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**THE INFLUENCE OF INFORMATION PRIVACY CONCERN ON  
INDIVIDUALS' GREEN CONSUMPTION**

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The Influence of Information Privacy Concern on Individuals' Green  
Consumption

Xin LIU

A thesis submitted in partial fulfillment of the requirements for the degree  
of Master of Philosophy

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\_\_\_\_Xin LIU\_\_\_\_\_

## **DEDICATION**

First, I would like to express my sincere gratitude to my chief supervisor Dr. Boyoun (Grace) Chae, for her guidance and support in my MPhil study. I am grateful that she patiently gave instructions and help when I encountered difficulties and provided great support and many precious suggestions for this research and my MPhil study. Grace's commitment to pushing the boundaries of knowledge and her passion for work has inspired me never to give up.

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Finally, I want to thank my parents for their unconditional support of me. Their constant encouragement, belief in my abilities, and care for my health have been the driving force during my MPhil period.

## **Abstract**

The current thesis investigates the influence of information privacy concerns on green consumption behaviors. I propose that concerns about personal data elevate individuals' sense of being monitored even without a social presence, which further promotes green behaviors. Studies 1 and 2 use different manipulations to test the main effect in an online and field setting. Study 3 validates the underlying mechanism of the feeling of being monitored. Studies 4 and 5 explore two moderators. The proposed main effect will be attenuated when a person views themselves as a low environmental identity person (study 4). The proposed effect will also be attenuated when information privacy assurance is guaranteed (study 5).

Keywords: privacy concern, green consumption, sense of being monitored

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# 1. INTRODUCTION

In the modern digital age, concerns around information privacy have become increasingly prominent. With the increasing use of digital technologies, individuals are experiencing various concerns about their information. First, online users' digital information is easily attacked, and they may also lose control of their private information on social media. Facebook was involved in a scandal in that over 533 million Facebook users' personal information was hacked (Homes, 2021). A wealth of information, including phone numbers, Facebook IDs, full names, locations, and email addresses, are exposed to the public.

Another concern is the lack of transparency surrounding data collection and usage. Users may not be aware of how much their data is being collected and utilized for advertising purposes. Additionally, some companies may share user data with third-party entities without obtaining proper consent or providing adequate disclosure. For example, Twitter disclosed that it had shared users' data without users' consent. Users felt deceived that data collected by Twitter was used to safeguard their accounts while these data were misused to advertise the users (Fair, 2022). In such cases, users may be vulnerable to unwanted solicitations or identity theft.

In addition, people may feel uncomfortable about website cookies. Although many websites provide privacy policies, it usually takes time for users to manage the settings.

Even if websites offer options to opt out of certain types of data collection, users may feel forced to accept the cookie to obtain full website authority and a smoother experience.

Finally, the government may access citizens' health information. However, balancing individuals' privacy rights with the need for public health safety has become increasingly relevant during the Covid-19 pandemic. For example, the Chinese government utilized QR codes to track people's routes to control the virus's spread (Li, 2022). While this measure may have effectively reduced the risks of virus diffusion, it also raised concerns about individual privacy.

In summary, individuals become more aware of the risks of sharing their personal information online, with third parties, or with the government. The thesis aims to investigate how information privacy concerns could impact individuals' pro-environmental behaviors. I propose that information privacy concern promotes people's green consumption by increasing the sense of being monitored.

The thesis presents that individuals who are highly concerned about privacy are more inclined to exhibit green consumption behaviors. Theoretically, the thesis contributes to the information privacy literature by presenting a broader outcome of information privacy concern. It also narrows the gap between individuals' pro-environmental intentions and real behaviors. The thesis also provides guidance for marketers on

promoting green products and for governments on developing green policies.

## **2. CONCEPTUAL FRAMEWORK**

### **2.1. Information Privacy Concern**

In the academia, the concept of information privacy concerns was mainly developed in the field of information science as a measure of individuals' response toward organizational practices in collecting and usage of personal data (Tsarenko & Tojib, 2009). Researchers have approached it as a chronic individual difference in the sensitivity of personal data collection and usage (Malhotra et al., 2004; Smith et al. 1996), thus trying to identify demographic or personality factors that are associated with it. For instance, studies have shown that women tend to be more cautious about their privacy than men (Fogel & Nehmad, 2009; Hoy & Milne, 2010), and those who are distrustful of others' intentions generally show greater concern for safeguarding their personal information (Smith et al., 1996). In real life, people tend to worry more about their privacy when information is used without their consent or knowledge or when the purpose of the data is not explicitly stated (Phelps et al., 2000). Privacy concern also centers around the secondary use of personal information. Companies may sell or share private data with third parties without informing their customers of the recipient's identity and how the information will be utilized (Nowak & Phelps, 1995; Phelps et al., 2000).

While information privacy concerns had been conventionally viewed as an individual trait, recent studies have started to explore the contextually dependent nature of individuals' privacy concerns. In other words, individuals' privacy concerns are malleable, thus, contextual factors can temporarily elevate such concerns (Acquisti et al., 2015; John et al., 2011). Popular marketing practices in our daily life are known to increase individuals' privacy concerns. For instance, marketing practices based on tracking technologies such as website cookies (Sipior et al., 2011), targeted advertisements (Zarouali et al. 2018) and personalized content based on user's behavioral online activity (Tan et al. 2012) are all known to make people concerned about their information privacy. Interestingly, merely informing consumers about privacy safeguards alone can trigger privacy concerns. Brough et al. (2022) showed that a disclosure of a website privacy policy could elevate consumers' privacy concerns as consumers do not usually think about privacy issues. Thus, simply making privacy policies salient can increase individuals' privacy concerns regardless of whether the policies are intrusive or offer assurances of protection (Marreiros et al. 2017).

As the situations elevating consumer privacy concerns become prevalent, the academic's and practitioners' interests in exploring their potential impact and implications have been growing. Yet, our understanding of privacy concerns is limited to individuals' reactions toward the organizations or related privacy protection behavior. Research found that people who are strongly concerned about information privacy are less likely to trust the organization (Brough et al., 2022; Eastlick et al., 2006), engage

in organizational activities (Staddon et al., 2012) and disclose their personal information to organizations (Bansal & Gefen, 2010; Zlatolas et al., 2015). It applies the same when consumer privacy concerns are temporarily elevated by organizational practices. When privacy concern is made salient through notifications about the company's access to personal information or data breaches, consumers tend to perceive the company as less trustworthy (Martin et al., 2017). Privacy concerns not only impair consumer trust toward organizations and brands (Brough et al. 2022; Eastlick et al., 2006) but also negatively impact consumer purchase intentions (Brough et al., 2022; Phelps et al., 2001). For instance, the elevation of consumer privacy concerns through measurement items (e.g., when faced with this scenario, it bothers me that the service provider is able to track information) lower consumer intention to use customized services provided by the company (Sheng et al., 2008).

Besides, consumers take privacy-related behaviors (i.e., more proactive actions) to protect their personal information when privacy concerns are triggered. Individuals with salient privacy concerns also tend to utilize firewall software to safeguard their personal information (Kumar et al., 2008). The desire to protect one's privacy can be manifested as a greater willingness to pay a premium for shopping on sites with enhanced privacy protections (Tsai et al., 2011). Overall, privacy concern leads consumers to take related and corresponding actions to protect their privacy.

The impacts of privacy concerns have been largely limited to consumer response to the

organization and direct privacy-related behaviors; other broader implications of information concerns on consumers' daily lives remain largely unexplored. This thesis attempts to fill this gap by investigating whether and how information privacy concerns influence the everyday consumption behavior particularly important to humans and the earth, green consumption. In other words, this thesis explores the significant implication of privacy concerns on individuals' green consumption behaviors.

## **2.2. Discrepancy Between Pro-Environmental Intention and Behaviors**

Pro-environmental behaviors refer to any actions or habits that an individual or group intentionally undertakes to reduce the negative impact of human activities on the environment (Kollmuss & Agyeman, 2002). This thesis will focus on consumers' pro-environmental behaviors in a consumption context (i.e., green consumption). Green consumption involves various behaviors, such as choosing recyclable straws (Roy et al., 2021) and recycling plastic containers (Kronrod et al., 2012).

Individuals are getting more aware of the importance of the environmental protection. However, there is a gap between what people claim to do to protect the environment and what they actually do to the environment (Abrahamse et al., 2005; Thøgersen, 2005). For example, while many people desire to reduce their energy consumption and carbon footprint, actual energy-saving behavior may be limited by factors such as lack of information, inconvenience, or competitive priorities (Thøgersen, 2005). In addition,

consumers end up using single-use plastic bags rather than bringing their reusable bags, although they express a desire to reduce plastic waste and protect the environment (Kart, 2022). Such discrepancy between people's pro-environmental intention and their actual behavior hinders the development of environmental society. Governments, as a result, introduce compulsory measures to punish environmentally harmful behaviors. For instance, the Hong Kong government has prohibited providing free plastic bags and charged 1 HKD for each plastic bag since 2022 (Cheung, 2022).

The current thesis investigates how individuals could be implicitly motivated to behave environmentally rather than regulated passively. The thesis proposes that information privacy concern could increase the sense of being monitored and thus increases green consumption.

## **2.3. Sense of Being Monitored as a Mediator**

### **2.3.1 Information Privacy Concern Increases the Sense of Being Monitored**

I propose that information privacy concern increases consumers' sense of being monitored. Information privacy concern, by nature, is associated with social contact, as it implies that one's personal information is collected and known by others. Facing information privacy-concerning situations (e.g., targeted ads), individuals perceive that their personal information (e.g., behavioral trajectories and search histories) cannot be kept private and feel as if their behavior is seen by others. This occurs even when people

make decisions and behave privately in the absence of others (e.g., online shopping).

For example, technological advancements have enabled pervasive data collection and surveillance practices, leading individuals to feel that their actions and communications are constantly under scrutiny. The widespread use of digital platforms, social media, and Internet of Things (IoT) devices has created a vast amount of personal data that can be collected, analyzed, and potentially misused. In addition, high-profile data breaches and security incidents have highlighted the vulnerability of personal information, further fueling concerns about unauthorized access and surveillance. Media coverage of such incidents amplifies the perception of constant monitoring as individuals become more aware of the potential risks associated with their personal data. Finally, legal and regulatory frameworks often lag behind technological developments, leaving individuals uncertain about the extent of their privacy rights and protections. This uncertainty contributes to a heightened sense of being monitored, as individuals question whether their activities are being observed and recorded without their knowledge or consent. Overall, these factors combine to create an environment where information privacy concerns increase the perception of being monitored and impact individual behavior and decision-making.

### **2.3.2 Sense of Being Monitored Increases Green Consumption**

Research has investigated that social presence increases prosocial behaviors. For example, social presence triggers impression management behaviors, with the goal of securing the approval of others (Leary & Kowalski, 1990). When individuals are aware of being observed, they tend to modify their behavior by exhibiting less antisocial tendencies and displaying more prosocial actions (Nettle et al., 2013; Sparks & Barclay, 2013).

This thesis proposes that even without actual physical presence, the feeling of being monitored can increase prosocial behavior. To support it, subtle cue of being watched, such as eyes on the computer increases prosocial donations (Pfattheicher & Keller, 2015). Van Rompay et al. (2009) presented that security cameras increase helping behaviors. An audience on the computer directly or non-directly gazing at participants also promotes individuals' prosocial behaviors (Cañigüeral and Hamilton, 2019; Manesi et al., 2016). As a result, the thesis proposes that information privacy concern promotes green consumption as a prosocial behavior through the sense of being monitored.

## **2.4. Environmental Identity as a Moderator**

The thesis further tests individuals' environmental identity as a moderator. Individuals who view themselves as being eco-friendly are more likely to engage in future

environmental actions (Van der Werff et al., 2014). According to Van der Werff et al. (2014), the formation of an individual's environmental self-identity is influenced by their biospheric values and previous actions. Reminding individuals of their past environmental behavior can have a moderate impact on strengthening their environmental self-identity. In this thesis, I propose that the impact of privacy concern on green consumption holds when individuals consider themselves with a high environmental identity but attenuates when individuals see themselves as a low environmental identity person.

## **2.5. Boundary condition of Information Privacy Assurance**

Companies or organizations have various measures to ensure users' information privacy. For example, companies could develop transparent privacy policies outlining how personal information is collected, used, and disclosed, as well as any data sharing or storage limitations. Allowing consumers to opt in or out of data sharing also helps build trust and alleviate privacy concerns. In this thesis, I ensure participants' information privacy by informing them that their information will be confidential and not used for other unrelated purposes.

Anonymity has been found to alleviate concerns in various situations. For example, a fake name in computer-mediated communication reduces accountability concerns (Joinson, 2001). Lelkes et al. (2012) demonstrated that people who finish

questionnaires anonymously report more socially inappropriate attitudes, beliefs, and behaviors.

I propose that assurance of information safety attenuates the effect that people with high privacy concern are more likely to consume green. In other words, individuals may be less concerned about their privacy if they are assured that their personal information is being collected, used, and disclosed securely and responsibly.

## **2.6. Research Model**

As a result, this thesis proposes that:

**H1.** Individuals who have high information privacy concern conduct more green consumption behaviors.

**H2.** The effect of information privacy concern on green consumption behaviors is mediated by the sense of being monitored.

**H3.** Information privacy assurance moderates the relationship between privacy concern and green consumption. I.e., The effect is attenuated when information safety is ensured.

**H4.** Environmental identity moderates the relationship between privacy concern and green consumption. I.e., The effect is attenuated when the person does not view him/herself as a pro-environmental person.

The theoretical framework is presented in Figure 1.

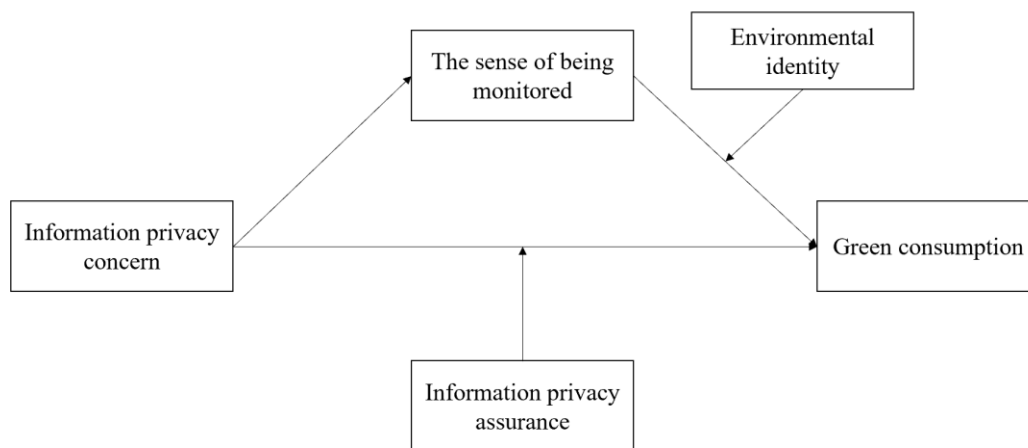


Figure 1. Theoretical framework of the current research

### 3. CURRENT RESEARCH

#### 3.1. Overview of Studies

Five studies show the impact of privacy concern on green consumption and its underlying mechanism. Study 1 tests the main effect that individuals with high privacy concern are more likely to choose eco-friendly products. Studies 2 to 5 are planned studies. Study 2 is a field study aiming to replicate the main effect in a university campus where privacy concern is manipulated by providing sensitive information. Study 3 will test the mechanism of the sense of being monitored using a recall task. Study 4 will test the moderator of environmental identity and study 5 will test the moderator of information privacy assurance. The proposed effect is expected to be attenuated when a person views themselves with low environmental identity and when

a person's information privacy is ensured.

### **3.2. Study 1**

Study 1 investigates the main effect of privacy concern on individuals' green behaviors. Privacy concern is manipulated by presenting a news article to participants. Specifically, participants read an article about a social media platform, Facebook. The news in the low privacy concern condition is about Facebook's stock price dropping. In contrast, in the high privacy concern condition, the news is described as Facebook tracking users' data and personal online information. I expected those who read the privacy concerning (vs. non-privacy concerning) news will be more likely to choose an eco-friendly product.

#### **3.2.1 Method**

316 Amazon Mechanical Turk (MTurk) participants participated in an online survey after excluding duplicate cases and 1 case aged 30117 years old ( $M_{age} = 39.01$ ; 60.76% female). Participants were randomly assigned to one of the two conditions: low or high privacy concern.

To manipulate the privacy concern, participants completed a reading comprehension task (see Appendix 1). In the high privacy concern condition, participants read a news article titled 'How Facebook Tracks You, Even When You're Not on Facebook',

describing how Facebook tracks users' information in several ways. In the low privacy concern condition, the news titled 'Facebook Stock Plummets 26% in Its Biggest One-day Drop Ever' describes the company's negative performance in the stock market. Participants were then asked to write down the key idea of this news using one or two sentences to ensure they understood the news clearly. They finally completed a manipulation check including four items (e.g., Currently, I am concerned about my personal data) in a separate post-test.

Then, I measured an individual's product choice. Disguised as a lucky draw for a 'Thank you' gift, participants were offered a choice of a tumbler that comes in two versions. They chose a type between an eco-friendly version (i.e., recyclable) and a non-eco-friendly (i.e., non-recyclable) one. To make the two description versions of the product equally attractive, the non-eco-friendly version was described as superior in terms of functionality (i.e., keep beverage hot for 3 hours and cold for up to 9 hours) but inferior in eco-friendliness. In contrast, the eco-friendly version was described as superior in terms of eco-friendliness (e.g., 100% recyclable) but inferior in functionality. In addition, the non-eco-friendly product was presented with an insulation mark, while the eco-friendly product had an eco-friendly mark. All the other features, such as color and size are the same. The horizontal presentation of the product was counterbalanced. Finally, the participants answered demographic information about age and gender.

### 3.2.2 Results

#### *Manipulation check*

The post-test manipulation check ( $n = 101$ ) revealed that those who read the data tracking news have significantly higher privacy concern levels ( $M_{\text{high}} = 5.67$ ,  $SD_{\text{high}} = 1.35$  vs.  $M_{\text{low}} = 2.81$ ,  $SD_{\text{low}} = 2.01$ ;  $t(1, 99) = 8.54$ ,  $p < .001$ ).

#### *The main effect of privacy concern*

A 2 (information privacy concern) x 2 (horizontal presentation of the product) binary logistic on eco-friendly product choice revealed a main effect of information privacy concern ( $\beta = -.83$ ,  $SE = .33$ ,  $Wald = 6.31$ ,  $p = .012$ ;  $OR = .44$ ). Neither the main effect of the tumbler presentation order ( $\beta = .34$ ,  $SE = .33$ ,  $Wald = 1.05$ ,  $p = .305$ ;  $OR = 1.41$ ) or the interaction term ( $\beta = -.15$ ,  $SE = .47$ ,  $Wald = .10$ ,  $p = .751$ ;  $OR = .86$ ) was significant. As expected, participants in the high information privacy condition were more likely to choose the eco-friendly product than those in the low information privacy concern condition (65.68% vs. 43.54%;  $\chi^2(1) = 15.60$ ,  $p < .001$ ;  $OR = 2.48$ ). Age and gender as a covariate did not change the results materially.

### 3.2.3 Discussion

Study 1 tests the main effect of privacy concern on green consumption. Study 2 will then replicate the effect in a field setting using university students as participants. A new method of manipulating privacy concern will be used.

### **3.3. Study 2 (Planned)**

Study 2 aims to replicate the proposed main effect in a field setting and university students will be recruited. This study will manipulate privacy concerns by providing sensitive information (i.e., name, student ID, and phone number).

#### **3.3.1 Method**

The study will be a 2 (privacy concern: low vs. high) single-factor design. I plan to have 200 Hong Kong Polytechnic University students participate in this activity.

I will launch an activity at the university square where university activities can be held.

The activity is to deliver free tumblers to the students to celebrate the 85<sup>th</sup> university anniversary. There will be two types of tumblers. One is a regular tumbler with the PolyU 85<sup>th</sup> logo and is made of regular material. The other one has the same appearance as the PolyU 85<sup>th</sup> logo as the non-eco-friendly version but is made of recyclable material. Students will be told to choose one of the two tumblers as a gift for this activity. The regular tumbler is free, but they need to pay an extra HKD10 to take the eco-friendly tumbler away. In other words, they can choose to get a free non-eco anniversary tumbler, or they can choose to pay HKD10 and get an eco-friendly tumbler as a gift.

To manipulate privacy concern of the students, they are asked to provide sensitive information before choosing a gift. In the high privacy concern condition, students will

be asked to write their name, student ID, and phone number before choosing a gift. In the low privacy concern condition, students will be asked to write their name, student ID, and phone number after they choose a gift. The assistant will be told to walk away from the students when they choose a gift to rule out the social presence effect.

### **3.3.2 Predicted Results**

A chi-square analysis will be conducted. It is expected that the main effect of privacy concern on choice of eco-friendly product will be replicated. Students who provide sensitive information before choosing the gift will be more likely to pay HKD 10 to get an eco-friendly tumbler than those who provide the sensitive information after choosing a gift.

### **3.3.3 Discussion**

Study 2 replicates the proposed effect in a field setting. Specifically, this study will validate that privacy concerns promote green consumption. Study 3 will then explore the underlying mechanism of the sense of being monitored.

## **3.4. Study 3 (Planned)**

Using a recall task as a privacy concern manipulation, study 3 further validates the mechanism of the sense of being monitored.

### **3.4.1 Method**

I plan to recruit two hundred participants to complete an online survey on MTurk. Participants will be randomly assigned to one of the 2 (privacy concern: low vs. high) conditions.

Participants will first see an introduction of targeted ads in the high privacy concern condition. The introduction includes 'Online ads are often targeted. Companies track our prior behavior and then send specific kinds of ads to us. Sometimes this happens even across different platforms. For instance, if we recently searched for shoes on Amazon, we will see targeted ads for shoes on Facebook.' Participants will then recall an instance where they felt they were targeted by an online ad or promotion. In the low privacy concern condition, an introduction of ads will be given 'Ads are everywhere in our daily lives; they are critical components of marketing strategies. Companies design and release ads to attract consumers' attention, introduce products, establish brand images, and promote sales. Some ads are appealing while others are boring.' Participants will then recall a recent ad that they liked. Manipulation check questions which are the same as study 1 will follow. Then, participants will indicate their current feeling from 1 (strongly disagree) to 7 (strongly agree): 'I feel like I am being monitored' 'I feel like I am being watched'.

Finally, participants will be told that we will select five lucky participants and give them a Christmas ornament before Christmas comes. I will tell them that the Christmas

ornament is made of 50% glass and 50% ceramic, and the delivery fee will be on us. For safe delivery, the shipping company offers a packaging service for them. In addition to the traditional packaging of bubble wrap, we offer an eco-friendly way for their packaging. They can pay an extra \$1 to choose a 100% recyclable paper wrap. Participants will then indicate to what extent they want to choose the eco-friendly packaging from 1 (not at all) to 7 (very much).

### **3.4.2 Predicted Results**

A one-way ANOVA analysis will be conducted to analyze the main effect of the privacy concern on willingness to pay for eco-friendly packaging. A mediation analysis using a bootstrap method will then follow. The mediation model will be tested utilizing PROCESS model 4 with 5000 resamplings (Bolin, 2014). The proposed main effect is expected to be replicated, and the indirect mediation effect of the sense of being monitored is significant.

### **3.4.3 Discussion**

Study 3 will replicate the main effect using a new method of manipulation (i.e., recall task). It will also present the underlying mechanism of the sense of being monitored. Studies 4 and 5 will then explore the moderator and boundary condition of the proposed effect.

### **3.5. Study 4 (Planned)**

Study 4 will test individuals' environmental identity as a moderator. Individuals who view themselves as being eco-friendly are more likely to engage in future environmental actions (Van der Werff et al., 2014).

#### **3.5.1 Method**

Four hundred US participants from MTurk will be recruited. Participants will be randomly assigned to one of the 2 (privacy concern: low vs. high) x 2 (environmental activity: easy vs. hard) conditions.

The manipulation of privacy concern is the same as study 3 using a recall task. Participants will then indicate whether or not they have engaged in the following environmental activities. In the easy activity condition, the environmental activities include 'Participated in an educational event (e.g., workshop) related to the environment' 'Talked with others about environmental issues (e.g., spouse, partner, parent(s), children, or friends)'. In the hard activity condition, the environmental activities are hard to do for ordinary people, such as 'Organized an educational event (e.g., workshop) related to environmental issues' 'Personally wrote to or called a politician/ government official about an environmental issue'. Next, they will answer manipulation check questions to examine their current environmental identity adapted from Van der Werff et al (2014). They will indicate to what extent they agree the

following statements from 1 (totally disagree) to 7 (totally agree). The items include 'Acting environmentally friendly is an important part of who I am' 'I am the type of person who acts environmentally friendly' 'I see myself as an environmentally friendly person'.

I expect that participants who are presented with hard environmental activities will be more likely to realize their shortcomings in environmental protection and thus view themselves as having a low environmental identity person temporarily. Those presented with the easy environmental activities are expected to consider themselves a high environmental identity person.

Finally, they will be asked to imagine buying a lunchbox. There will be two versions of the lunchbox: one is made of regular material, and the other is made of recyclable material (see Appendix 2). Other functions are all the same. They will then indicate how much they are willing to pay more for an eco-friendly lunchbox than a non-eco-friendly lunchbox using a slider from 0 to \$10. The referenced price of the non-eco-friendly lunchbox is \$10.

### **3.5.2 Predicted Results**

A two-way ANOVA analysis will be conducted. It is expected that the interaction effect of the environmental identity and privacy concern on the willingness to pay is significant. In the high environmental identity condition, the main effect of privacy

concern on green consumption will be replicated. In other words, in the high environmental identity condition, participants who recalled the experience of feeling targeted by an ad will pay more for the eco-friendly lunchbox than those who recalled the experience of seeing an ad. In the low environmental identity condition, the main effect will be attenuated (i.e., participants who recalled the experience of feeling targeted by an ad will not pay more for the eco-friendly lunchbox than those who recalled the experience of seeing an ad) (see Appendix 3).

### **3.5.3 Discussion**

Using easy and hard environmental activities to manipulate the high and low environmental identity of participants, study 4 tests the moderating role of environmental identity. The proposed main effect will be held when the person thinks of them as having a high environmental identity but will be attenuated when the person does not view themselves as a pro-environmental person.

## **3.6. Study 5 (Planned)**

Study 5 will explore a boundary condition of information privacy assurance. Following Sheehan and Hoy's (2000) work about sensitive information collection, I investigate how a consumer's sensitive personal information for a lucky draw event registration influences the choice of an eco-friendly product. I further investigate whether assuring information privacy attenuates the effect of privacy concern on the choice of an eco-

friendly product.

### **3.6.1 Method**

Four hundred US participants from MTurk will be recruited for this study. The study will be a 2 (privacy concern: low vs. high) x 2 (privacy assurance: absent vs. present) between-subjects design.

At the beginning of the survey, participants will be told that this survey may need to collect their sensitive/regular personal information at the end of the survey, and they shall indicate whether they are willing to provide it or not at the beginning. In the high privacy concern condition, I will ask participants to provide their relatively sensitive information, including MTurk ID, email address, and mailing address. In the low privacy concern condition, they will provide relatively less sensitive information, including gender, age, and hobby. It is expected that gender and age will be less sensitive to MTurk participants because they will provide their gender and age in most surveys anyway. However, according to the privacy policy of Mturk, I cannot collect participants' personal information such as email address and mailing address in the survey. So I will not collect their personal information in real but rather make them feel that their information may be collected at the end of the survey.

Next, event participants will be randomly assigned to a privacy assurance condition. In the assurance condition, they will read a message assuring their information privacy

'Your personal information will be kept anonymous for the entire process. We will not use your personal information for other unrelated purposes.' In the non-assurance condition, no information will be provided. Finally, participants will be asked to choose a tumbler from two versions: an eco-friendly one and a regular one. The stimuli are the same as in study 1.

### **3.6.2 Predicted Results**

A binary logistic regression will be conducted. The two-way interaction of privacy concern and information privacy assurance on eco-friendly product choice is expected to be significant. A chi-square analysis will then follow. When anonymity is not ensured, participants who provide their sensitive information will be more likely to choose an eco-friendly umbrella than those who provide their low sensitive information. When information privacy is ensured to keep confidential, there will be no significant difference between high and low privacy concern conditions. In other words, when participants experience high privacy concerns, the assurance of their information privacy will decrease their likelihood of choosing an eco-friendly product. However, when participants are in low privacy concerns, the assurance of information anonymity will not significantly influence their eco-friendly product choice (see Appendix 4).

### **3.6.3 Discussion**

Study 5 utilizes a new way to manipulate privacy concern by informing participants that they will need to provide their sensitive information in the survey. More

importantly, this study tests the boundary condition of information privacy assurance.

The proposed effect will be attenuated when privacy assurance is provided.

## **4. GENERAL DISCUSSION**

### **4.1. General Discussion**

With the development of digitalized consumption, concerns about the collection and use of personal information by organizations have become common in consumers' daily lives. The broad use of identification technologies that allow organizations to monitor consumers' browsing histories and online activities frequently highlights privacy concerns for consumers. However, there is limited research on how these concerns impact consumer behavior. Moreover, green consumption is prevalent in consumer research because consumers are increasingly conscious of the environmental consequences of their consumption decisions. Despite the importance of green consumption, limited research has explored information privacy concerns as an influencing factor in encouraging eco-friendly consumption practices. This thesis fills the two gaps, showing that privacy concerns lead to increased green consumption.

The thesis investigates how information privacy concern promotes green consumption. Various privacy concerning settings such as reading Facebook news about data tracking (study 1), information collection in a field study (study 2), the recall task of being targeted by an online ad (studies 3 and 4), and informing providing sensitive information (study 5) increase individuals' concern about their personal data, and enhances subsequent green consumption such as choosing green products (studies 1

and 5) and willingness to pay more for an eco-friendly product (studies 2, 3, and 4). The mediating role of the sense of being monitored is validated in study 3. Finally, study 4 and 5 explores two moderators of the proposed effect. Specifically, study 4 demonstrates that the effect only holds among those who view themselves as a high environmental identity rather than those who view themselves as less pro-environmental. Study 5 presents that ensuring the information privacy is being kept confidential will attenuate the effect of privacy concern on green consumption.

## **4.2. Theoretical Contributions**

First, the thesis investigates the influence of information privacy concern on individuals' daily behaviors. Previous research has consistently demonstrated that privacy concern influences consumers' relationship with organizations and consumers usually take related actions to deal with it (Akhter, 2012; Caudill & Murphy, 2000; Chory et al., 2016; Tsarenko & Tojib, 2009). However, in addition to investigating consumers' relationships with organizations, this thesis generates a broader level of whether such privacy concerns influence people's everyday life (i.e., green consumption). In other words, the thesis proposes that privacy concern increases green consumption, a broader daily behavior to deal with privacy concerns.

Second, it contributes to the sustainability literature by filling the gap between people's pro-environmental intentions and actual behaviors. Research shows that people claim

to be environmental person but do not actually conduct the behavior (Abrahamse et al., 2005; Thøgersen, 2005). This thesis proposes that information privacy concern increases green behaviors to narrow the discrepancy between their real behavior and their intention.

Finally, research has investigated that social presence physically promotes green behaviors (Nettle et al., 2013; Sparks & Barclay, 2013). This thesis proposes that even without actual presence, information privacy concern could increase the sense of being monitored and thus promotes green consumption behaviors.

### **4.3. Practical Implications**

First, the thesis shows that situational factors that temporarily increase privacy concerns could increase green consumption. As a result, marketers could use subtle cues to promote green products on the basis of not harming consumers' privacy rights. For example, asking consumers to scan their membership cards right after they enter the shop may encourage more green consumption than scanning the card when checking out.

Second, green consumption is crucial in protecting the environment. Unfortunately, there is often a discrepancy between what people claim to do to protect the environment and what they end up doing. The current thesis provides a new way for companies or

organizations to promote green products. For example, marketers could use targeted ads to increase individuals' attention about their information privacy and inner self, and thus encourages purchases of green products.

#### **4.4. Limitations and Directions for Future Research**

For further research, more field studies could be conducted to validate the impact of information privacy concern on the actual purchase behavior of green products. For example, whether people are willing to buy green products even at a higher price when they are more aware of their information privacy.

## References

- Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2005). A review of intervention studies aimed at household energy conservation. *Journal of environmental psychology, 25*(3), 273-291.
- Acquisti, A., Brandimarte, L., & Loewenstein, G. (2015). Privacy and human behavior in the age of information. *Science, 347*(6221), 509-514.
- Akhter, S. H. (2012). Who spends more online? The influence of time, usage variety, and privacy concern on online spending. *Journal of Retailing and Consumer Services, 19*(1), 109-115.
- Bansal, G., & Gefen, D. (2010). The impact of personal dispositions on information sensitivity, privacy concern and trust in disclosing health information online. *Decision support systems, 49*(2), 138-150.
- Bolin, J. H. (2014). Introduction to mediation, moderation, and conditional process analysis: a regression-based approach.
- Brough, A. R., Norton, D. A., Sciarappa, S. L., & John, L. K. (2022). The bulletproof glass effect: Unintended consequences of privacy notices. *Journal of Marketing Research, 59*(4), 739-754.
- Cañigüeral, R., & Hamilton, A. F. D. C. (2019). The role of eye gaze during natural social interactions in typical and autistic people. *Frontiers in psychology, 10*, 560.
- Caudill, E. M., & Murphy, P. E. (2000). Consumer online privacy: Legal and ethical issues. *Journal of Public Policy & Marketing, 19*(1), 7-19.

- Cheung, E. (21 Dec, 2022). *Hongkongers to pay HK\$1 for each plastic bag at supermarkets from next week in first increase in 13 years*. South China Morning Post. <https://www.scmp.com/news/hong-kong/health-environment/article/3204165/hongkongers-pay-hk1-each-plastic-bag-supermarkets-next-week-first-increase-13-years>.
- Chory, R. M., Vela, L. E., & Avtgis, T. A. (2016). Organizational surveillance of computer-mediated workplace communication: Employee privacy concerns and responses. *Employee Responsibilities and Rights Journal*, 28, 23-43.
- Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: Compliance and conformity. *Annu. Rev. Psychol.*, 55, 591-621.
- Eastlick, M. A., Lotz, S. L., & Warrington, P. (2006). Understanding online B-to-C relationships: An integrated model of privacy concerns, trust, and commitment. *Journal of business research*, 59(8), 877-886.
- Fair, L. (25 May, 2022). *Twitter to pay \$150 million penalty for allegedly breaking its privacy promises – again*. Federal Trade Commission. <https://www.ftc.gov/business-guidance/blog/2022/05/twitter-pay-150-million-penalty-allegedly-breaking-its-privacy-promises-again>.
- Fogel, J., & Nehmad, E. (2009). Internet social network communities: Risk taking, trust, and privacy concerns. *Computers in human behavior*, 25(1), 153-160.
- Homes, A. (3 Apr, 2021). *533 million Facebook users' phone numbers and personal data have been leaked online*. Business Insider. <https://www.businessinsider.com/stolen-data-of-533-million-facebook-users->

[leaked-online-2021-4.](#)

Hoy, M. G., & Milne, G. (2010). Gender differences in privacy-related measures for young adult Facebook users. *Journal of interactive advertising*, 10(2), 28-45.

John, L. K., Acquisti, A., & Loewenstein, G. (2011). Strangers on a plane: Context-dependent willingness to divulge sensitive information. *Journal of consumer research*, 37(5), 858-873.

Joinson, A. N. (2001). Self-disclosure in computer-mediated communication: The role of self-awareness and visual anonymity. *European journal of social psychology*, 31(2), 177-192.

Kart, J. (2022, Oct 28). *Researchers Say Environmentally Conscious Shoppers Don't Bring Reusable Bags To The Store.* Forbes.  
[https://www.forbes.com/sites/jeffkart/2022/10/28/researchers-say-environmentally-conscious-shoppers-dont-bring-reusable-bags-to-the-store/?sh=3281b02c7973.](https://www.forbes.com/sites/jeffkart/2022/10/28/researchers-say-environmentally-conscious-shoppers-dont-bring-reusable-bags-to-the-store/?sh=3281b02c7973)

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior?. *Environmental education research*, 8(3), 239-260.

Kronrod, A., Grinstein, A., & Wathieu, L. (2012). Go green! Should environmental messages be so assertive?. *Journal of Marketing*, 76(1), 95-102.

Kumar, N., Mohan, K., & Holowczak, R. (2008). Locking the door but leaving the computer vulnerable: Factors inhibiting home users' adoption of software firewalls. *Decision support systems*, 46(1), 254-264.

- Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. *Psychological bulletin*, 107(1), 34.
- Lelkes, Y., Krosnick, J. A., Marx, D. M., Judd, C. M., & Park, B. (2012). Complete anonymity compromises the accuracy of self-reports. *Journal of Experimental Social Psychology*, 48(6), 1291-1299.
- Li, A. (13 July, 2022). *Explainer: China's Covid-19 health code System*. Hong Kong Free Press. <https://hongkongfp.com/2022/07/13/explainer-chinas-covid-19-health-code-system/>.
- 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.
- Manesi, Z., Van Lange, P. A., & Pollet, T. V. (2016). Eyes wide open: Only eyes that pay attention promote prosocial behavior. *Evolutionary Psychology*, 14(2), 1474704916640780.
- Marreiros, H., Tonin, M., Vlassopoulos, M., & Schraefel, M. C. (2017). "Now that you mention it": A survey experiment on information, inattention and online privacy. *Journal of Economic Behavior & Organization*, 140, 1-17.
- Martin, K. D., Borah, A., & Palmatier, R. W. (2017). Data privacy: Effects on customer and firm performance. *Journal of Marketing*, 81(1), 36-58.
- Nettle, D., Harper, Z., Kidson, A., Stone, R., Penton-Voak, I. S., & Bateson, M. (2013). The watching eyes effect in the Dictator Game: it's not how much you give, it's being seen to give something. *Evolution and Human Behavior*, 34(1), 35-40.

- Nowak, G. J., & Phelps, J. (1995). Direct marketing and the use of individual-level consumer information: Determining how and when "privacy" matters. *Journal of Direct Marketing*, 9(3), 46-60.
- Pfattheicher, S., & Keller, J. (2015). The watching eyes phenomenon: The role of a sense of being seen and public self-awareness. *European journal of social psychology*, 45(5), 560-566.
- Phelps, J., Nowak, G., & Ferrell, E. (2000). Privacy concerns and consumer willingness to provide personal information. *Journal of public policy & marketing*, 19(1), 27-41.
- Phelps, J. E., D'Souza, G., & Nowak, G. J. (2001). Antecedents and consequences of consumer privacy concerns: An empirical investigation. *Journal of Interactive Marketing*, 15(4), 2-17.
- Roy, P., Ashton, L., Wang, T., Corradini, M. G., Fraser, E. D., Thimmanagari, M., ... & Misra, M. (2021). Evolution of drinking straws and their environmental, economic and societal implications. *Journal of Cleaner Production*, 316, 128234.
- Sheehan, K. B., & Hoy, M. G. (2000). Dimensions of privacy concern among online consumers. *Journal of public policy & marketing*, 19(1), 62-73.
- Sheng, H., Nah, F. F. H., & Siau, K. (2008). An experimental study on ubiquitous commerce adoption: Impact of personalization and privacy concerns. *Journal of the Association for Information Systems*, 9(6), 1.
- Sipior, J. C., Ward, B. T., & Mendoza, R. A. (2011). Online privacy concerns associated with cookies, flash cookies, and web beacons. *Journal of internet commerce*, 10(1),

1-16.

- Smith, H. J., Milberg, S. J., & Burke, S. J. (1996). Information privacy: Measuring individuals' concerns about organizational practices. *MIS quarterly*, 167-196.
- Sparks, A., & Barclay, P. (2013). Eye images increase generosity, but not for long: The limited effect of a false cue. *Evolution and Human Behavior*, 34(5), 317-322.
- Staddon, J., Acquisti, A., & LeFevre, K. (2013, September). Self-reported social network behavior: Accuracy predictors and implications for the privacy paradox. In *2013 International Conference on Social Computing* (pp. 295-302). IEEE.
- Tan, X., Qin, L., Kim, Y., & Hsu, J. (2012). Impact of privacy concern in social networking web sites. *Internet Research*, 22(2), 211-233.
- Tsai, J. Y., Egelman, S., Cranor, L., & Acquisti, A. (2011). The effect of online privacy information on purchasing behavior: An experimental study. *Information systems research*, 22(2), 254-268.
- Tsarenko, Y., & Rooslani Tojib, D. (2009). Examining customer privacy concerns in dealings with financial institutions. *Journal of Consumer Marketing*, 26(7), 468-476.
- Thøgersen, J. (2005). How may consumer policy empower consumers for sustainable lifestyles?. *Journal of consumer policy*, 28(2), 143-177.
- Tsarenko, Y., & Rooslani Tojib, D. (2009). Examining customer privacy concerns in dealings with financial institutions. *Journal of Consumer Marketing*, 26(7), 468-476.
- Van Rompay, T. J., Vonk, D. J., & Fransen, M. L. (2009). The eye of the camera: Effects

of security cameras on prosocial behavior. *Environment and Behavior*, 41(1), 60-74.

Zarouali, B., Poels, K., Ponnet, K., & Walrave, M. (2018). "Everything under control?": Privacy control salience influences both critical processing and perceived persuasiveness of targeted advertising among adolescents. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 12(1).

Zlatolas, L. N., Welzer, T., Heričko, M., & Hölbl, M. (2015). Privacy antecedents for SNS self-disclosure: The case of Facebook. *Computers in Human Behavior*, 45, 158-167.

# Appendices

## Appendix 1. Facebook News in Study 1

Low privacy concern condition



High privacy concern condition



## Appendix 2. Lunchbox Stimuli in Study 4

Lunchbox A

Body: Stainless steel  
Lid: Silicone

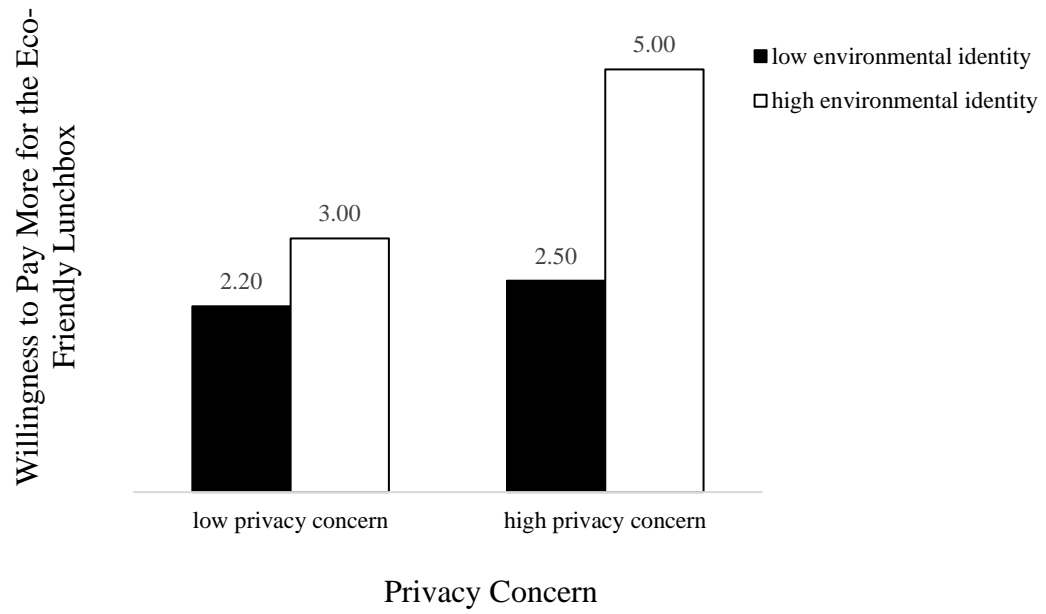


Lunchbox B

Body: Eco-friendly stainless steel  
Lid: Eco-friendly silicone



### Appendix 3. Predicted Results in Study 4



**Appendix 4. Predicted Results in Study 5**

