et al., 2020) and perceived risk over data collection via cookies (Malhotra et al., 2004). Participants also reported their emotional reactions to the cookie notice they encountered (Mehrabian & Russell, 1974). Finally, manipulation-check questions for all variables (e.g., freedom of choice, placement, language technicality, and brand familiarity) were included; all participants answered all manipulation-check items, and responses were analyzed by assigned condition to ensure that participants accurately perceived the experimental manipulations.

To reduce the risk that associations among the self-reported mediators and the consent outcome are artifacts of common method bias, the study followed several design recommendations from prior work on method effects (Aljukhadar et al., 2010; MacKenzie & Podsakoff, 2012; Malhotra et al., 2017). The four design factors, namely placement of the notice, freedom of choice, language technicality, and brand familiarity, were manipulated between subjects through random assignment rather than measured with self-report scales. As a result, the focal predictors of perceived power, perceived risk, emotions, and consent behavior are not subject to the same method as the mediators and dependent variables. All multi-item scales were adapted from validated instruments, pretested in the context of cookie consent, and administered via a self-administered online questionnaire, thereby reducing item ambiguity and evaluation apprehension. In addition, perceived power and perceived risk were assessed using Likert-type items, positive emotions using semantic differential items, and consent behavior using a categorical course-of-action question. This variation in response formats limits the influence of uniform response styles across constructs.

2.4. Measures

Perceived power, defined as consumers' feelings of control over their personal information on a website's homepage, was measured using a 7-point Likert scale with four items developed by Bornschein et al. (2020) (see Appendix, Table 1). Perceived risk associated with sharing personal information was assessed using a 7-point Likert scale comprising four items created by Malhotra et al. (2004) (see Appendix, Table 1). Lastly, participants' emotions were evaluated using a 7-point semantic differential scale designed by Mehrabian and Russell (1974) (see Appendix, Table 1). To ensure participants were paying attention, an attention-verification question was embedded in the perceived power scale, requiring them to select a specific answer in line with the instructions. To confirm that participants understood the manipulations in the cookie notice they viewed, they were asked to evaluate specific

statements using a 7-point Likert scale (see Appendix, Table 1). Finally, we included questions on demographic data, such as participants' age, gender, and country of residence.

2.5. Pretest

To validate our experiment, we conducted a pretest with 50 participants. The results revealed no significant issues requiring changes to the test procedures or method. Based on these findings, we proceeded to the main data collection. Participants from the pretest were excluded from the final sample.

3. Results

3.1. Manipulation checks

To verify the effectiveness of our experimental manipulations, we analyzed mean differences using one-way ANOVAs. Freedom of choice differed significantly across conditions ($F(1,765) = 545.59, p < .001$), with participants reporting greater perceived freedom in the Accept-or-Reject condition than in the Accept-only condition. Perceptions of cookie notice placement also differed significantly ($F(2,764) = 75.99, p < .001$), indicating that participants in the full-screen condition reported greater agreement that the notice appeared full-screen than those in the top- or bottom-of-page conditions. Likewise, recognition of whether the notice appeared at the top or bottom of the page was significant ($F(2,764) = 473.89, p < .001$), suggesting that participants accurately perceived the notice's location. Perceived technicality of the notice language differed significantly by condition ($F(1,765) = 291.85, p < .001$), with participants reporting higher agreement with the technical-language item when exposed to the technical version. Finally, brand familiarity differed significantly ($F(1,765) = 45.11, p < .001$), with participants reporting higher familiarity in the high-familiarity brand condition than in the low-familiarity condition, supporting the effectiveness of the brand manipulation.

3.2. Reliability of measurement scales

As mentioned, we used various measurement scales to assess participants' perceived risk, perceived power, and emotional responses following their interaction with a cookie notice. To ensure the reliability of these scales, we calculated Cronbach's alpha for each (.91, .77, and .94, for perceived risk, perceived power, and positive emotions, respectively). The results indicate that Cronbach's alpha for each scale exceeds .70, demonstrating their satisfactory reliability (Nunnally, 1978).

Because perceived power, perceived risk, positive emotions, and behavioral intention were collected in the same survey session, we conducted post hoc analyses to evaluate potential common method bias (Aljukhadar et al., 2010; MacKenzie & Podsakoff, 2012; Malhotra et al., 2017). A principal component analysis of the thirteen items that make up the perceived power, perceived risk, and positive emotion scales showed that the first unrotated factor accounted for about 45% of the total variance, with the remaining variance spread across several other factors. This pattern suggests that no single factor dominates the covariance among items. We also used the total time respondents took to complete the questionnaire as a marker variable, which is theoretically unrelated to privacy judgments. Response time correlated only very weakly with perceived power, perceived risk, and positive emotions, with absolute correlation coefficients no higher than .03. Partial correlations among the three constructs remained unchanged to three decimal places when controlling for response time. Collectively, these tests indicate that common method variance is unlikely to explain the relationships among perceived power, perceived risk, positive emotions, and consent discussed below.

3.3. Hypothesis testing

To explore how different characteristics of cookie notices affect consumers' privacy-related responses, we examined the main and joint effects of freedom of choice, notice placement, language technicality, and brand familiarity on perceived risk, perceived power, emotions, and willingness to consent by conducting an analysis of variance (ANOVA). In addition to these primary tests of main effects and planned interactions, we use the full factorial design to explore configurational interaction patterns among placement, choice, language, and brand familiarity, identifying combinations of cues that are particularly empowering or privacy-preserving. This approach allowed us to compare mean perceived power and perceived risk scores across the experimental conditions.

Perceived risk (See Table 2 for descriptive statistics). We hypothesized that providing a choice (versus no choice) regarding a website's information privacy practices would decrease consumers' perceived risk (H1a). We also posited that displaying a cookie notice in full-screen mode (vs. at the top or bottom of the page) would increase perceived risk (H2a). The ANOVA results showed no significant differences in mean risk scores based on either freedom of choice ($F(1,752) = 1.73, p = .19$, partial $\eta^2 = .002$) or notice placement ($F(2,752) = .27, p = .76$, partial $\eta^2 = .001$), with negligible effect sizes (Cohen, 1988; Lakens, 2013) confirming the absence of meaningful main effects, failing to support H1a and H2a.

Table 2. Descriptive Statistics of Perceived Risk According to Combinations of Cookie Notice Design Features.

Brand familiarity	Language technicality	Freedom of choice	Placement		
			Up	Down	Fullscreen
			Mean (SD)	Mean (SD)	Mean (SD)
Familiar	Non-technical	Accept only	4.02 (1.11)	3.92 (.92)	3.80 (.93)
		Accept or reject	3.94 (.90)	3.95 (1.07)	3.84 (1.10)
	Technical	Accept only	3.83 (.92)	3.78 (.91)	3.81 (.85)
		Accept or reject	3.93 (1.18)	3.76 (.94)	4.04 (.93)
Unfamiliar	Non-technical	Accept only	4.15 (1.00)	4.07 (1.10)	4.03 (.92)
		Accept or reject	4.32 (1.00)	4.23 (1.05)	3.89 (.99)
	Technical	Accept only	3.74 (.90)	3.62 (1.02)	3.96 (.99)
		Accept or reject	3.78 (1.02)	3.91 (.95)	4.31 (.98)

Our third hypothesis (H3a) suggested that using technical language (vs. non-technical language) in a website's cookie notice would decrease perceived risk. The ANOVA results revealed a significant difference in perceived risk scores regarding language technicality ($F(1, 752) = 3.87, p = .05$, partial $\eta^2 = .005$), indicating that technical language indeed reduces perceived risk, thus supporting H3a. While small in absolute terms, this effect size is typical for controlled experimental manipulations of single interface cues in privacy research (Bornschein et al., 2020).

Finally, we hypothesized that a website's brand familiarity would influence perceived risk (H4a). This relationship was not significant ($F(1, 752) = 2.68, p = .10$, partial $\eta^2 = .004$), with a negligible effect size indicating that brand familiarity alone does not meaningfully shift perceived risk, suggesting a boundary-condition role rather than a direct antecedent. Therefore, H4a is not supported.

Perceived power (See Table 3 for descriptive statistics). We hypothesized that providing consumers with a choice regarding a website's information privacy practices would increase their perceived power (H1b). ANOVA results supported this, showing a significant difference in perceived power scores across levels of choice offered ($F(1, 752) = 14.20, p < .001$, partial $\eta^2 = .019$), with the largest effect observed in the study. This indicates that perceived power is generally higher when notices provide multiple options, thus supporting H1b. The relative magnitude of this effect suggests that among the design cues examined, the presence of a genuine refusal option is the most impactful lever for shaping consumers' sense of agency over their personal data.

Table 3. Descriptive Statistics of Perceived Power According to Combinations of Cookie Notice Design Features.

Brand familiarity	Language technicality	Freedom of choice	Placement		
			Up	Down	Fullscreen
			Mean (SD)	Mean (SD)	Mean (SD)
Familiar	Non-technical	Accept only	4.81 (1.16)	4.82 (1.16)	4.12 (1.08)
		Accept or reject	4.78 (1.02)	4.64 (1.04)	4.89 (1.05)
	Technical	Accept only	4.57 (1.00)	4.48 (1.05)	4.34 (1.18)
		Accept or reject	4.95 (.95)	4.93 (.95)	4.64 (.99)
Unfamiliar	Non-technical	Accept only	4.68 (1.26)	3.96 (1.25)	4.18 (1.26)
		Accept or reject	5.02 (.85)	4.71 (1.39)	4.86 (1.16)
	Technical	Accept only	4.19 (1.13)	4.60 (1.24)	4.45 (1.39)
		Accept or reject	4.91 (1.04)	4.06 (1.12)	4.53 (1.36)

We further hypothesized that displaying a cookie notice in full-screen mode (versus at the top or bottom of the screen) would increase consumers' perceived power (H2b). The ANOVA showed a statistically significant difference ($F(2, 752) = 3.44, p = .03$, partial $\eta^2 = .009$) in perceived power scores across cookie notice placement, a modest effect suggesting that while placement reliably influences perceived power, structural cues such as choice availability have

a greater impact. Contrary to H2b, results indicate that consumers felt they had the most power when the cookie notice was placed at the top of the page.

We also posited that using technical language (versus non-technical language) in a cookie notice would decrease perceived power (H3b) and that brand familiarity would positively influence perceived power (H4b). The analysis did not reveal significant differences in perceived power scores for either brand familiarity ($F(1, 752) = 3.44, p = .06$, partial $\eta^2 = .005$) or language technicality ($F(1, 752) = .734, p = .39$, partial $\eta^2 = .001$), failing to support H3b and H4b. The negligible effect sizes are consistent with the configurational view that these cues operate through interactions rather than as independent main effects.

Power, perceived risk, and positive emotions. We employed simple linear regression models to examine the relationships between perceived power, perceived risk, and participants' positive emotions. It was proposed that as perceived power increases, perceived risk decreases (H5) while positive emotions rise (H7a). The results confirmed that higher perceived power reduces perceived risk ($H5, \beta = -.31, 95\% \text{ CI } [-.38, -.24], p < .001$) and increases positive emotions ($H7a, \beta = .52, 95\% \text{ CI } [.46, .58], p < .001$). Additionally, we hypothesized that higher perceived risk would be associated with lower positive emotions (H6a). The linear regression results confirmed this negative relationship ($\beta = -.4, 95\% \text{ CI } [-.47, -.34], p < .001$), supporting H6a.

Behavioral intention. We employed a simple multinomial logistic regression model to analyze the impact of perceived power, perceived risk, and positive emotions on participants' willingness to consent to cookies. We hypothesized that a higher perceived risk would decrease consumers' willingness to consent to cookies (H6b). The logistic regression findings support H6b, showing that higher perceived risk makes participants more likely to decline ($\beta = .68, p < .001$), ignore consent notices ($\beta = .41, p < .001$), or leave the website ($\beta = 1.22, p < .001$), rather than accept cookie use.

We also hypothesized that perceived power increases consumers' willingness to consent to cookies (H7b). The results indicate that higher perceived power generally makes consumers less likely to ignore cookie notices ($\beta = -.43, p < .001$) or leave the website ($\beta = -.5, p = .01$). However, the effect on declines ($\beta = .05, p = .53$) was not significant, providing only partial support for H7b.

Additionally, we proposed that higher positive emotions increase consumers' willingness to consent to cookies (H8). The logistic regression results were significant. Consumers experiencing higher positive emotions are more inclined to accept cookies rather than decline them ($\beta = -.48, p < .001$), ignore consent notices ($\beta = -.53, p < .001$), or leave the website ($\beta = -1.22, p < .001$), supporting H8.

Configurational analysis. Building on the hypothesized main effects, we used the full factorial model to examine the configurational interaction predicted in H4c and to explore higher-order patterns involving notice placement in perceived power across brand familiarity, language technicality, and freedom of choice. H4c predicted that brand familiarity would moderate the joint effect of language technicality and freedom of choice on perceived power, such that for familiar brands, perceived power would be highest when a refusal option is combined with technical language, whereas for unfamiliar brands, perceived power would be highest when a refusal option is combined with non-technical language. In addition to significant main effects of freedom of choice and placement ($F(1,752) = 14.20, p < .001$, partial $\eta^2 = .019$; $F(2,752) = 3.44, p = .033$, partial $\eta^2 = .009$), the analysis revealed a significant three-way interaction among brand familiarity, language technicality, and freedom of choice ($F(1,752) = 4.35, p = .037$, partial $\eta^2 = .006$), supporting H4c. While small in magnitude, this effect size is consistent with the context-dependent nature of configurational cue interactions. This configurational pattern further varied across notice placement, as indicated by a significant three way interaction involving placement, language technicality, and freedom of choice ($F(2,752) = 3.05, p = .048$, partial $\eta^2 = .008$) and a significant four way interaction among brand familiarity, placement, language technicality, and freedom of choice ($F(2,752) = 3.38, p = .035$, partial $\eta^2 = .009$).

As illustrated in Figure 3, within the familiar brand condition, offering an accept-or-reject option increased perceived power relative to accept-only, and this difference was most pronounced when the notice used technical language.

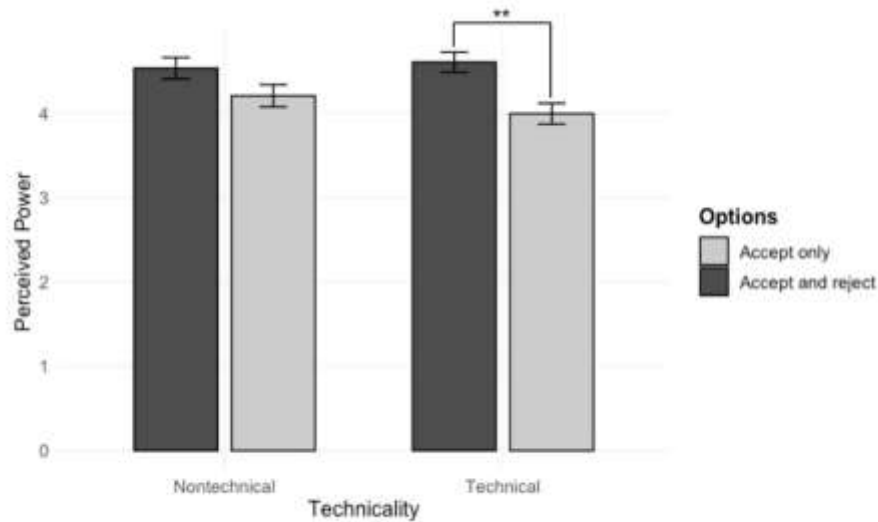


Figure 3. Power Perception Based on Website Notice Technicality and Acceptance Option for the Familiar Website Condition (** $p < .01$).

Additionally, within the unfamiliar brand condition and the non-technical language condition, pairwise comparisons showed that notices offering an accept-or-reject option elicited higher perceived power than notices offering an accept-only option ($t(754) = 3.83$, $p = .004$; Figure 4).

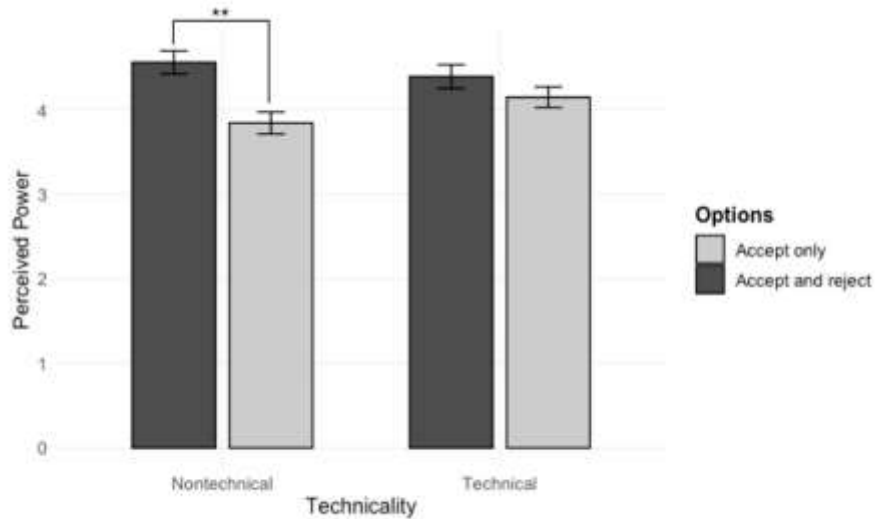


Figure 4. Power Perception Based on Website Notice Technicality and Acceptance Option for the Unfamiliar Website Condition (** $p < .01$).

These results confirm that the combination of certain cookie notice features (language and choice options) affects consumer perceived power differently depending on the website's brand familiarity.

4. Discussion

Results show that providing consumers with the option to refuse cookies significantly increased perceived power (H1b), but did not reduce perceived risk (H1a). Contrary to expectations, full-screen placement of cookie notices did not significantly increase perceived risk (H2a). However, notice placement significantly affected perceived power (H2b), with perceived power highest when the notice appeared at the top of the page, compared with the bottom or a full page. Using technical language in cookie notices decreased perceived risk (H3a), though it did not significantly

affect perceived power (H3b). Brand familiarity did not significantly influence perceived risk (H4a) or perceived power (H4b). For familiar brands, perceived power was highest when technical language was combined with the option to accept or decline cookies, whereas for unfamiliar brands, perceived power was highest when non-technical language was combined with the same option (H4c). Results further confirmed that higher perceived power reduced perceived risk (H5) and that higher perceived risk decreased positive emotions (H6a) and reduced willingness to consent (H6b). Greater perceived power was associated with more positive emotions (H7a) and a lower likelihood of ignoring cookie notices or leaving the website (H7b), although it did not significantly reduce the number of declines. Lastly, greater positive emotions significantly increased consumers' willingness to consent to cookies (H8).

The absence of placement effects on perceived risk (H2a), despite successful manipulations, refines prior research highlighting the role of banner visibility in privacy judgments (Bornschein et al., 2020; Utz et al., 2019). Studies on banner blindness and online advertising show that users often ignore banner-like elements on pages when goal-focused, reducing the impact of placement on threat appraisals (Benway, 1998; Drèze & Hussherr, 2003; Simonetti & Bigne, 2024). Respondents may therefore perceive cookie notices as background features, so moving them across the page does not substantially alter their sense of risk. At the same time, notice placement significantly shaped perceived power (H2b), suggesting that placement can still function as a cue for control and transparency even when it does not heighten perceived threat. Consistent with recent work showing users no longer change privacy concerns substantially in response to banners post GDPR (Berens et al., 2024; Kulyk et al., 2020), our results suggest that the presence of genuine options and clear information dominates risk judgments, while placement can still contribute to perceived agency in certain configurations.

The asymmetry between the confirmed effect of technical language on perceived risk (H3a) and its non-significant impact on perceived power (H3b) suggests that explicit wording primarily clarifies threats and reduces uncertainty, thereby lowering perceived risk. In contrast, feelings of power rely more on structural factors like real choices and brand trust. Studies show that detailed privacy statements reduce risks and encourage disclosure, while perceptions of power depend on genuine controls and cues such as provider reputation (Brandimarte et al., 2013; Hui et al., 2007; Xu et al., 2012). Language technicality influences perceived power differently depending on specific configurations of cues. Notably, the absence of a significant main effect of language on perceived power aligns with the configurational view: since the impact of language varies with brand familiarity and freedom of choice, averaging across these factors hides the effect. This explains why a clear main effect appears for perceived risk but not for perceived power.

4.1. Theoretical Contributions

The results offer three key theoretical contributions, each advancing Privacy Calculus Theory. First, we introduce new psychological pathways through which notice features shape the calculus. Second, we reconceptualize the cost-benefit evaluation process as configurational rather than additive. Third, we identify brand familiarity as a boundary condition that governs how design cues translate into privacy appraisals.

First, the study extends Privacy Calculus Theory (Dinev & Hart, 2006) by showing that emotions are integral to linking cookie notice features to consent, rather than stopping at cognitive appraisals (Cloarec et al., 2024; Kehr et al., 2015). Results suggest that emotions play a role in consumers' appraisals. Higher perceived power is associated with lower perceived risk; in turn, higher perceived risk decreases positive emotions and lowers willingness to consent, whereas positive emotions increase consent. These findings align with the affective component of the privacy calculus and clarify mixed findings on the relationship between risk and disclosure intentions (e.g., Jayakumar, 2021). They also emphasize that emotional reactions play an important role in the relationship between cognitive privacy appraisal and behavioral intention (Wakefield, 2013). Lastly, the effects of providing consumers with a choice on both perceived power and its downstream influence on lowered risk, positive emotions, and consent align with previous findings (Bornschein et al., 2020; Brandimarte et al., 2013). The integration of emotions thus advances theory by linking cognitive and affective streams of privacy research into a single model.

Second, results suggest a configurational extension of Privacy Calculus Theory rather than an additive one. Prior studies typically manipulate one cookie notice element at a time, implicitly assuming that each cue adds a fixed amount of privacy "cost" or "benefit" to the decision (e.g., Bornschein et al., 2020; Brandimarte et al., 2013). In contrast, the present study shows that freedom of choice, language technicality, notice placement, and brand familiarity act jointly, not additively, to shape the privacy calculus. We term this process configurational privacy calculus: a holistic evaluation in which consumers assess the overall pattern of privacy cues rather than weighting each cue independently and summing its contribution (Bettman et al., 1998). Unlike the standard additive model, in which a negative cue can always be offset by a positive one, configurational privacy calculus implies that the same cue can shift meaning entirely depending on the constellation of cues surrounding it. The configurational analysis reveals that for familiar brands, combining a refusal option with technical language maximizes perceived power. Conversely, for unfamiliar brands, perceived power is highest when a refusal option is paired with non-technical language. The same language

cue can therefore either increase or decrease perceived power and subsequent willingness to consent, depending on the surrounding configuration. This pattern explains why technical language lowers perceived risk but does not clearly affect perceived power: its impact on feelings of power depends on how it interacts with choices and brand familiarity. Similarly, the finding that placement affects perceived power but not perceived risk further illustrates that different design cues operate through distinct psychological mechanisms. Power and risk are separable dimensions of the privacy calculus, and no single cue moves both in the same way. Together, these patterns underscore that the calculus is not a simple sum of independent cue effects but a configuration-dependent process. More broadly, these findings suggest that the privacy calculus may be better understood as a configuration-dependent evaluation process in which the meaning of individual privacy cues emerges from their interaction with surrounding contextual signals rather than from their isolated effects.

Finally, we identify brand familiarity as a contextual boundary condition in the privacy calculus (Dinev & Hart, 2006). Although brand familiarity and reputation are often treated as trust and risk-reducing cues in online settings (Erdem & Swait, 1998; Gefen et al. 2003; Li, 2014; Nepomuceno et al. 2014), brand familiarity did not directly reduce perceived risk in our study, and it did not increase perceived power. However, configurational analyses indicate that brand familiarity shapes how notice features, particularly language technicality and the provision of choice, translate into perceived power. For familiar brands, technical language does not undermine power when consumers can refuse cookies, whereas for unfamiliar brands, the same language can lower power unless paired with simpler wording. Together, these results specify a nuanced boundary role for brand familiarity in the privacy calculus, illustrating how brand context can alter the meaning and impact of notice design cues (Dinev & Hart, 2006; Gefen et al., 2003; Li, 2014).

4.2. Managerial Implications

Consistent with recent findings that minute interface tweaks produce outsized behavioral effects (De Keyser et al., 2022; Ryu & Vargas, 2025), our results suggest that the characteristics of cookie notices influence consumers' perceptions and behavioral intentions. Thus, our findings suggest several implications for e-commerce companies and government institutions, key players in the digital ecosystem that shape how consumer data is collected online.

Recognizing the significant value of consumers' data is essential for organizations, which often strive to maximize the acceptance rate of data collection on their digital platforms. Our study suggests that cookie notices offering only an "Accept" option generally generate higher acceptance rates (46.94%) than notices that also provide a "Decline" option (22.24%). Although this approach may yield short-term gains in data collection, it can damage consumer relationships over time. Restricting cookie notices to an "accept-only" option lowers perceived consumer power, increases perceived risk, and diminishes positive emotions associated with site usage.

However, companies prioritizing customer relations, particularly those with lower brand familiarity, may need a different strategy. These businesses may be especially sensitive to cues that shape perceived power. This goal can be achieved by offering the option to opt out of data collection and by using clear, non-technical language to explain the process. In contrast, companies with familiar brands may benefit from greater baseline trust, even if brand familiarity does not automatically reduce perceived risk. Still, they can further enhance consumer power by providing at least a refusal option while continuing to use technical language aligned with their professional image. Overall, these recommendations can help businesses strike a balance between efficient data collection and fostering positive consumer relationships, thereby promoting sustainable practices in the digital age.

Government authorities require e-commerce companies to clearly and transparently inform consumers about their data collection practices, as mandated by regulations such as the GDPR (2016) and by privacy laws, including the California Consumer Privacy Act (2018) and the California Privacy Rights Act (2020). While these frameworks allow companies some flexibility in designing cookie notices, organizations must ensure that consumers can give informed consent. This discretion has led to considerable diversity in how websites present information, particularly in the terminology used to explain the collection of personal data. Our research identified differences in perceived risk between notices that reference cookie usage and those that explicitly state the company's collection of information. Specifically, our findings show that using technical terms can reduce perceived risk more effectively than less technical language. Although our study did not investigate the reasons behind this difference, existing research suggests that consumers may lack a thorough understanding of cookies, leaving them unaware of the associated risks (Smit et al., 2014).

The findings also emphasize the importance of tailoring cookie notices to enhance consumer perceptions of power, which can, in turn, positively influence trust and brand perception. For familiar brands, using technical language paired with clear options, such as the ability to reject cookies, strengthens feelings of empowerment and reinforces the brand's commitment to transparency. For unfamiliar brands, the focus should shift toward non-technical, accessible language and provide acceptance and rejection options to strengthen perceived power and foster more positive responses to the notice. These results highlight that a one-size-fits-all approach to cookie notice design is ineffective. Instead, brands

must strategically adapt the characteristics of their cookie notices to align with their brand familiarity. Critically, managers should be aware that cues that perform well independently can undermine each other in certain combinations. For instance, technical language and restricting choice each serve a specific purpose, but pairing technical language with no-refusal options on an unfamiliar brand's website can simultaneously lower perceived power and fail to reduce perceived risk, producing the least favorable consumer response. Designing effective cookie notices, therefore, requires evaluating the full configuration of cues rather than optimizing each element in isolation.

Employing the term “cookie” without further clarification raises concerns about whether companies adequately inform consumers, thereby enabling genuinely informed decisions. We suggest that government institutions investigate this issue further and consider whether companies should be required to clarify technical terms when disclosing data collection practices. Such measures would enhance transparency and support more informed consumer consent, aligning with the objectives of current privacy regulations.

By treating cookie consent choices, wording, placement, and brand signals as mutually reinforcing design levers, firms can achieve higher, more sustainable consent without resorting to dark patterns. At the same time, regulators can establish clear, behavior-tested rules that protect consumers while allowing for legitimate data collection.

4.3. Limitations and Future Directions

Despite the valuable insights gained from our study, several inherent limitations must be acknowledged, each suggesting potential avenues for further research. First, our experiment used the Uniqlo brand to create homepages for a familiar brand. While Uniqlo is a reasonable operationalization of a familiar apparel brand, it is plausible that not all US participants recognized it at the same high level of familiarity. Future research could use a more universally recognized brand to assess the generalizability of brand-related configurational effects. Second, the study focused on behavioral intentions. Future research would benefit from capturing consumers' actual behaviors in response to cookie notices. Third, the mediators and the consent outcome are self-reported and collected in a single online session. Although the experimental manipulations, the use of validated scales, and the diagnostics reported above reduce concerns about common method variance, future research could further strengthen causal inference by separating the measurement of mediators and outcomes over time or across data sources. For example, self-reports of perceived power and risk could be combined with objective clickstream data or platform-side consent logs. Fourth, our study did not account for certain control variables that might influence privacy attitudes, such as time spent online and digital literacy (Acquisti et al., 2015; Dinev & Hart, 2006). Excluding these factors may affect the generalizability of our findings, as such characteristics can significantly shape consumer responses to privacy concerns. Future research should consider these consumer-specific traits to mitigate potential biases and enhance the understanding of how individual differences influence reactions to privacy practices. Addressing these limitations could advance our understanding of the factors influencing consumer interactions with digital consent mechanisms, ultimately leading to more effective and consumer-friendly approaches to online privacy management.

5. Conclusion

This study explored the complex links among online data collection, consumer privacy, and consumer concerns, focusing on how consumers perceive and respond to cookie notices. We examined how the design of these notices influences consumer consent and perceptions. Results showed that giving consumers the option to decline cookies and the placement of the cookie notice affected their sense of power, while using technical language in notices reduced their perceived risk. We also found that perceived power and risk significantly influence emotional responses and decisions about consent. Higher perceived power correlates with lower risk perception and more positive emotions, whereas higher risk perception leads to lower positive emotions and a higher likelihood of rejecting cookies, ignoring notices, or leaving the site instead of accepting. Positive emotions then boost willingness to consent. These findings offer practical advice for retailers and regulators to improve cookie notice design and enhance customer experience while ensuring informed consent.

REFERENCES

- Acquisti, A., Brandimarte, L., & Loewenstein, G. (2015). Privacy and human behavior in the age of information. *Science*, 347(6221), 509-514. <https://doi.org/10.1126/science.aaa1465>
- Aljukhadar, M., Senecal, S., & Ouellette, D. (2010). Can the media richness of a privacy disclosure enhance outcome? A multifaceted view of trust in rich media environments. *International Journal of Electronic Commerce*, 14(4), 103-126. <https://doi.org/10.2753/JEC1086-4415140404>
- Bagozzi, R. P., Gopinath, M., & Nyer, P. U. (1999). The role of emotions in marketing. *Journal of the Academy of Marketing Science*, 27(2), 184-206. <https://doi.org/10.1177/0092070399272005>

- Benedicktus, R. L., Brady, M. K., Darke, P. R., & Voorhees, C. M. (2010). Conveying trustworthiness to online consumers: reactions to consensus, physical store presence, brand familiarity, and generalized suspicion. *Journal of Retailing*, 86(4), 322-335. <https://doi.org/10.1016/j.jretai.2010.04.002>
- Benway, J. P. (1998, October). Banner blindness: The irony of attention grabbing on the World Wide Web. In *Proceedings of the human factors and ergonomics society annual meeting* (Vol. 42, No. 5, pp. 463-467). Sage CA: Los Angeles, CA: Sage Publications. <https://doi.org/10.1177/154193129804200504>
- Berens, B. M., Bohlender, M., Dietmann, H., Krisam, C., Kulyk, O., & Volkamer, M. (2024). Cookie disclaimers: Dark patterns and lack of transparency. *Computers & Security*, 136, 103507. <https://doi.org/10.1016/j.cose.2023.103507>
- Bettman, J. R., Luce, M. F., & Payne, J. W. (1998). Constructive consumer choice processes. *Journal of Consumer Research*, 25(3), 187-217. <https://doi.org/10.1086/209535>
- Bombardi, D., Schmid Mast, M., & Bachmann, M. (2017). Felt power explains the link between position power and experienced emotions. *Emotion*, 17(1), 55-66. <https://doi.org/10.1037/emo0000207>
- Bornschein, R., Schmidt, L., & Maier, E. (2020). The Effect of Consumers' Perceived Power and Risk in Digital Information Privacy: The Example of Cookie Notices. *Journal of Public Policy and Marketing*, 39(2), 135-154. <https://doi.org/10.1177/0743915620902143>
- Brandimarte, L., Acquisti, A., & Loewenstein, G. (2013). Misplaced confidences: Privacy and the control paradox. *Social Psychological and Personality Science*, 4(3), 340-347. <https://doi.org/10.1177/1948550612455931>
- Cloarec, J., Meyer-Waarden, L., & Munzel, A. (2024). Transformative privacy calculus: Conceptualizing the personalization-privacy paradox on social media. *Psychology and Marketing*, 41(7), 1574-1596. <https://doi.org/10.1002/mar.21998>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- De Keyser, F., Van Noort, G., & Kruikemeier, S. (2022). Going too far? How consumers respond to personalized advertising from different sources. *Journal of Electronic Commerce Research*, 23(3), 138-159. <http://jecr.org/node/664>
- Deng, M., & Gu, X. (2021). Information acquisition, emotion experience and behaviour intention during online shopping: an eye-tracking study. *Behaviour & Information Technology*, 40(7), 635-645. <https://doi.org/10.1080/0144929X.2020.1713890>
- Dinev, T., & Hart, P. (2006). An extended privacy calculus model for e-commerce transactions. *Information Systems Research*, 17(1), 61-80. <https://doi.org/10.1287/isre.1060.0080>
- Drèze, X., & Hussherr, F. X. (2003). Internet advertising: Is anybody watching? *Journal of Interactive Marketing*, 17(4), 8-23. <https://doi.org/10.1002/dir.10063>
- Erdem, T., & Swait, J. (1998). Brand equity as a signaling phenomenon. *Journal of Consumer Psychology*, 7(2), 131-157. https://doi.org/10.1207/s15327663jcp0702_02
- Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2003). Empirical Testing of a Model of Online Store Atmospherics and Shopper Responses. *Psychology and Marketing*, 20(2), 139-150. <https://doi.org/10.1002/mar.10064>
- European Council. (2024, June 13). The general data protection regulation. *European Council*. <https://www.consilium.europa.eu/en/policies/data-protection/data-protection-regulation/#:~:text=data%20protection%20rules-,What%20is%20the%20GDPR%3F,application%20on%2025%20May%202018.>
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51-90. <https://doi.org/10.2307/30036519>
- Goldfarb, A., & Tucker, C. (2011). Online display advertising: Targeting and obtrusiveness. *Marketing Science*, 30(3), 389-404. <https://doi.org/10.1287/mksc.1100.0583>
- Hui, K. L., Teo, H. H., & Lee, S. Y. T. (2007). The Value of Privacy Assurance: An Exploratory Field Experiment. *MIS Quarterly*, 31(1), 19-33. <https://doi.org/10.2307/25148779>
- Interbrand. (2025). Best Global Brands 2025. Interbrand. <https://interbrand.com/best-global-brands/global/>
- Jayakumar, L. N. (2021). Cookies 'n' Consent: An empirical study on the factors influencing of website users' attitude towards cookie consent in the EU. *DBS Business Review*, 4(72). <https://doi.org/10.22375/dbr.v4i0.72>
- Kehr, F., Kowatsch, T., Wentzel, D., & Fleisch, E. (2015). Blissfully ignorant: The effects of general privacy concerns, general institutional trust, and affect in the privacy calculus. *Information Systems Journal*, 25(6), 607-635. <https://doi.org/10.1111/isj.12062>
- Kim, J., & Lennon, S. J. (2013). Effects of reputation and website quality on online consumers' emotion, perceived risk and purchase intention: Based on the stimulus-organism-response model. *Journal of Research in Interactive Marketing*, 7(1), 33-56. <https://doi.org/10.1108/17505931311316734>

- Koehorst, R. (2013). Personal information disclosure on online social networks: an empirical study on the predictors of adolescences' disclosure of personal information on Facebook. *University of Twente, Enschede*.
- Kulyk, O., Gerber, N., Hilt, A., & Volkamer, M. (2020). Has the GDPR hype affected users' reaction to cookie disclaimers? *Journal of Cybersecurity*, 6(1), tyaa022. <https://doi.org/10.1093/cybsec/tyaa022>
- Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, 4, 863. <https://doi.org/10.3389/fpsyg.2013.00863>
- Lazarus, R. S. (1991). *Emotion and Adaptation*. Oxford University Press.
- Lerner, J. S., Li, Y., Valdesolo, P., & Kassam, K. S. (2015). Emotion and decision making. *Annual Review of Psychology*, 66, 799–823. <https://doi.org/10.1146/annurev-psych-010213-115043>
- Li, Y. (2014). The impact of disposition to privacy, website reputation and website familiarity on information privacy concerns. *Decision Support Systems*, 57(1), 343–354. <https://doi.org/10.1016/j.dss.2013.09.018>
- Loewenstein, G. F., Hsee, C. K., Weber, E. U., & Welch, N. (2001). Risk as feelings. *Psychological Bulletin*, 127(2), 267–286. <https://doi.org/10.1037/0033-2909.127.2.267>
- Lu, C. H. (2024). The moderating role of e-lifestyle on disclosure intention in mobile banking: A privacy calculus perspective. *Electronic Commerce Research and Applications*, 64, 101374. <https://doi.org/10.1016/j.elerap.2024.101374>
- MacKenzie, S. B., & Podsakoff, P. M. (2012). Common method bias in marketing: causes, mechanisms, and procedural remedies. *Journal of Retailing*, 88(4), 542-555. <https://doi.org/10.1016/j.jretai.2012.08.001>
- Magee, J. C., & Galinsky, A. D. (2008). 8 social hierarchy: The self-reinforcing nature of power and status. *Academy of Management Annals*, 2(1), 351-398. <https://doi.org/10.5465/19416520802211628>
- Malhotra, N. K., Kim, S. S., & Agarwal, J. (2004). Internet users' information privacy concerns (IUIPC): The construct, the scale, and a causal model. *Information Systems Research*, 15(4), 336-355. <https://doi.org/10.1287/isre.1040.0032>
- Malhotra, N. K., Schaller, T. K., & Patil, A. (2017). Common method variance in advertising research: When to be concerned and how to control for it. *Journal of Advertising*, 46(1), 193-212. <https://doi.org/10.1080/00913367.2016.1252287>
- Mandler, G. (1982). The structure of value: Accounting for taste. In M. S. Clark & S. T. Fiske (Eds.), *Affect and cognition: The 17th Annual Carnegie Mellon Symposium on Cognition* (pp. 3–36). Lawrence Erlbaum.
- McCallister, E., Grance, T., & Scarfone, K. (2010). Guide to protecting the confidentiality of personally identifiable information (PII): Recommendations of the National Institute of Standards and Technology. *National Institute of Standards and Technology*. <https://doi.org/10.6028/NIST.SP.800-122>
- McDonald, A. M., & Cranor, L. F. (2010, October). Americans' attitudes about internet behavioral advertising practices. In *Proceedings of the 9th annual ACM workshop on Privacy in the electronic society* (pp. 63-72). <https://doi.org/10.1145/1866919.1866929>
- Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. The MIT Press.
- Meyers-Levy, J., & Tybout, A. M. (1989). Schema congruity as a basis for product evaluation. *Journal of Consumer Research*, 16(1), 39–54. <https://www.jstor.org/stable/2489300>
- Milne, G. R., & Culnan, M. J. (2004). Strategies for reducing online privacy risks: Why consumers read (or don't read) online privacy notices. *Journal of Interactive Marketing*, 18(3), 15-29. <https://doi.org/10.1002/dir.20009>
- Morosan, C. (2020). Hotel facial recognition systems: Insight into guests' system perceptions, congruity with self-image, and anticipated emotions. *Journal of Electronic Commerce Research*, 21(1), 21–38. <http://jecr.org/node/597>
- Mousavizadeh, M., & Kim, D. J. (2015, December 13–16). *A study of the effect of privacy assurance mechanisms on self-disclosure in social networking sites from the view of protection motivation theory* [Paper presentation]. Thirty-Sixth International Conference on Information Systems (ICIS), Fort Worth, TX, United States. <https://aisel.aisnet.org/icis2015/proceedings/SecurityIS/9>.
- Nepomuceno, M. V., Laroche, M., & Richard, M. O. (2014). How to reduce perceived risk when buying online: The interactions between intangibility, product knowledge, brand familiarity, privacy and security concerns. *Journal of Retailing and Consumer Services*, 21(4), 619–629. <https://doi.org/10.1016/j.jretconser.2013.11.006>
- Norberg, P. A., Horne, D. R., & Horne, D. A. (2007). The privacy paradox: Personal information disclosure intentions versus behaviors. *Journal of Consumer Affairs*, 41(1), 100-126. <https://doi.org/10.1111/j.1745-6606.2006.00070.x>
- Nunnally, J. C. (1978). *Psychometric Theory* (2nd ed.). McGraw-Hill.
- Office of the Privacy Commissioner of Canada. (2014). *Annual report to Parliament 2014: Report on the Personal Information Protection and Electronic Documents Act*. https://www.priv.gc.ca/en/opc-actions-and-decisions/ar_index/201415/2014_pipeda/

- Park, Y. J. (2011). Provision of Internet privacy and market conditions: An empirical analysis. *Telecommunications Policy*, 35(7), 650–662. <https://doi.org/10.1016/j.telpol.2011.06.003>
- Park, J., & Stoel, L. (2005). Effect of brand familiarity, experience and information on online apparel purchase. *International Journal of Retail & Distribution Management*, 33(2), 148–160. <https://doi.org/10.1108/09590550510581476>
- Park, Y. J., Campbell, S. W., & Kwak, N. (2012). Affect, cognition and reward: Predictors of privacy protection online. *Computers in Human Behavior*, 28(3), 1019–1027. <https://doi.org/10.1016/j.chb.2012.01.004>
- Pollach, I. (2007). What's wrong with online privacy policies? *Communications of the ACM*, 50(9), 103–108. <https://doi.org/10.1145/1284621.1284627>
- Ryu, S., & Vargas, P. (2025). Visual biasing effects: Exploring the impact of online product visuals on user behavior and biased processing of customer reviews. *Journal of Electronic Commerce Research*, 26(2), 92–116. <https://www.jecr.org/node/727>
- Simonetti, A., & Bigne, E. (2024). Does banner advertising still capture attention? An eye-tracking study. *Spanish Journal of Marketing - ESIC*, 28(1), 3–20. <https://doi.org/10.1108/SJME-11-2022-0236>
- Slovic, P., Finucane, M., Peters, E., & MacGregor, D. G. (2002). Rational actors or rational fools: implications of the affect heuristic for behavioral economics. *The Journal of Socio-Economics*, 31(4), 329–342. [https://doi.org/10.1016/S1053-5357\(02\)00174-9](https://doi.org/10.1016/S1053-5357(02)00174-9)
- Smit, E. G., Van Noort, G., & Voorveld, H. A. (2014). Understanding online behavioural advertising: User knowledge, privacy concerns and online coping behaviour in Europe. *Computers in Human Behavior*, 32, 15–22. <https://doi.org/10.1016/j.chb.2013.11.008>
- Statista Research Department. (2024, August). Reliance on third-party cookies worldwide 2024. <https://www.statista.com/statistics/1376793/reliance-third-party-cookies/>
- Traczyk, J., Sobkow, A., & Zaleskiewicz, T. (2015). Affect-laden imagery and risk taking: the mediating role of stress and risk perception. *PloS One*, 10(3), e0122226. <https://doi.org/10.1371/journal.pone.0122226>
- Utz, C., Degeling, M., Fahl, S., Schaub, F., & Holz, T. (2019, November). (Un) informed consent: Studying GDPR consent notices in the field. In *Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security* (pp. 973–990). <https://doi.org/10.1145/3319535.3354212>
- Wakefield, R. (2013). The influence of user affect in online information disclosure. *The Journal of Strategic Information Systems*, 22(2), 157–174. <https://doi.org/10.1016/j.jsis.2013.01.003>
- Wang, E. S. T. (2019). Effects of brand awareness and social norms on user-perceived cyber privacy risk. *International Journal of Electronic Commerce*, 23(2), 272–293. <https://doi.org/10.1080/10864415.2018.1564553>
- Xu, H., Teo, H. H., Tan, B. C., & Agarwal, R. (2012). Research note—effects of individual self-protection, industry self-regulation, and government regulation on privacy concerns: a study of location-based services. *Information Systems Research*, 23(4), 1342–1363. <https://doi.org/10.1287/isre.1120.0416>
- Zimmer, J. C., Aarsal, R. E., Al-Marzouq, M., & Grover, V. (2010). Investigating online information disclosure: Effects of information relevance, trust and risk. *Information & Management*, 47(2), 115–123. <https://doi.org/10.1016/j.im.2009.12.003>

APPENDIX**Table A1. Measures Used in the Survey.**

Measure	Question	Item
Behavioral intention (multiple choice)	On the website you just visited, you were first exposed to a message about the way the company handles your data (cookies, privacy policy, etc.). After seeing this message, what course of action would you have taken?	Accept the privacy policy
		Decline the privacy policy
		Disregard the consent notice and proceed with navigating the website.
		Exit the website
Perceived power (7-point Likert scale; Bornschein et al. 2020)		I was in control over my private information on the website.
		On the website, I decided on my private information.
		On the website, I had the power over my private information.
		The website determined what happened to my private information.
Perceived risk (7-point Likert scale; Malhotra, Kim et Agarwal, 2004)		In general, it would be risky to give private information to the website.
		There would be too much uncertainty associated with giving private information to the website.
		Providing the website with private information would involve many unexpected problems.
		I would feel safe giving private information to the website.
Emotions (Semantic differential; Mehrabian & Russell, 1974)		Unhappy - Happy
		Annoyed - Pleased
		Despairing - Hopeful
		Dissatisfied - Satisfied
Manipulation Check (7-point Likert scale)	Freedom of choice	The sole choice available on the website's message about the way the company handles your data was to accept. On this website, the message about the way the company handles your data was positioned at the top of the page.
	Placement of cookie notice	The website's message about the way the company handles your data blocked the interaction with the page until an option of consent was selected.
	Technicality of the language	On this website, the message about the way the company handles your data mentioned the term "cookies" when referring to tracking visitors.
	Brand familiarity	I am familiar with the website's brand.
Demographics (multiple choice)	Gender	
	Age	
	Country of residency	