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Resolving the privacy paradox: Toward a cognitive appraisal and emotion approach to online privacy behaviors



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ABSTRACT

The rich context of the website interactions of online shoppers is underexplored in the research on online information privacy. This study draws on multidimensional development theory to examine the effects of general privacy concerns, cognitive appraisals, and emotions formed during actual website interactions. The results suggest that cognitive appraisals and emotions are dominant determinants of privacy behaviors. Online consumers are more likely to disclose personal information when they have positive cognitive appraisals and liking toward the website. The findings provide a novel perspective, which helps understand the so-called privacy paradox phenomenon beyond the commodity view based on the privacy calculus.

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1. Introduction

Empowered by the ever-increasing implementation of the Internet and computing technologies in organizations, online companies gather vast amounts of consumer data, which is made possible by advances in storage, networking, and data processing technologies. The increasing applications of data mining technigues have further fueled the thirst for personal information vis-àvis efficient and effective strategic decision-making. Organizations increasingly leverage the technological artifacts to collect, analyze, and share personal information, whereas consumers have become increasingly concerned about the privacy of their information online. Indeed, privacy issues are of paramount importance not only to consumers but also to online companies because the latter would face catastrophic pitfalls if the privacy predicament could not be properly resolved. Many large online companies, such as Facebook and Google, have encountered a backlash from their customers because of changes in companies' privacy practices or incidences of privacy violations. Recently, Instagram, a child company of Facebook, lost about 25% of its users after it introduced privacy terms allowing third-party advisers access to users' personal information for sponsored content or promotions [42].

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Over the past decade, considerable efforts have been devoted to the research of information privacy in information systems (IS) [7,17,37,59–61,71]. One interesting phenomenon identified in these research activities is the so-called privacy paradox, which refers to the contradiction between one's reported general privacy concerns and actual privacy behaviors [43,59]. The general privacy concern is one type of relatively stable personal traits, reflecting an individual's general tendency to worry about information privacy [37]. General privacy concern is *not* specific to interactions with a specific website or an online company and tends to vary from person to person. The actual privacy behaviors of Internet users were often found to deviate from their stated levels of general privacy concerns, therefore exhibiting the privacy paradox. For example, in a survey by Acquisti and Grossklags [1], 41% of individuals reporting a high level of privacy concern rarely read privacy policies to assess the privacy risks. In addition, many online social network users disclosed a great deal of personal information despite their privacy concerns [63]. The privacy paradox phenomenon was corroborated by the findings of recent empirical studies that examined personal privacy concerns [3,27,33,37]. The congruence of these findings indicates that general privacy concerns have a weak or insignificant direct impact on privacy behaviors in the presence of situational factors, such as monetary incentives and other benefits offered by the vendor [25,27,34].

To date, the privacy paradox phenomenon has been explained mainly from the commodity perspective, where the privacy



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calculus (i.e., cost-benefit tradeoff analysis) has been suggested to cause the deviation of privacy behaviors from the stated level of privacy concerns [59,69]. The benefits of information exchange, such as monetary compensation, were found to help consumers overcome some information privacy concerns about information disclosure. Notwithstanding the valuable insights gained from the privacy calculus perspective, further scientific investigations of the formation of privacy and the privacy paradox using a theoretical lens and methodological approaches are warranted. This study endeavors to shed new light on the privacy paradox from a novel aspect through the multidimensional developmental theory (MDT) [30]. Drawing from the social psychological literature, this study adds to a growing body of IS research that highlights the role of situational factors within a particular context at a specific level (i.e., related to a specific website or an online company). In essence, we are cognizant that the situational factors related to a specific website can supersede the effects of general privacy concerns [65]. Consequently, consumers' actual behaviors may largely reflect the influence of situational factors instead of general privacy concerns, which leads to the contradiction of risky privacy behaviors and stated levels of high privacy concerns. Beyond the benefits explicitly assessed in privacy calculus, situational factors could include consumers' situational responses to the overall appearance, feel, and functionality of the website, in addition to the availability and content of the privacy policy and the nature of the information to be collected by the vendor. These situational factors entail both cognitive and affective responses. The previous research about these situational factors has largely been centered on consumers' cognitive responses, such as their appraisals of privacy policy and perceived privacy risk [15,37]. However, as pointed out by Laufer and Wolfe [30], privacy is a complex and multifaceted concept that involves emotions. The powerful role of emotions in explaining the privacy paradox has received some support in the literature. For example, online users with high privacy concerns disclosed their most private information to a website that they found entertaining [8]. The first impression that formed within 50 milliseconds served as the primary basis for consumers to decide whether to continue shopping on an unfamiliar website [36]. Therefore, both the emotions and cognitive appraisals formed with regard to a particular website could be important causes of the privacy paradox, disregarding the effects of general privacy concerns on consumers' actual privacy behaviors. The situational approach is particularly important to understand the privacy paradox in the context of unfamiliar websites because consumers may rely primarily on their initial impressions to form privacy-related appraisals and emotional responses, which then further inform their privacy behaviors.

To contribute to the research on the privacy paradox, this study mainly aims to investigate the privacy paradox in the context of actual interactions with an unfamiliar website. Diverging from the prevalent lens of privacy calculus, we will focus on the effects of situational cognitive appraisals and emotional responses on privacy behaviors. We posit that cognitive appraisals and emotions may supersede the effects of general privacy concerns (as personality traits) in determining online shoppers' willingness to disclose their personal information. By contributing to the privacy literature, the results of this study will enable both practitioners and researchers to have better and more comprehensive understanding of the privacy paradox. In particular, the situational factors related to interactions with a specific website and their effects are presumed to influence online privacy decisions and behaviors. The remainder of the article is organized as follows. In Section 2, we review the literature and describe the MDT, which we apply as our overarching theory. In addition, we propose our research model and its theoretical underpinnings, and we state the hypotheses. Next, we describe our research methodology, which is followed by a discussion of the findings of this study. Finally, we discuss the limitations of the study, the implications of its findings, and future research directions.

2. Literature review

Information privacy is the ability of individuals to control when. how, and to what extent their personal information is exchanged with and used by others [16.62.66]. Laufer and Wolfe [30] proposed the MDT to understand the formation of individual privacy. The MDT focuses on the impact of three dimensions of factors on individuals' privacy decisions: self-development, environmental, and interpersonal. The theory was originally used to explain the issue of privacy in offline contexts, such as the privacy of children and adolescents at home and in hospitals [30]. Recently, Hong and Thong extended the theory to the online context, arguing that the social relationship with the interpersonal dimension in the MDT could be viewed as the inter-web-personal relationship between the individual and an online entity such as a commercial website [26]. In line with Hong and Thong, we extended the theory to explain online shoppers' privacy behaviors. No prior study has conceptualized and operationalized all dimensions of the MDT to examine online shoppers' privacy behaviors by considering their actual interactions with a commercial website.

The MDT is based on two important assumptions. The first assumption is that we do not have complete knowledge about a privacy situation. Because people are unable to comprehend the privacy situation fully, they are afraid of potential harms and attempt to control the situation [30]. The desire to exercise control is pertinent in all privacy situations. The second assumption is that although people need to interact with the social and physical environments for mutuality and sharing, their interactions are limited. Privacy touches people's basic need to manage social and physical interactions. The MDT examines the issue of privacy from both individual and situational perspectives, assuming that an individual's privacy is shaped simultaneously through multiple processes, including the self-development of personality in the desire for privacy and the process of situational interactions with the environment and other individuals.

In this study, we apply the MDT as the underlying theoretical framework to explain online shoppers' privacy behaviors in the context of actual interactions with an unfamiliar website. The major difference between the MDT and other privacy-related theories is the former's multidimensional view of privacy issues. The MDT considers that the sources of individual privacy concerns are personality and situations, and it emphasizes the factors that are specific to a situation. The MDT consists of three dimensions: (1) self-development of personality in the desire for privacy; (2) environmental dimension; and (3) interpersonal dimension. The MDT is the only theory that explicitly considers the joint effects of personality and situational experiences, which makes it especially appealing to gain an integrative understanding of the factors and processes underlying privacy decisions. The extant empirical studies of online privacy have investigated largely the effects of self-development for privacy and interpersonal dimensions. The former is examined as general privacy concerns [37], and the latter is examined as cost-benefit assessments in exchange relationships [17,27]. Hence, further work is needed to investigate the effects of the environmental dimension in an online privacy situation. By building its theoretical foundation on the MDT, our study diverges from prior research because it seeks to achieve a holistic view of the factors and processes that underlie online privacy behaviors by considering all three dimensions of the MDT. The situational emphasis and integrative perspectives offered by the MDT allow us to compare directly the effects of the situational (i.e., environmental and interpersonal) factors related to a specific website with general privacy concerns. This comparison provides new insights into the issue of the privacy paradox, allowing us to better explain why online shoppers' actual privacy behaviors often deviate from their stated levels of privacy concerns when they interact with a specific website.

Fig. 1 shows the conceptual model based on the MDT. In the following subsections, we review each of the three basic dimensions of the MDT and the specific form of each dimension in the context of our study, i.e., actual interaction with a specific unfamiliar website.

2.1. Self-development dimension

The self-development dimension is the individual aspect of privacy. It refers to "a developmental process that, in our society, focuses on individuation (autonomy) and, by implication, personal dignity" [30] (1977, pp. 26). The concept of privacy relates to the deep human need for individuation. We want to separate from the social and physical environment and have the freedom to choose whether to be solitary or to interact and function with others. Selfdevelopment is built through the individual's growth, life experience, and sense of self. People seek privacy in an attempt "to protect, nurture, extend and enhance the self" [30] (1977, pp. 27). The self is positively reinforced through the appropriate expressions of privacy. Individuals with different levels of selfdevelopment are likely to express different levels of general concern regarding their personal information. The general concern for information privacy is likely to further drive online shoppers' privacy behaviors when they interact with a website. Therefore, in this study, we implement general privacy concerns as the manifest property of the self-development dimension, and we examine it as one of the antecedents of privacy behavior.

2.2. Environmental dimension

The environmental dimension consists of elements that "influence the individual's ability to perceive, have, and use available options" [30] (1977, pp. 28). These environmental elements circumscribe human behaviors by serving as the boundaries of meaning and experience. The environmental dimension could be cultural or socio-physical, or it could consist of the life cycle. Our study focuses on the socio-physical subdimension. Laufer and Wolfe [30] suggested that a physical space could achieve a privacy character according to its design, activity, and meaning. People may feel that some physical space may "fit" human privacy better than another place does. In the context of online shopping, website features constitute important socio-physical elements. Similar to a physical space, a website could achieve its privacy character through design, functionality, and content (e.g., information about its products and services). This study attempts to examine the influence of environmental features



Fig. 1. Conceptual research model based on the MDT.

from a holistic perspective focusing on initial overall website responses because they provide feedback about websites regarding their overall look, design, functionality, and content (i.e., information about the quality, types, brands of products, services, etc.). The initial responses to a website could be both cognitive and emotional. In this study, we capture the initial cognitive and emotional responses to websites using motive consistency appraisal and liking emotion, respectively. Motive consistency is the cognitive appraisal of whether the situation or website could help achieve the individual's motives. In the context of ecommerce, it reflects consumers' cognitive evaluations of their holistic shopping experiences [20]. In typical online shopping, the motives are to perform e-commerce transactions involving a primary exchange of products and services and a second exchange of personal private information [16]. These two types of exchanges are tightly coupled. A second exchange and related privacy expectation act as the enabler of the primary exchange [34]. Motive consistency reflects the extent to which the overall impression of a website fits the online shopper's motives to perform relevant exchanges. Some websites may be more congruent with the online shoppers' motives, therefore evoking information disclosure that is private in character.

According to the MDT, privacy situations are characterized by incomplete knowledge. The interaction with unfamiliar websites represents a typical privacy situation where consumers do not have complete knowledge. Hence, they cannot rely solely on cognition to evaluate the privacy situation. In this case, emotions such as liking could provide important environmental feedback about a website, including its privacy character, and further influence online shoppers' information disclosure. This view is in line with the feeling-as-information theory, which postulates that individuals' emotions serve as information cues regarding the status of their environment [45]. The information function of emotions is particularly important for consumers to decide whether to disclose personal information on an unfamiliar website. The vital role of emotions in a privacy situation to a certain extent parallels an interesting finding by Berendt et al. [8]. Online users could easily forget their stated level of privacy concerns and disclose their most personal information when they interact with a website that is entertaining. Previous studies examined several emotions such as liking, joy, pride, and fear in the context of e-commerce [21]. Among those emotions, liking, which is measured as fondness and attractiveness, is by far the most commonly examined emotion in the capture of consumers' initial affective impressions about a product or a website. For example, Norman [39] argued that the emotional side of design may be more critical than the practical side of design because products attractive to consumers are considered to work better than unattractive ones do. In the context of website design, visually attractive websites are perceived to have superior usability [31]. In line with these prior studies on initial affective impression, we chose to focus on the liking emotion experienced by online shoppers while they interact with a particular website. We define liking as a type of emotional state characterized by fondness for or attraction to a stimulus. In the context of our research, liking is experienced while interacting with a stimulus such as a website.

In summary, the environmental dimension of the MDT is operationalized as motive consistency and liking to gain a holistic understanding of the effects of website features (i.e., physical environment) from both cognitive and affective perspectives.

2.3. Interpersonal dimension

Privacy issues arise from the interpersonal relationship between an online shopper and a vendor. The interpersonal dimension constitutes the core of the privacy situation [30]. Privacy invasion occurs when an individual loses control over interactional boundaries and/or control over the use of information by others [30]. The ability to control is decisive in managing privacy in social interactions or interpersonal relationships. This view of the central role of privacy control in interpersonal exchanges was shared by previous studies [14,18]. For example, privacy control was considered a critical fairness lever to justify information exchange between two parties [18]. Therefore, in this study, perceived privacy control, as one type of cognitive appraisal, is used to represent the interpersonal dimension in the MDT. Online shoppers could control their information privacy by deciding whether to interact with the website, whether to disclose personal information, what kind of personal information to disclose, and for what purpose by online vendors. Because of the uncertainty commonly involved in the disclosure of personal information in online shopping, the perceived level of privacy control may play a key role in overcoming the uncertainty involved in information disclosure and further influence consumers' emotions and privacy behavior to disclose personal information to unfamiliar vendors.

We employ the MDT as an overarching framework for examining individual privacy behaviors by considering the joint influence of privacy-related self-development and situational interactions with the environment and other individuals. To fit the context of our study, we further identify manifesting factors to operationalize the three dimensions of the MDT (Fig. 1). In particular, the general privacy concern is chosen to represent the self-development dimension. Motive consistency and liking are used to capture the environmental dimension. Perceived privacy control is applied as the variable of the interpersonal dimension. Despite the holistic foundation provided by the MDT, it does not explicitly define the interrelationships among its three dimensions. To fill this gap, we draw upon the literature on information privacy and cognitive appraisal to elaborate the potential interplay among the manifesting factors of the MDT. In Section 3, we develop our formal research model and state the hypotheses of our study.

3. Hypotheses development

Our research model proposes that (a) an online user's motive consistency and perceived privacy control, as two types of cognitive appraisal, affect the emotional response, i.e., whether (s)he likes the website, and (b) the liking of the website and the cognitive appraisals have a salient effect on the behavioral intention to disclose personal information, which might override the effect of the general privacy concern. The research model is presented in Fig. 2. In the following subsections, we state the hypotheses and discuss their theoretical underpinnings.

3.1. Cognitive appraisals and liking

There are two general types of affective states: emotion and mood. It is important to differentiate them so that the right affective response is examined to fit the context of our study. Emotions are defined as "felt tendency toward anything intuitively appraised as good (beneficial) or away from anything intuitively appraised as bad (harmful)" [2] (1960, pp.182). Emotions are considered intense, short-lived (limited to seconds or minutes), and highly conscious affective states [57]. In addition, emotions are relational or directed at a particular object [23] and therefore typically have salient causes or antecedents. In comparison, moods have low intensity with relatively longer duration (several hours to several days), and they are objectless with no salient cause, i.e., they are not directed toward a particular object. For example, an individual could feel good or be in a good mood all day without external salient causes. In the context of our study, we are interested in studying consumers' affective responses formed in the interaction with a specific website. Because of the objectless nature of moods, they do not indicate the features of a website with which online shoppers interact. Therefore, in this study, instead of moods, we examine emotions, particularly liking, and we contend that liking is driven by a consumer's cognitive appraisal of a specific website.

Emotions have been explained from different perspectives, including psychological, evolutionary, cognitive, neurological, and social-constructive [13]. In this study, we adopt the structural appraisal approach, which is based on the cognitive perspective because it was suitable in theory-driven empirical research on emotions [41]. Structural appraisal theories could provide additional insights into how emotions are formed and are considered particularly relevant for understanding the emotions of consumers [28].

Appraisals are the evaluations of the potential harm or benefit in the circumstances confronting an individual [56]. Our appraisals of environments are then expected to elicit appropriate emotions that pull us toward good or push us away from bad things [2,56]. Since the 1980s, many studies have focused on the dimensions of cognitive appraisals that elicit emotions [50,51,55,56]. According to these studies, a particular emotion can be attributed to a combination of multiple cognitive appraisals. For example, fear is often related to an uncertain situation with low control potential [50]. Although many cognitive appraisals have been identified in





previous studies, we focus on motive consistency and perceived privacy control because they are appraisals of a particular website and capture the environmental and interpersonal dimension of a privacy situation based on the MDT. Detailed rationales for the selection of these two types of cognitive appraisals are provided in the review of the literature on the MDT.

Motive consistency is a cognitive appraisal of the extent to which a situation is in line with one's motive or whether the situation could help to achieve one's goal or what was expected in the situation. Motive consistency is the primary dimension that differentiates positive emotions from negative emotions [50]. The emotions experienced by an individual are linked to the goals of that individual. Liking was suggested to arise in a situation that is relatively consistent with what is expected [50]. For example, an individual tends to experience liking in a situation where he or she is able to perform the intended tasks easily. In the context of online shopping, motive consistency reflects consumers' cognitive evaluations of their holistic shopping experience [20], which involves evaluations of whether the initial expression of a website meets their expectation of a typical online store and whether they could rely on the site to perform the intended primary exchange for goods and the second exchange of personal information. A favorable cognitive assessment of the overall experience of website interaction in achieving an online consumer's shopping goal is expected to elicit liking for the website [20]. Therefore, the following hypothesis is stated:

H1. Motive consistency has a positive effect on liking.

Perceived privacy control refers to the perceived level of control over the disclosure and subsequent use of personal information [67]. As assumed by the MDT, a privacy situation is characterized by incomplete knowledge or uncertainty [30]. The evaluation of privacy control is a cognitive appraisal that underlies all second exchanges of personal information. Individuals rely on privacy control to prevent or mitigate the impact of potential privacy invasions. A high level of perceived privacy control would increase the desirability or attractiveness of interpersonal relationships and the associated exchanges. Online shoppers are highly concerned about their ability to control the private information that is exchanged in online transactions, especially when online vendors are unfamiliar. A higher level of perceived privacy control could help reduce the uncertainty involved in online shopping and increase the attractiveness or liking of the website. Therefore, we state the following hypothesis:

H2. Perceived privacy control has a positive effect on liking.

3.2. Cognitive appraisals and privacy behaviors

In various research disciplines, cognitive appraisals have been suggested to have a direct influence on behaviors. For example, in the healthcare literature, cognitive appraisals of health threats and coping potential were found to increase patients' intentions to engage in the recommended healthy behaviors [49]. In the field of IS, the cognitive appraisals of security threats and coping efficacy were supported to increase employees' intentions to comply with IS security policies [54]. In line with these prior studies, cognitive appraisals of a website, i.e., motive consistency and perceived privacy control, may also directly influence online shoppers' intentions to disclose their personal information on that website. Motive consistency captures the environmental dimension of the MDT, or it pertains to the cognitive evaluation of the overall environment of the website. Favorable cognitive responses to a website environment would entail a better "fit" between the website and an online shopper's motives through which the website could build its privacy character consistent with the online shopper's expectation. Consequently, the online shopper would be willing to engage in private information disclosure to enable the exchange with the online vendor. Therefore, the following hypothesis is stated:

H3. Motive consistency has a positive effect on online consumers' behavioral intentions to disclose their personal information.

Perceived privacy control captures the interpersonal dimension of the MDT, which is vital for individuals to decide whether and to what extent to engage in the inter-web-personal relationship. Before entering the second exchange of personal information, online shoppers will weigh their ability to control the interaction boundaries, such as whether they are aware of the nature of the information to be collected and whether they would be able to withdraw from any further interactions. In addition, online shoppers will evaluate their ability to manage the usage of their personal information by an online vendor if they decide to enter the second exchange. Perceived privacy control has been suggested to ease consumers' context-specific concerns for privacy violation by specific external agents [68]. A high level of perceived control of the collection and subsequent use of private information would convey to online shoppers that they would be able to control and/ or mitigate privacy risks involved in second exchanges, which would increase their desirability of exchanging information with the online vendor. Therefore, the following hypothesis is stated:

H4. Perceived privacy control has a positive effect on online consumers' behavioral intentions to disclose their personal information.

3.3. Liking and behavioral intention

Emotions serve important adaptive functions by directly invoking behaviors to increase the benefits or avoid the harms of a situation [32,40]. Researchers have demonstrated that emotions directly influence various consumer behaviors. For example, negative emotions increase consumers' intention to engage in complaint behaviors [64]. Consumers who experienced positive shopping emotions were found to stay longer or spend more money [6,19,53,70]. Online shoppers who like a website would be more willing to disclose their personal information on it. Thus, the following hypothesis is stated:

H5. Liking has a positive effect on online consumers' behavioral intentions to disclose their personal information.

3.4. General privacy concern and behavioral intention

Privacy concern has been defined and measured from two broad perspectives in the IS literature: general privacy concern (one type of personal trait) across contexts and websites [33,37,58,60,61] and context-specific privacy concern about a particular website [29,68]. In this study, we define and operationalize privacy concern as a general privacy concern reflecting one's general tendency to worry about information privacy [37], which is stable across information exchange situations and is not specific to a particular website. General privacy concern was suggested to directly influence an individual's privacy behaviors [33,37,58,60,61]. High general privacy concerns were found to reduce consumers' intentions to disclose their personal information or exhibit other privacy protective behaviors, such as removing their personal information from the databases of online vendors [58,60,61]. In this study, we focused on the effects of situational interactions with unfamiliar websites, and we applied the MDT to jointly examine the effects of general privacy concern and situational factors. The effect of general privacy concern is expected to be weakened by situational factors. However, regarding unfamiliar websites, the effect of general privacy concern is very likely to endure because the initial interaction may not be sufficient to completely supersede the preexisting general privacy concern. Therefore, the following hypothesis is stated:

H6. General privacy concern has a negative effect on online consumers' behavioral intentions to disclose their personal information.

In addition to the main effect on consumers' intentions to disclose information, the effect of privacy concern may also be moderated by perceived privacy control. The effect of privacy concern on disclosure intention could be completely superseded by unfavorable situational appraisals if consumers perceive a low level of privacy control during their *actual* interaction with an unfamiliar website. Unfavorable situational signals about the privacy practices of an online vendor will directly inform online shoppers to avoid disclosing their personal information to that vendor. The effect of consumers' inherent apprehension about the potential privacy violations by an online vendor (i.e., general privacy concern) may become salient when they have relatively favorable appraisals about the privacy control of an unfamiliar website. Therefore, we state the following hypothesis:

H7. The relationship between general privacy concern and the intention to disclose information is moderated by perceived privacy control, such that the negative effect is stronger on consumers with high perceived privacy control.

3.5. Control variables

In addition to the independent variables explained above, we controlled for the type of task and three individual differences, including gender, online shopping experience, and prior experience of privacy invasion. Female customers have been suggested to worry more about their privacy [9,38]. In an online environment, consumers with more online shopping experiences may perceive lower privacy risks. An individual' privacy invasion experience in the past is also expected to affect his or her future privacy behaviors.

4. Methodology

4.1. Participants and procedures

A cross-sectional design utilizing a field survey was performed to test our research model. Such design allowed us to examine the cognitive and affective responses in the actual interaction with a particular website, thus increasing the external validity of our data. Student volunteers at a major Midwestern university in the US were recruited as subjects to test our research model. A pilot study using 30 undergraduate and graduate students was first conducted to evaluate the wording of the questionnaire and to identify other potential issues in delivering the survey. Because our focus is on the situational factors formed during the process of interactions with specific websites, each subject was assigned either to interact with an unfamiliar website for vacation condo rental in Florida or search for an MP3 player at an unfamiliar website selling computer electronics. We chose these two types of websites for two reasons. First, we wanted to ensure variations in the privacy situations or independent variables related to a particular website. The type of website may play a role through the environmental dimension of the MDT. For example, for some shoppers, websites that promote vacation condos could be more aesthetically appealing and attractive than those selling electronic products (screenshots of

these two types of websites are provided in Appendix A). Consequently, online shoppers may have different levels of liking for those websites. Second, we wanted to increase the realism of the tasks' settings because college students typically have some experience in renting a place to live or shopping for electronic products. The tasks were dummy-coded as 0 to represent the vocational condo search and as 1 to represent the MP3 player search.

The subjects were instructed to browse the assigned website carefully until they were ready and about to make a decision about whether to make a purchase. They were not required to check for a particular page or provide any private personal information on the assigned website. After interacting with the assigned website, the subjects were then asked to complete the questionnaire to report their cognitive appraisals and emotions formed in response to the website and their intention to disclose personal information to the website. A total of 152 usable responses were received (59 females and 93 males) and used in our data analysis. Their ages ranged from 19 to 52 years; the average was 23.4 years. Most subjects (88.3%) had online shopping experience ranging between 1 and 4 years.

4.2. Variable measurement

The items used to measure latent constructs were drawn from the literature and reworded slightly to fit our research context. Motive consistency was measured using four items developed by Éthier et al. [21]. The scale of liking consisted of three items developed by Shaver et al. [52]. Perceived privacy control was gauged using three items given by Pavlou and Chellappa [44]. General privacy concern and behavioral intention to disclose personal information were measured using instruments developed by Malhotra et al. [37]. The moderation term between privacy concern and perceived privacy control was formed by applying the product-indicator approach by Chin et al. [11].

Motive consistency and liking were measured on five-point scales. The other constructs were measured on seven-point scales. The detailed measures of the above latent constructs are shown in Appendix B.

5. Data analysis

Smart PLS [48], a technique used in partial least square (PLS) structural equation modeling, was applied to test our measurement model and research hypotheses. In a research model with only reflective constructs, the sample size required by PLS is at least 10 times of the larger number of paths going to an endogenous construct [10]. In our research model, all latent constructs were implemented as reflective, and the maximum number of paths entering an endogenous construct was eight. Therefore, the sample size of 152 was adequate to analyze our research model using the PLS technique.

5.1. Measurement model

We examined the reliability, convergent validity, and discriminant validity of the measurement model before testing the hypotheses. An instrument is suggested to have sound reliability if its composite reliability (CR) is 0.7 or higher and its average variance extracted (AVE) is 0.5 or higher [5]. As shown in Table 1, the CR and AVE of all our instruments far exceeded the two cutoff criteria required for reliability. Convergent validity reflects the extent of overlap among the indicators used measuring the same construct. To establish convergent validity, the indicators should load significantly on their corresponding latent construct, and the loadings should be equal to 0.6 or higher [24]. We found that all the instruments used in our study met the criteria for convergent

Table 1

Loadings/cross-loadings, composite reliability (CR) and average variance extracted (AVE) of measurement instruments.

Constructs/Items		Loadings/Cross-loadings				
		1	2	3	4	5
1. MC	MC1	0.84	0.42	0.40	-0.07	0.36
CR = 0.95	MC2	0.91	0.53	0.52	-0.06	0.46
AVE = 0.82	MC3	0.93	0.52	0.48	-0.06	0.50
	MC4	0.94	0.53	0.49	-0.11	0.53
2. PPC	PPC1	0.51	0.89	0.40	-0.10	0.47
CR = 0.93	PPC2	0.50	0.90	0.47	-0.21	0.55
AVE = 0.81	PPC3	0.49	0.91	0.50	-0.10	0.55
LIKE	LIKE1 11	0.46	0.48	0.90	0.03	0.48
CR = 0.93	LIKE2	0.52	0.50	0.93	0.01	0.50
AVE = 0.81	LIKE3	0.44	0.39	0.87	0.01	0.40
4. GPC	GPC1	-0.12	-0.08	-0.06	0.83	-0.19
CR = 0.90	GPC2	0.00	-0.12	0.11	0.89	-0.20
AVE = 0.75	GPC3	-0.09	-0.17	0.00	0.87	-0.21
5. BI	BI1	0.51	0.59	0.49	-0.21	0.95
CR = 0.97	BI2	0.52	0.57	0.46	-0.22	0.95
AVE = 0.89	BI3	0.45	0.47	0.48	-0.21	0.93
	BI4	0.45	0.56	0.49	-0.22	0.93

Note: MC - motive consistency; PPC - perceived privacy control; LIKE - liking; PC - general privacy concern; BI - behavioral intention. The numbers in bold font are loading values.

Table 2

Discriminant validity of measurement model.

	MC	PPC	LIKE	GPC	BI
MC	0.91				
PPC	0.55	0.90			
LIKE	0.53	0.51	0.90		
GPC	-0.08	-0.15	0.02	0.86	
BI	0.51	0.58	0.51	-0.23	0.94

Note: Diagonal elements are the square root of the AVE values. Off-diagonal elements are the correlations among the latent constructs.

validity. Discriminant validity reflects the extent of dissimilarity among indicators that measure different underlying constructs. To demonstrate discriminant validity, measurement items should load more strongly on their corresponding latent construct than on other constructs. In addition, the square root of the AVE of each construct should be higher than the correlation between that construct and any other constructs [22]. As shown in Tables 1 and 2, both criteria of discriminant validity were satisfied by our measurement model.

We further examined the issue of common method variance (CMV) because it may bias the results of cross-sectional studies. Following Podsakoff et al. [46], we performed Harmon's single factor test, in which all measurement items of the latent constructs were loaded into a principal component factor analysis. The unrotated solution consisted of five factors with the first factor accounting for 45% of the variance. Therefore, no single factor could explain most of the variance. In addition to Harmon's single factor test, we further implemented the partial correlation procedure by Lindell and Whitney [35] to test the extent of CMV in our data. The second smallest correlation among the manifest variables was considered a conservative estimate of the influence of CMV (or r_m), which was 0.01. The correlations among the latent constructs were then adjusted by partialling out the effect of r_m. After the adjustment, the correlations were only slightly lower than the originals and their significance levels remained the same. The results of both the Harmon's single factor test and the partial correlation procedure suggested that CMV was not an issue in our data set.

5.2. Hypotheses testing

The results of testing the hypotheses are summarized in Fig. 3. The R^2 values are displayed in the box showing each dependent variable, reflecting the explanatory power of the research model. Our research model explained 54% of the variance in the behavioral intention to disclose personal information and 35% of the variance in liking.

The hypotheses of the research model were tested by checking both the sign and the significance level of each path coefficient. We performed bootstrapping to determine the t-value and the significance level of each path coefficient. As shown in Table 3, all paths had the correct signs as hypothesized. The interaction term between privacy concern and perceived privacy control was marginally significant (p < 0.1). All other hypothesized paths (H_1 – H_6) were significant with p values of <0.05. Therefore, the research model was well supported. Among the four control variables, prior online shopping experience and privacy invasion experience were statistically significant. Online shopping experience increased the individual's intention to disclose personal information, whereas privacy invasion experience hindered the individual from releasing personal information.

We then evaluated the moderation effect (i.e., H7) in detail based on both the effect size and the interaction pattern. The effect size (f²) was 0.056, which satisfied the 0.02 cutoff for small effect size [12].¹ The moderation term was found to be marginally significant (p < 0.1). The interaction pattern is shown in Fig. 4, which consists of two lines, one indicating high perceived privacy control (i.e., one standard deviation above the mean) and the other indicating low perceived privacy control (i.e., one standard deviation below the mean). Preacher et al.'s [47] utility was then implemented to determine the region of statistical significance. We found that when perceived privacy control was 3.69 or higher, the relationship between privacy concern and behavioral intention was statistically significant. When the perceived privacy concern was below 3.69, the relationship was not statistically significant. These results indicated that in online shoppers with low perceived privacy control, privacy concern had no effect on the intention to disclose information.

6. Discussion

6.1. Key findings and limitations

We drew upon the MDT to provide a situational analysis of online users' privacy-related behaviors when they were interacting with an unfamiliar website. The results showed that for an unfamiliar website, positive appraisals about the overall experience in interacting with the website (motive consistency) and the extent of privacy control triggered liking emotions in the study subjects. In addition, both cognitive appraisal and liking were found to influence the subjects' privacy behaviors. These results indicate that consumers would be more likely to disclose their personal information when they had formed positive cognitive appraisals of the website and they like the website. General privacy concern, which defined as an individual's general tendency to worry about information privacy, was found to have only a weak effect on the privacy behaviors of online users. In addition, general privacy concern, which is the manifesting dimension of selfdevelopment, arises from one's life experience, i.e., it is not formed by the actual interaction with a specific website. When an online shopper interacts with a specific website, the situational factors

 $^{^1}$ f²=[R² (interaction model) - R² (main effects model)]/[1- R² (main effects model)].



Fig. 3. Analysis results +p < 0.1, *p < 0.05, **p < 0.01, ***p < 0.001.

Table 3

Summary of Hypothesis Testing Results.

Hypotheses	Path Coefficients	t Value	p value
H1: Motive Consistency \rightarrow Liking	0.35	3.846	<0.001 (supported)
H2: Perceived Privacy Control \rightarrow Liking	0.32	3.701	< 0.001 (supported)
H3: Motive Consistency \rightarrow Behavioral Intention	0.20	2.704	<0.01 (supported)
H4: Perceived Privacy Control – Behavioral Intention	0.29	3.578	<0.001 (supported)
H5: Liking \rightarrow Behavioral Intention	0.28	3.628	<0.001 (supported)
H6: Privacy Concern \rightarrow Behavioral Intention	-0.12	2.023	<0.05 (supported)
H7: Privacy Concern * Perceived Privacy Control \rightarrow Behavioral Intention	-0.17	1.725	<0.1 (marginally supported)

(i.e., appraisals and emotions) become the major drivers of privacy behaviors. The results of our study provide a new perspective to explain the so-called privacy paradox phenomenon.

Among the four control variables, the two related to past personal experiences—prior online shopping and privacy invasion experience—were found to have a significant influence on the privacy behaviors of the subjects. This result directly supports the self-development dimension of the MDT, which underscores the importance of the individual's life experience in the development of privacy concerns. With regard to personal experiences, the findings further motivate us to examine the potential interplay between personal experiences and situational factors in driving individuals' privacy behaviors. We tested all possible two-way interactions between the two personal experience variables and three situational factors (i.e., motive consistency, perceived privacy control, and liking). Only prior online shopping experience was found to moderate the relationship between liking and behavioral intention. As shown in Fig. 5, the effect of liking on the behavior intention to disclose personal information was dependent on the level of online shopping experience. Liking had a much stronger impact on privacy behaviors in subjects with low level of online shopping experience (i.e., one standard deviation below the mean). Previous online experience seemed to downplay the effect of emotions on privacy behaviors.

Although the results supported our research model, the study has several limitations. First, it primarily examined the early interaction with a website without considering the cognitive evaluation of the website at a later stage. It is not clear whether early cognitive appraisals and emotions may still influence future privacy behaviors when online shoppers have gone through additional information processing. In addition, earlier situational factors such as emotions may influence future information processing. For example, motive consistency may influence the calculative assessment of the perceived benefits and risks involved in information exchange. Further studies are needed to test the effects of situational factors in multiple stages. Another limitation



Fig. 4. The moderation effect of perceived privacy control on the relationship between general privacy concern and behavioral intention to disclose personal information.



Fig. 5. The moderation effect of online shopping experience on the relationship between perceived liking and behavioral intention to disclose personal information.

relates to the student sample used to test the research model. Because only students were used as surrogates for online shoppers, future research using a general sample may help increase the external validity of this study.

6.2. Implications for research

The findings of this study have several important implications for the research on information privacy. First, the use of the MDT as the overarching framework allowed for the examination of individual privacy behaviors as the results of competing influences of privacy-related life experiences (i.e., general privacy concern, past privacy invasion, etc.) and situational interactions with the environment and other individuals. Moreover, the situational appraisal of privacy control was found to moderate the effect of general privacy concern. Therefore, the MDT offers an integrative perspective to explain the privacy paradox with an emphasis on situational factors.

Second, motive consistency and perceived privacy control were found to have both direct and indirect effects on privacy behaviors. The indirect effect was through liking, an emotional factor. The findings suggest that cognitive appraisal theories are a promising avenue for investigating the causes of emotions and their consequences of emotions on privacy behaviors. In the present study, we examined only two dimensions of cognitive appraisals, so future studies are needed to examine the effects of other appraisal dimensions, such as coping appraisals of product quality, uncertainty, and agency [50]. They may also play a role in eliciting liking responses and in influencing privacy behaviors.

Third, our results suggest that the effect of liking on privacy behaviors is dependent on previous experiences and that the effect decreases as online shopping experience increases. This finding highlights the importance of the interplay between individual differences and situational factors. They should not be examined as independent mechanisms in the development of individual privacy in future studies. Future research should investigate the moderating effects of individual differences in privacy-related decision-making.

6.3. Implications for practice

Our study has important practical implications for online vendors. First, our findings support the central role of liking in driving privacy-related behaviors. Subjects who liked an unfamiliar website were found to be more willing than other subjects to disclose their personal information. The direct impact of emotions on behaviors was suggested to be a "prewired" automatic response and to reflect the evolutionary need for survival [4]. Liking seems to encourage individuals to further enter an information exchange with an unfamiliar online vendor. In contrast, negative emotions, such as fear and frustration, are prewired by the avoidance action tendency [32], which may cause online shoppers to leave a website quickly. Online vendors, especially those operating start-up websites, should pay close attention to online shoppers' emotional responses, which could be the first step in attracting customers.

In addition, the cognitive appraisals formed in initial website interactions are important determinants of online shoppers' emotional responses. Online vendors should take measures to enhance the holistic interaction experience. They should focus on not only the right types of products or services but also the overall design of the website, such as its layout, color, and functionality.

7. Conclusions

This study applied the MDT as the overarching framework to investigate the privacy paradox in the rich context of actual interactions with an unfamiliar website. The results of our study suggest that the cognitive appraisals formed during initial website interactions and liking are the prevailing determinants of privacy behaviors. The effect of general privacy concern on privacy behaviors is weak when online shoppers have formed situationspecific cognitive appraisals and emotions from the actual interaction with a specific website. The results of our study provide a new perspective for understanding the so-called privacy paradox phenomenon.

Appendix A. Sample Screenshots of the Websites Used in this Study



Vacation rental website



MP3 player purchase website

Appendix B. Survey Instrument

Motive Consistency [21] (Not At All/Very Much)				
MC1	The website gave me the opportunity to accomplish the tasks			
MC2	required successfully.			
MC3	The website was just like what I had hoped for while I shop on the			
MC4	Web.			
	My experience with the website was a good example of what I			
	would expect when I shop on the Web.			
	Overall, my experience with the website was satisfactory.			
Perceived Privacy Control [44] (Strongly Agree/Strongly Disagree)				
PPC1	I am aware of the exact nature of information that will be collected			
PPC2	during a transaction with this vendor.			
PPC3	I believe I have control over how my information will be used by this			
	vendor if I transact with this vendor.			
	I believe I can subsequently verify the information I provide during a			
	transaction with this vendor.			

Liking [52] (Not At All/Very Much)

(Continued)

(. ,
Motive C	onsistency [21] (Not At All/Very Much)	p Iı
Liking1	Fondness	[26] V
Liking2	Liking	C
Liking3	Attraction	[27] K
Behavior	al Intention to Disclose Personal Information [37]	[] [] [] [] [] [] [] [] [] [] [] [] [] [
Please spe	ecify the extent to which you would reveal your personal information	[20] A
to this ve	ndor.	R
BI1	Unlikely/likely	[29] A
BI2	Not probable/probable	c
BI3	Impossible/possible	n
BI4	Unwilling/willing	[30] R
General I	Privacy Concern [37] (Strongly Agree/Strongly Disagree)	n
GPC1	Compared to others, I am more sensitive about the way online	[31] T
GPC2	companies handle my personal information.	V
GPC3	To me, it is most important to keep my privacy intact from online	[32] R
	companies.	[33] F

I am concerned about threats to my personal privacy today.

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