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Understanding the determinants of green trust: The role of green value sharing
探索綠色信任的決定因素：綠色價值分享的角色

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Abstract: This study proposes three green appeal routes—green communication, green value sharing, and greenwashing—to explain green trust formation and explore how green trust affects green value endorsement. We designed questionnaires in three languages: Chinese, Korean, and Japanese, and collected 600 valid questionnaires from respondents who had purchased environmentally friendly products in Taiwan, Korea, and Japan. We employed structural equation modeling to analyze the results. The main path indicated that green value sharing positively affected green trust, positively influencing green value endorsement. The second path showed greenwashing negatively affected green trust, positively impacting green value endorsement. Green businesses can employ a green value-sharing strategy to achieve green trust formation and create a win-win solution for marketers and consumers. This study is the first to examine comprehensive green appeal routes and green trust formation. The literature examines green communication, green value sharing, and greenwashing of green trust formation. Furthermore, it reveals new findings in cognitive learning, cognitive responses, and cognitive appraisal factors, supplying valuable and practical green marketing literature.

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摘要：本研究提出綠色溝通、綠色價值共享，和漂綠等三種綠色訴求路徑，解釋綠色信任的形成，並探討綠色信任如何影響綠色價值背書。對曾購買環境友善產品的 600 位台灣、韓國、日本消費者，設計中、韓、日文三種語言的問卷進行調查，採結構方程模型進行實證。研究結果發現，第一條路徑顯示綠色價值共享會正面影響綠色信任，而綠色信任會正面影響綠色價值背書。第二條路徑則顯示，漂綠會負面影響綠色信任。企業可採用綠色價值共享策略來形成綠色信任，以締造可資雙贏的解決方案。本研究是首篇研究綠色訴求途徑和綠色信任形成的關聯性，整合綠色溝通、綠色價值共享，和漂綠三種路徑，呼應認知學習、認知反應和認知評價因素，為建立消費者綠色信任提供學理依據。

關鍵詞：綠色信任、綠色溝通、綠色價值分享、漂綠、綠色價值背書

1. Introduction

Numerous green businesses have contributed to emerging trends in green society, producing more green products than non-green ones. As green companies develop, they motivate regular non-green companies to participate in green practices via green marketing, and companies are encouraged to promote environmental sustainability (Chuang and Huang, 2018; Luchs *et al.*, 2010). Generally, the costs of raw materials for green products are relatively high compared to non-green products, meaning that the price of green products is usually higher (Hur *et al.*, 2013; Isa *et al.*, 2017), and they are typically not favored by consumers (Brough *et al.*, 2016; Papadasa *et al.*, 2017). Previously, not all external costs were fully reflected in the suppliers' prices. Green products are chosen in keeping with the effort to internalize external costs, and producers are willing to produce more green products and bear more costs (Eidelwein *et al.*, 2017). Our research attempts to identify a solution for internalizing external costs.

In practice, existing regulations do not mandate the need for zero carbon emissions and zero sewage discharge, and enterprises are not obliged to produce green goods. Environmentally-friendly production might not be necessary beyond compliance with the minimum pollution emission standards stipulated by regulations. Usually, for cost-saving reasons, enterprises match only minimum regulation requirements (Ding *et al.*, 2014). However, this creates vast and irreparable damage to the earth via ecological damage caused by the global greenhouse effect. The increased costs of green products paid by businesses and consumers are relatively low (Isa *et al.*, 2017), so enterprises hand out olive branches in the form of green products. At the same time, consumers are willing to assume specific responsibilities (Papadasa *et al.*, 2017; Sonnenberg *et al.*, 2014).

The research question of this study is as follows: How do green marketers develop a set of effective green appeals to establish the green trust (GT) of consumers and then acquire the desired green value endorsement (GVE)? Green marketing refers to creating environmental values to obtain the targeted consumer green trust and green value endorsement through the green appeal process (Guo *et al.*, 2018). Green appeal refers to a company using media to persuade its target audience to achieve the expected response. Green appeal refers to reports and requests that appeal to a high level of environmental protection morality, ecological conservation motivation, and recognition of environmental concepts. A green appeal provides reasons and directly persuades the target audience to support a particular environmental protection action. Green trust refers to consumers' beliefs that the company is committed to environmental conservation and their positive attitudes toward the company's green products or services (Chen, 2010, 2013). Green value endorsement refers to consumers' willingness to recognize or identify with a company's environmental value (Jang and Kim, 2018). Green appeals become evident when companies attempt to inspire targeted consumers to purchase green products or services (Grolleau *et al.*, 2019; Wu, 2015).

This study proposes three green appeal types in which green trust can be

derived from green marketing procedures. The first type of green appeal is green communication (GC), which refers to a company explaining its environmental value to its target consumers. A critical technology is green communication to enhance the ecological and health considerations associated with the rise in global warming levels (Gandotra and Kumar, 2017). Green communication is a common form of commercial advertising employed to produce cross-cultural persuasive effects. This is the standard method of green appeal (Prendergast *et al.*, 2010). Green communication (such as advertisements) can be regarded as the demands of specific cultural patterns and needs to cross the existing cultural contexts between companies and consumers to produce persuasive effects. For example, the company promotes environmentally friendly products through green advertisements to attract non-environmental people through cross-cultural communication. Marketers in a particular cultural field (such as environmental protection) must start a dialogue with people not in that cultural field (i.e., consumers) and explain the benefits of this green culture to attract target consumers to purchase. This can generate persuasive advertising and develop consumer trust. Companies need to establish an interpreting frame to break the cultural barriers between companies and consumers. Therefore, this study adopts the interpreting frames proposed by Grogaard and Coleman (2016) and regards this as a synonym for green communication.

The second type of green appeal is green value sharing (GVS). Green value sharing means that the company dialogues with the consumer individually to eliminate the environmental value gap between the company and the consumer. Green value sharing occurs when a company employs a green marketing salesperson to produce a persuasive effect. Through persuasive and empathetic personalized information, coupled with interactive dialogue, the attitude of target consumers changes (Bailey *et al.*, 2018; Bowen and Aragon-Correa, 2014). It is based on the need to flatten the value gap between companies and consumers for green appeals. It is like handling value conflicts carried out by the salesperson when there is a value gap between the company and the consumer. How the company (salesman) reconciles the green value gap between the company and

the consumer and then promotes the purchase of the product or service. This process can generate salesperson persuasion and build consumer trust. Our study adopts the conflict management method proposed by Robbins (1974) and regards this as a synonym for green value sharing.

The third type of green appeal is greenwashing (GW), defined as ‘‘the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service.’’ (Parguel *et al.*, 2011) Greenwashing is a type of speculative marketing performed by companies trying to eliminate negative corporate impressions. Greenwashing presents a kind of green speculation and refers to companies claiming that their products have key environmental functions that have not been proven in practice (Guo *et al.*, 2018; Parguel *et al.*, 2011). Greenwashing often occurs when a company has undertaken negative environmental protection practices, resulting in a poor environmental image. Therefore, companies use green marketing methods to reverse or change negative impressions of the company, improve the company image, and generate consumer trust. Our study directly adopts the term greenwashing to represent the green speculation behavior of companies.

Several studies have explored the factors affecting trust or green trust, including communication and speculation regarding trust formation. Researchers have used different words to describe this communication, such as active communication (Hakanen *et al.*, 2016) and open communication (Vijan and Jagtap, 2019), and extended these to GC (Bailey *et al.*, 2018) or green advertising in green marketing (Grolleau *et al.*, 2019; Kong and Zhang, 2014; Lee *et al.*, 2020; Wang *et al.*, 2017; Wong *et al.*, 2014). Researchers have also employed words such as speculation (Morgan and Hunt, 1994), transparency (Kang and Hustevedt, 2014; Vijan and Jagtap, 2019), social responsibility (Kang and Hustevedt, 2014), and have extended these to greenwashing in green marketing (Bowen and Argen-Correa, 2014; Guo *et al.*, 2018; Parguel *et al.*, 2011). However, green value sharing has not been included as an antecedent variable of green trust. No prior literature has examined how green communication, green value sharing, and greenwashing affect green trust, thus

creating a research gap in this field. This study proposes three green appeals (green communication, green value sharing, and green communication) to explain green trust formation, thus filling this gap and contributing to the field.

In this study, the related literature investigates the consequences of green trust that affect purchase behavior (Zaidi *et al.*, 2019) and loyalty (Chen, 2013). Green value endorsement has not been regarded as a consequent variable of green trust, thus forming another research gap in the existing literature. Therefore, this study introduces three types of green appeals that affect green trust, which affect green value endorsement. The green appeal route of a company in this study leads to consumer green trust, which can constitute a green trust formation mechanism.

The framework includes the persuasive knowledge model of the supply side (company) and the social cognitive theory of the demand side (consumer). The overall theoretical umbrella of this study is a combination of the two parties and constitutes. Based on the persuasion knowledge model, companies or individuals conduct persuasive activities. They use their beliefs or needs to consider their procedures and methods and measure their results and causal effects (Friestad and Wright, 1994). For this purpose, different green appeal routes are deemed persuasive tools to shape consumer attitudes (i.e., green trust), and these attitudes manifest in social behavior (i.e., green value endorsement). According to social cognitive theory, an individual is regarded as an information-processing mechanism (Bandura, 1986, 2001). Individuals process external information (i.e., green communication, green value sharing, and greenwashing) through cognitive systems to form attitudes (i.e., green trust) manifested in social behavior (i.e., green value endorsement).

First, we propose green communication as a cognitive learning factor. Individuals are active participants in the cognitive learning context when they encounter many cognitive elements in the green communication of a company. Companies use current marketing channels and consider different dimensions when presenting their understanding of environmental value to targeted customers (Xue, 2015). Thus, green communication can change consumer

perceptions of a major culture and an embedded subculture when communication is carried out (Grogaard and Colman, 2016).

Second, this study introduces green value sharing as a cognitive response factor. Green value sharing is an intelligent link between business-specific environmental value and the targeted consumer. green value sharing occurs when marketers employ an interactive dialogue to mitigate the value differences between companies and consumers that can fuse value gaps with dissimilar others; this is done through adaptation, assimilation, and accommodation (Jang and Kim, 2018). The cognitive response factor is the procedure for handling persuasive messages, such as the green value sharing, that individuals receive from a business, which is an attitude change procedure (Tutaj and Reijmersdal, 2012). Value conflict and value gap adjustment are two main cognitive response mechanisms, and green value sharing can be deemed parallel to value gap adjustment (Chuang and Huang, 2018). Green value sharing is effectively obtained from a higher value goal, an enlarged explanation scope, and alternative value innovation programs to bridge this value gap (Chuang and Huang, 2018; Cullen and Parboteeah, 2013).

This study's third and final feature establishes greenwashing as a cognitive appraisal factor that evaluates an inner emotional situation. A consumer assesses how the latest event will impact them and explains the opposite aspect of the event in the previous corporate image (Kirmini and Campbell, 2004; Parguel *et al.*, 2011). Greenwashing is about broadcasting company through mass propaganda and trying to "wash away" a bad reputation caused by prior actions resulting in environmental damage (Chen and Chang, 2013a,b; Guo *et al.*, 2018; Pomering and Johnson, 2009).

This study proposes three green appeal routes—green communication, green value sharing, and greenwashing—to explain green trust formation and explore how green trust affects green value endorsement. 600 surveys were conducted among regular international airline passengers in Taiwan, South Korea, and Japan in 2019.

2. Literature review and hypothesis development

Past studies on green communication (GC) have focused on the level of green advertising, including research by Wong *et al.* (2014), Kong and Zhang (2014), Wang *et al.* (2017), Grolleau *et al.* (2019), and Lee *et al.* (2020). Wong *et al.* (2014) examined the impact of green advertising on corporate reputation and financial performance. Kong and Zhang (2014) explored the effectiveness of the presentation of green appeals by studying whether the benefits of green appeals in advertising varied between different product categories. Wang *et al.* (2017) analyzed the influence of consumer attitudes toward green advertising and purchase intentions through various emotional green appeal forms. Grolleau *et al.* (2019) used multiple green product advertisements to examine whether they would reduce consumer perceived instrumentality and explore the dilution effect between multiple green products. Lee *et al.* (2020) investigated the effect of a green logo in green advertising. They examined how to stimulate the neural representation of the human body and increase consumer preference for fashionable products with green logos.

Based on the persuasive knowledge model proposed by Friestad and Wright (1994), this study considers green communication to be a persuasive process. It is characterized by many cognitive elements, such as vocabulary, images, sounds, and expressions (Hamby and Brinberg, 2018). Green communication involves a variety of cognitive items that generate discourse analysis perspectives and reduce the scope of interpretation for context-free reasoning (Halvorsen, 2018). Nair and Little (2016) pointed out that green consumption is context-dependent, complex, and multifaceted in green marketing. Green advertising needs to consider the level of cross-cultural communication involved. For this purpose, this study proposes that a company uses green communication (or green advertising) to construct value-interpreting frames. The objective is to enhance the target consumer cognition and evaluate specific environmental values. An interpreting frame is a system for explaining things and objects, which is a structure used by individuals to understand and respond to certain events after

collecting experiences, stories, and stereotypes (Grogaard and Coleman, 2016). Consumers are affected by their physical conditions and surrounding culture, and they establish a filter-like viewpoint and use it to observe things.

In this study, green value sharing is different from the shared value used by Morgan and Hunt (1994) and Porter and Kramer (2011), and the green shared value used by Hsiao and Chuang (2016). Morgan and Hunt (1994) used "shared value" based on a business-oriented perspective, including core values in practice and the relevant central policies derived from a company. The measurement of shared value focuses on employees who want to stay in the company and their need to compromise on personal ethics or report unethical behavior that harms their interests. Porter and Kramer's (2011) concept is similar to that of Morgan and Hunt (1994). Hsiao and Chuang (2016) further developed green shared value from the company perspective, emphasizing that green value is the environmental value the company wants to promote. Companies hope to recognize and share this environmental value with consumers.

In this study, green value sharing was deemed a value-bridging frame to minimize the difference between consumers and companies and mitigate the value conflict and antagonism raised by the value gap. The consumer-oriented perspective explains that value sharing is an individual assessment of the value gap between businesses and consumers. Green value sharing is a cognitive response mechanism in which marketers use a green appeal and assess consumer response messages. Marketers need a proper response to mitigate the value gap between marketers and consumers (Bailey *et al.*, 2018). Through value gap adjustment, consumers usually accept persuasion attempts considered reasonable and desirable and engage in assimilation and accommodation by judging different values (Papadasa *et al.*, 2017).

The recent literature includes numerous investigations into greenwashing, showing that green trust can be threatened and decreased through greenwashing operations; that is, business-adopted greenwashing effects trust and leads to negative purchasing (Bickart and Rath, 2013; Chen and Chang, 2013a,b; Guo *et al.*, 2018; Parguel *et al.*, 2011; Walker and Wan, 2012). Greenwashing refers to

claims made about the environmental value of products, where marketers mislead consumers regarding the product green functions and overestimate its green commitment (Horiuchi and Schuchard, 2009). Greenwashing is a cognitive appraisal mechanism that consumers evaluate how the latest events will impact them. This explains the opposite aspect of the event in the previous image (Wachyudy and Sumiyana, 2018; Zaidi *et al.*, 2019). Consumer differing emotions, moods, and sentiments influence their assessments of the greenwashing event in the green environment (Seo *et al.*, 2018).

Recent research has explored green trust based on green perceived value derived from the perceived quality of green products and services and the risks involved (Hung and Tsai, 2016; Hur *et al.*, 2013; Michailova and Minbaeva, 2012). Green trust describes what takes place when consumers identify the environmental value of products or services with credibility and benevolence (Chen, 2010, 2013). Green trust is essentially similar to continuous purchase; it considers trust behavior concerning a firm's intangible environmental value rather than its tangible green products (Dogerlioglu-Demir *et al.*, 2017; Wang *et al.*, 2017). In this study, we employ the trust formation process based on Morgan and Hunt's (1994) key mediating variable (KMV) model, in which trust is the key mediating variable.

Green value endorsement is the green values countersigned by consumers who create a shared value that resonates with the environmental values—namely, "we are one" (Grogaard and Colman, 2016). These endorsed values reflect consumers' perceptions of "how we do things" and guide their green actions. Green value is seen as a vital distinguisher between competitors and a key company strength for attracting consumers (Agnihotri and Bhattacharya, 2018; Wu, 2015). Furthermore, value endorsement is categorized into value resonance and value distinguishers (Grogaard and Coleman, 2016). Figure 1 shows the comprehensive green appeal framework.

2.1 Green communication affects green trust

In this study, green communication (GC) refers to the interpretive frames

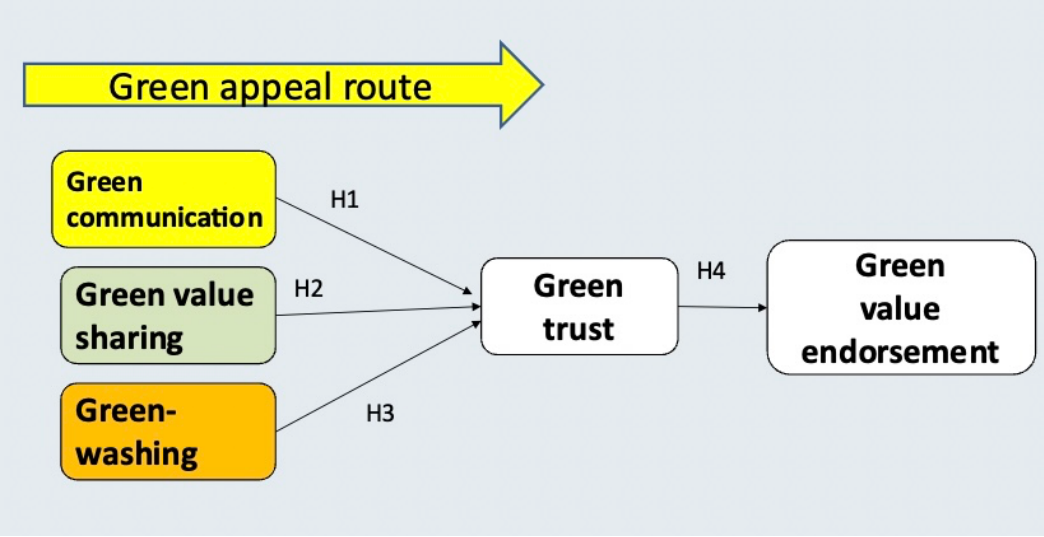

Figure 1
The research framework of the study model

proposed by Grogaard and Colman (2016), who divided the data structure of the interpretive frames into local embedded and perceptions of headquarter nationality. GC then consists of two constructs: subculture embeddedness and the perception of a specific main culture. First, they investigated the (consumer) subculture contexts in customer life customs to meet consumer demands and form a practical green marketing appeal (Grolleau *et al.*, 2019; Nair and Little, 2016). Green marketers employ similarities between enterprises and consumers to advertise and promote corporate-visionary value. Consumers are then persuaded by green advertisements based on their familiarity with enterprise green values (Reich and Soule, 2016). They actively accept value similarities, avoid unexpected occurrences, and are shaped based on GT (Grolleau *et al.*, 2019; Morgan and Hunt, 1994; Xue, 2015).

Second, green communication involves the specific main culture of the enterprise to advertise corporate-visionary values in line with consumer value systems. Thus, green marketers employ the enterprise's main culture to promote green brand preferences (Papadasa *et al.*, 2017). Consumers are then persuaded

by green advertisements based on the cultural accommodations between enterprises and consumers. This can yield acculturation effects, producing assimilation actions that infiltrate consumer lives (Manrai *et al.*, 1997; Wong *et al.*, 2014). Based on the transference process of trust formation, consumers accept green products or services and then trust propaganda from an institutional perspective (Ali and Birley, 1998). Thus, we propose the following hypothesis:

Hypothesis 1: Green communication positively affects green trust.

2.2 Green value sharing affects green trust

In this study, green value sharing (GVS) refers to the value bridge frames for value conflict resolution proposed by Robbins (1974). Robbins's (1974) study divided the conflict resolution method into higher objectives, enlarged resources, and problem-solving. In this study, green value sharing consists of three constructs: a higher value goal, a value augmented explanation, and value innovation alternatives.

First, green value sharing sets a universal vision and employs the mindset belief (i.e., greenhouse effect in carbon reduction) to develop a higher value goal. It can bridge the value gap between enterprises and consumers to adapt to the surrounding changes and challenges (Cullen and Parboteeah, 2013). Green managers are empathetic, recognize environmental value, and conduct an overall green value umbrella by adopting consumer-recognized value (Olsen *et al.*, 2014). Through the formation of green trust, consumers trust green companies and can be motivated by the capability of safeguarding both parties' interests from shared objectives and benefits (Ali and Birley, 1998).

Second, green value sharing implies the use of value augmented explanations by applying corresponding values (e.g., organic, non-toxic products require additional costs) to influence the disparity between universal value (e.g., greenhouse effect in carbon reduction) and local value (i.e., product cost-performance ratio is significant; Lee *et al.*, 2020). These efforts can surpass the value gap between the two parties and then reduce green value conflict via comprehensive rethinking (Halvorsen, 2018). Through cultural compatibility,

they can adopt value similarity between the two parties and engage in "preserving the same and retaining the differences" with adequate value recognition sensitivity (Hirschi, 2010; Manrai *et al.*, 1997). Companies can guide targeted customers to receive, agree on, and identify green attitudes to attain GT through value consensus (Prendergast *et al.*, 2010).

Third, green value sharing is proposed to value innovative alternatives with innovative thoughts (Lee, 2019). Business marketers take consumer opinions into account when they come up with new solutions (Hur *et al.*, 2013). Therefore, targeted customers are happy to communicate a particular green shared value with companies and are willing to discuss this shared value with other consumers with a similar identity (Wood *et al.*, 2018). The targeted consumers then indicated that "we are one," therefore building green trust (Dogerlioglu-Demir *et al.*, 2017).

In summary, companies build green trust via green value sharing to provide a higher goal, an extra description, and an innovative program to attain value consistency and value consensus by developing a mutual status between the two parties. Therefore, we propose the following hypothesis:

Hypothesis 2: Green value sharing positively affects green trust.

2.3 Greenwashing affects green trust

Greenwashing (GW) includes misleading consumers about green impacts and overestimating green commitment (Horiuchi and Schuchard, 2009). First, greenwashing companies allow consumers to be misled regarding the green function of products and service. When a company claims that a product is green, it is usually a marketing strategy to attract consumers (Walker and Wan, 2012). However, the greenwashing company has neither implemented nor executed a thorough green commitment (Lyon *et al.*, 2013; Pomering and Johnson, 2009). The business is likely motivated to exaggerate its achievements in environmental efforts through an information disclosure strategy driven by shareholder incentives, which leads to consumers being misled (Bowen and Aragon-Correa, 2014). As greenwashing behavior can be considered a type of green

concealment—that is, speculative and dishonest behavior—it negatively weakens the effectiveness of green trust (Fernando *et al.*, 2014).

Second, greenwashing means leading consumers to overestimate the results of their environmental efforts by publishing information that is beneficial to the companies and concealing unfavorable information, thus encouraging consumer approval (Seo *et al.*, 2018). Lyon *et al.* (2013) pointed out that companies may not be actively engaged in green-related activities due to the additional costs of actual corporate social responsibility efforts. "Green" is not always a "win-win" proposition (Borel-Saladin and Turok, 2013). Consumers who see the exaggerated commitment of the enterprise thereby have their confidence diminished in that business (Fernando *et al.*, 2014). This speculative behavior reduces green trust (Walker and Wan, 2012). Therefore, we propose the following hypothesis:

Hypothesis 3: Greenwashing negatively affects green trust.

2.4 Green trust affects green value endorsement

The green value endorsement (GVE) framework proposes transforming value resonance and value functions (Grogaard and Coleman, 2016). First, green trust affects consumer commitment and leads to the company's identity being based on consumer willingness or expectations (Chang and Hsu, 2016). An amicable relationship between the visionary value of a company and consumer environmental value reinforces the mechanism of interaction between humans and the environment (Guillaume *et al.*, 2012; Hur *et al.*, 2013). Green trust produces the expectation of "we are one" and sustains consumer commitment to companies (Guillaume *et al.*, 2012; Lee, 2019). The anticipation of "we are one" implies a type of value resonance shaping (Isa *et al.*, 2017).

Second, green trust affects consumer commitment, and this attitude enhances consumer recognition awareness and promotes active visual value to distinguish them from other companies (Cohen and Muñoz, 2017; Wang *et al.*, 2017; Xue, 2015). It establishes a social presence and shows this unique green value to others (Bickart and Ruth, 2013; Wu, 2015). The uniqueness of "we are

different" implies a value shaping as distinguishers (Isa *et al.*, 2017).

Green trust forms various value resonances and visual values as a distinction for consumers to witness the phenomenon of green value endorsement (Grogaard and Coleman, 2016). This green value endorsement influences how we perform green activities and uses this shared value to assess other related actions, leading to rich and varied social activities (Olsen *et al.*, 2014). Therefore, we propose the following hypothesis:

Hypothesis 4: Green trust positively affects green value endorsement.

2.5 Green trust mediates the link between green appeal routes and consumers' green value endorsement

This causal framework includes green appeal routes (green communication, green value sharing, greenwashing) and consumer green value endorsement. Green trust is deemed a mediation mechanism. A green communication route develops interpreting frames through advertising company environmental values and green propositions; consumers then form an attitude of green trust toward the company (Wang *et al.*, 2017). Next, a green value sharing route mitigates the value gap through personal comments and sharing and inner emotional responses, encouraging consumers to appreciate or trust the products or services (Hsiao and Chuang, 2016). In contrast, a greenwashing route occurs when a company uses "bleached green" marketing methods to reverse or correct consumer negative impressions. It promotes the benefits of a greenwashing appeal to generate consumer trust. Therefore, green trust suggests that a green communication route convinces consumers, producing consumers' green value endorsements (Chen, 2010, 2013; Jang and Kim, 2018).

Similarly, when a green value sharing route effectively bridges the value differences between a company and consumers, consumers perceive the social identity, enhancing green trust in the marketer (Lee, 2019). Again, consumers perceive credibility from the greenwashing route, which influences the formation of green trust (Chen and Chang, 2013b). Green trust with a green appeal route of different types (green communication, green value sharing, and greenwashing)

significantly influences consumers' green value endorsement. Thus, the following hypothesis is proposed:

Hypothesis 5: Green trust mediates the link between green appeal routes (i.e., green communication, green value sharing, and greenwashing) and consumers' green value endorsements.

3. Methodology

3.1 Measurement and scale

As for green communication (GC), this study refers to Grogaard and Coleman (2016) study, who divided the data structure of the interpretive frames into local embedded and perceptions of headquarter nationality. In this study, green communication refers to these interpretive frames. We adjusted its measurement constructs into subculture embeddedness and perceptions of the specific main culture, including six measurement items. Interpretive frames were used to reflect the green communication of enterprises. We need to consider the differences in various subculture characteristics of consumers, and therefore the perceptions of the specific main culture of the enterprise. Due to the cognition of differences between consumer subculture and main company culture, green culture affects the effectiveness of green communication.

First, embedded subculture refers to the various subculture characteristics in which consumers are immersed. Common characteristics include gender, age, education, and income level, and this study used three measurement items. Differences in the subculture characteristics of consumers affect this viewpoint of enterprise products and services. When enterprises carry out green communication, they need to consider the different subculture characteristics of consumers through different green communication methods to ensure the effectiveness of their green appeal.

Second, the perception of the specific main culture refers to the perception of the green culture of the enterprise. This study proposed three measurement items: company culture, company characteristics, and daily affairs. Thus, the

core values of consumers, based on different subculture characteristics, are different. Consumers have different views of the main environmental cultures of enterprises. For example, there are different opinions on environmental resource management when consumers consider their work-life balance.

As for green value sharing (GVS), this study refers to Robbins (1974), Robbins and Judge (2019), and Bailey *et al.* (2018). Robbins (1974) proposed higher objectives, enlarged resources, and solved conflict resolution methods. In this study, green value sharing refers to value bridge frames for value conflict resolution. We adjusted the measurement constructs to adapt to a higher value goal, value augmented explanations, and value innovation alternatives and the instrument included nine measurement items. A higher value goal is based on the company's ideal level of green marketing, constructing a value-bridging framework for higher purposes. A company can increase the scope of the interpretation of value to the desired value and consider the differences between the present and desired environmental values. A company can also brainstorm value innovation alternatives to fill the value gap and develop more creative solutions for problem-solving.

As for greenwashing (GW), which typically consists of two situations: misleading (Schmuck *et al.*, 2018; Torelli *et al.*, 2020) and overstatement (Chen *et al.*, 2020; Testa *et al.*, 2018). This study described misleading and overstatements in six measurement items (Chen and Chang, 2013a,b; Horiuchi and Schuchard, 2009; Laufer, 2003): (1) the company misleads the consumer about its environmental features; (2) the company uses a misleading visual or graphic in its environmental attributes; (3) the company uses a blurry or unproven green voice to mislead the consumer; (4) the company overstates its actual green functions; (5) the company leaks or covers up important information so that their green voice sounds better than it is; and (6) the company overstates its green promises. Misleading the green function is represented in items (1), (2), and (3), and overstatement of green commitment is demonstrated in items (4), (5), and (6).

As for green trust (GT), which is "a willingness to depend on a product,

service, or brand based on the belief or expectation resulting from its credibility, benevolence, and ability about its environmental performance" (Chen, 2010, 2013), we used nine measurement items to understand the three facets of green trust: credibility, benevolence, and ability (Chen, 2010, 2013).

As for green value endorsement (GVE), this study refers to studies by Grogaard and Colman (2016) and Michailova and Minbaeva (2012). Grogaard and Coleman (2016) divided the data structure of endorsed values into value resonance and value as distinguishers. In this study, green value endorsement refers to the endorsed values, and we employed the same constructs from Grogaard and Colman (2016), and we further derived six measurement items.

We used a six-point Likert scale to measure each item. The main reason for employing an even-point scale rather than an odd-point measurement was to remove the neutral option, capturing more information about respondent views (Nunally, 1978). It is especially relevant in Eastern society, which does not offend others with opinions (Cicchetti *et al.*, 1985).

3.2 Ssmpling design

We conducted a survey and designed questionnaires in three languages (Chinese, Korean, and Japanese) with the assistance of a professional language editing company. We planned to collect 600 valid questionnaires from people who had purchased environmentally friendly products in Taiwan, South Korea, and Japan. The official survey using paper questionnaires was conducted from January 20 to March 15, 2019. Due to budgetary constraints, we dispatched 850 paper questionnaires to Taiwan Taoyuan International Airport passengers rather than South Korea and Japan. Overall, we collected 600 valid surveys from 200 Taiwanese passengers of China Airlines, 200 Korean passengers of Korean Air, and 200 Japanese passengers of Japan Airlines. In addition, samples were obtained from these regular international airline passengers to acquire samples from two age ranges (with the samples evenly split among those 18–40 years old and those above 40) and an even distribution of male and female respondents. The effective questionnaire recovery rate was 70.6%.

We collected survey data from 600 green product consumers who lived in Taiwan, Korea, and Japan, affirming three drivers of green trust. These countries were selected for various reasons. First, all three countries are geographically located in East Asia. Second, all three countries are providers of global manufacturing supply chains. Third, these countries were not performing well on environmental performance indicators and improvement at the time of data collection. The Climate Change Performance Index 2021, published by the New Climate Institute in Germany, analyzed and compared the results of climate protection in the 57 countries with the highest greenhouse gas emissions in the world (plus the European Union as a whole). In total, these 57 countries account for 90% of global emissions. Taiwan ranked 54th, South Korea 50th, and Japan 42nd; all three countries ranked in the lowest quartile. Therefore, it is important to explore the drivers of green trust and green value endorsement in Taiwan, South Korea, and Japan.

4. Emprical results

4.1 Basic statistical analysis

We categorized the demographic data by gender, age, nationality, and place of residence. There were 253 (42.2%) surveys obtained from male respondents and 347 (57.8%) from female respondents. Respondents fell within three different age groups: 18–29 years, 215 (35.8%); 30–50 years, 278 (46.3%); and 51 and over, 107 (17.8%). The empirical samples by nationality were Taiwan, 200 (33.3%); Japan, 200 (33.3%); and Korea, 200 (33.3%). Table 1 lists each country's sample demographics, and the means, standard deviations, and ANOVA analysis of variables within different country samples are presented in Table 2.

For this study, we used a one-way ANOVA to determine which sample nationality influenced the variables and whether the countries differed in their responses. We found that the p-values of nationality were significant in influencing green communication ($F = 6.113$, $p = .002$), green value sharing ($F =$

11.148, p = .001), GW (F = 79.684, p = .001), green trust (F = 25.158, p = .001), and green value endorsement (F = 22.637, p = .001). This means that there might be some differences in the cultures of different countries. In addition, based on the ANOVA results, the samples from Taiwan, South Korea, and Japan differed significantly regarding green value endorsement (F = 22.637; p < .001). Therefore, we conducted a verification analysis to determine whether the data for different countries could be merged.

4.2 Data examination procedure

Taiwan, South Korea, and Japan are three different countries with different languages and cultures. Suppose the three samples were directly combined and analyzed together. In that case, it may produce bias, so we separated the samples from the three countries from the beginning and conducted instrument equivalence (IE) and measurement equivalence (ME) tests to explore whether the data could be merged and analyzed together.

Table 1

Characteristics of samples between Taiwan, Japan, and South Korea

Nationality		Taiwan			Japan			South Korea		
Attributes	Category	Count	Percent (%)	Cumulative Percentage (%)	Count	Percent (%)	Cumulative Percentage (%)	Count	Percent (%)	Cumulative Percentage (%)
Gender	Male	78	39.00	34.00	84	42.00	42.00	91	45.50	45.50
	Female	122	61.00	100.00	116	58.00	100.00	109	54.50	100.00
Age	18~29 years old	84	42.00	42.00	60	30.00	30.00	71	35.50	35.50
	30~50 years old	85	42.50	84.50	94	47.00	77.00	99	49.50	85.00
	51+ years old	31	15.50	100.00	46	23.00	100.00	30	15.00	100.00
Occupation	Government	24	12.00	12.00	44	22.00	22.00	18	9.00	9.00
	Commerce	19	9.50	21.50	28	14.00	36.00	11	5.50	14.50
	Service industry	71	35.50	57.00	85	42.50	78.50	100	50.00	64.50
	Manufacturing	46	23.00	80.00	20	10.00	88.50	38	19.00	83.50
	Agriculture and Farming	29	9.50	89.50	5	2.50	91.00	7	3.50	87.00
	Self-employed profession	11	10.50	100.00	18	9.00	100.00	26	13.00	100.00
Subtotal		200	100.00	100.00	200	100.00	100.00	200	100.00	100.00

Table 2

Means, standard deviations, and ANOVA analysis of variables within different countries' samples

Variables	Mean	Standard Deviation.	$F_{(2, 597)}$	P-value
Green	4.158	0.912		
communication	4.153	0.814	6.113	0.002**
	4.417	0.859		
Green value sharing	4.577	0.590		
	4.291	0.717	11.148	0.001**
	4.334	0.648		
Greenwashing	3.166	0.900		
	4.246	0.775	79.684	0.001**
	4.033	1.025		
Green trust	4.564	0.663		
	4.331	0.719	25.158	0.001**
	4.834	0.748		
Green value	4.491	0.656		
endorsement	4.308	0.678	22.637	0.001**
	4.753	0.661		

Note: As for the means and standard deviation, the first row is the Taiwan sample, the second row is the Korea sample, the third row is the Japan sample; As for the ANOVA of variables, the p-value is significant; *<0.05, **<0.01.

We examined instrument equivalence and measurement equivalence among multigroup samples to make comparisons and seek equivalence (Cheung and Rensvold, 2002). We first checked the instrument equivalence by confirming the back-translation of the questionnaire language. The implementation of this questionnaire followed the principle of two-way translation. First, we asked a South Korean citizen who spoke fluent English to translate the original English version of the questionnaire into Korean. Second, we asked an American who spoke fluent Korean to translate the Korean questionnaire into English. Third, we chose an individual who was fluent in both Korean and English to assess the clarity and comprehensiveness of the translation questionnaire and confirm the quality of the Korean translation. The Japanese and Chinese questionnaires underwent the same process.

We employed confirmatory factor analysis (CFA) to test the degree of difference in factor loading between the different groups because factorial

equivalence is another condition of the instrument equivalence (Davidov and De Beuckelaer, 2010). The items in the measuring instrument exhibited a similar factor-loading pattern between the latent variables and the items within each group (Ariely and Davidov, 2012). We omitted items GVS-2, GVS-7, and GW-2, for which the factor loadings were smaller than 0.4. The results then met the factor invariance, implying that the composite reliability (CR) values were greater than 0.6. The average variance extracted (AVE) values were greater than 0.5 for each component in each group, indicating that a similar component pattern measured each latent variable and was well organized within the three groups in this study. Thus, factorial equivalence was confirmed (Erdem *et al.*, 2006; Liao and Chuang, 2007).

We used multigroup comparison analysis (MCA) to conduct a measurement equivalence test (MET; Steenkamp and Baumgartner, 1998). We first used an unconstrained (free) model with unlimited structural path coefficients as the baseline model (De Wulf *et al.*, 2001). Then, we added the constraint conditions when we evaluated whether the model fit was significantly weakened for assessing configural, metric, and scalar equivalence (Vandenberg and Lance, 2000). We followed a step-by-step procedure to test three levels of measurement equivalence tests (Milfont and Fischer, 2010; Van de Schoot *et al.*, 2012).

First, configural equivalence was low and was tested by running a model indicating that the intercepts were free, but only the factor loadings were equal among the groups. Therefore, configural equivalence required respondents from different groups to have the same weights as the construct. Second, metric equivalence was tested at the middle level by running a model, indicating that the factor loadings were free. Still, the intercepts were set as equal, which ensured that the underlying meanings of the items were presented similarly (measurement intercepts). Third, scalar equivalence was high and was tested by running a model for factor loadings. The intercepts were set as equal, which ensured the structural covariances of each group. This was also called the full uniqueness MET, and represented equivalence for each item across groups. This model comparison procedure was stopped when the model fit became unacceptable.

For model comparison, we employed the practical approach proposed by Cheung and Rensvold (2002). The criterion of comparative fitness index (CFI) difference was less than 0.01 (or 0.02 in the large samples proposed by Rutkowski and Svetina [2014]), and the Tucker-Lewis Index (TLI) difference was less than 0.02 between models). The root-mean-squared error approximation (RMSEA) difference was less than the 0.05 suggested by Browne and Cudeck (1992). Table 3 shows a significant p-value in the baseline model and models for the configural equivalent test, metric equivalent test, and scalar equivalent test; thus, we could conduct the measurement equivalence test. The delta CFI (0.002), delta TLI (0.007), and delta RMSEA (0.002) were below the criterion, meaning that we could accept the configural equivalent test. Similar results were obtained; that is, the delta CFI (0.018), delta TLI (0.012), and delta RMSEA (0.006) were below the criterion, and we accepted the metric equivalent test. However, the scalar equivalence test was not passed, so the testing procedure was stopped (see Table 3). The measurement equivalence was held, and the construct configuration could be deemed indifferent between Taiwan, South Korea, and Japan. We merged all the data (Steenkamp and Baumgartner, 1998).

Table 3

Results of multigroup comparison and measurement equivalent test

Model and test	$\chi2$ (df)	Delta $\chi2$ (df) p-value	CFI	Delta CFI	TLI	Delta TLI	RMSEA	Delta RMSEA	Test
Baseline model (free)	371.244 (141)	--- --- **	0.929	--	0.900	--	0.052	--	--
Configural equivalent test	390.091 (155)	18.846 (14) **	0.927	0.002	0.907	0.007	0.050	0.002	Accept
Metric equivalent test	438.010 (179)	66.766 (38) **	0.911	0.018	0.888	0.012	0.056	0.006	Accept
Scalar equivalent test	612.351 (187)	241.107 (46) **	0.820	0.109	0.821	0.109	0.072	0.022	Reject

Notes: ** = p-value < 0.01, the criterion of delta $\chi2$ (df) should < 0.05, delta CFI should < 0.02, delta TLI should < 0.02, and delta RMSEA should < 0.05.

4.3 Common method variance analysis

Harman's one-factor analysis of the unrotated principal components method was employed to examine common method variance (CMV; Podsakoff *et al.*, 2003). Three factors with eigenvalues greater than 1.0 were sought rather than a single factor within the 12 constructs. The three factors together accounted for two-thirds of the total variance (67.79%), and the loading of the first factor was 39.48%; this is smaller than 50%, implying that there is no obvious general factor and that no CMV shortcomings were evident (Malhotra *et al.*, 2006).

William *et al.* (2010) proposed a common latent factor (CLF) method to examine the CMV issue. A new latent variable, CLF, was introduced when using the CLF method. The individual path was set to equal, and the variance of the CLF was limited to one. The CLF method incorporates latent factors and all relationships into the analysis, so the estimated coefficient of the CLF represents the value of the CMV. We found that the calculated CLF coefficient was 0.073, which is smaller than the threshold of 0.50; this means that the CMV issue was not serious (Tehseen *et al.*, 2016). Additionally, $\chi 2/df$ changed from 3.868 to 3.685, CFI from 0.853 to 0.863, NFI from 0.812 to 0.823, IFI from 0.854 to 0.864, and RMSEA from 0.069 to 0.067. The volume did not change, indicating that CMV was not a serious problem.

4.4 Reliability and validity analysis

For reliability and validity analysis, we calculated Cronbach's α-values for GC, GVS, GW, GT, and GVE (0.891, 0.773, 0.890, 0.908, and 0.748, respectively), which all exceeded 0.7. We also obtained composite reliability (CR) values of 0.786, 0.783, 0.893, 0.881, and 0.683 for GC, GVS, GW, GT, and GVE, respectively, and each construct held reasonable reliability, with the CR being larger than 0.6, indicating that internal consistency was acceptable (Fornell and Larcker, 1981). For convergent validity, we calculated AVE values of 0.647, 0.548, 0.807, 0.712, and 0.524 for GC, GVS, GW, GT, and GVE, respectively. Convergent validity was upheld with an AVE larger than 0.5 (Fornell and Larcker,

1981). To determine discriminant validity, we examined the AVE for each construct in a pair to exceed the square of the phi coefficient for that pair. All the inner construct correlations (phis) were significantly below 1.0 (Batra and Sinha, 2000). We found that the AVEs of GC, GVS, GW, GT, and GVE were greater than 0.423, 0.253, 0.270, 0.243, and 0.396, respectively, indicating that discriminant validity was acceptable. Additionally, we computed all loading values exceeding 0.4, and construct validity was achieved (Anderson and Gerbing, 1988). Tables 4 and 5 display the results.

Table 4

Results of reliability analysis and validity analysis

Construct	Item	Cronbach's α	Cronbach's α if item deleted	Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)
GC	GC1	0.891	——	0.812	0.786	0.647
	GC2		——	0.797		
GVS	GVS1	0.773	0.611	0.724	0.783	0.548
	GVS2		0.610	0.825		
	GVS3		0.731	0.662		
GW	GW1	0.890	——	0.855	0.893	0.807
	GW2		——	0.940		
GT	GT1	0.908	0.846	0.804	0.881	0.712
	GT2		0.789	0.911		
	GT3		0.856	0.813		
GVE	GVE1	0.748	——	0.705	0.683	0.524
	GVE2		——	0.742		

Note: CR = (sum of standardized loading)2 / [(sum of standardized loading)2 + (sum of measurement error)]. AVE = (sum of square standardized loadings2) / [(sum of square standardized loadings2) + (sum of measurement error)]. GC, GVS, and GW are green communication, green value sharing, and greenwashing, respectively. GT is green trust, and GVE is green value endorsements. GC1 and GC2 are subculture embeddedness and perceptions of a certain major culture, respectively. GVS1, GVS2, GVS3 are greater value goals, extending the explanation field and value innovation alternatives. GW1 and GW2 have misled the green function and overestimated the green commitment, respectively. GT1, GT2, and GT3 are credibility, benevolence, and ability. GVE1 and GVE2 are value resonance and value as distinguishers, respectively.

Table 5
The results of the discriminant validity tests based on multi-trait multi-method matrix

Variables (constructs)	GC) (GC1) (GC2)	GVS (GVS1) (GVS2) (GVS3)	GW (GW1) (GW2)	GT (GT1) (GT2) (GT3)	GVE (GVE1) (GVE2)	$(phi's)^2$	AVE
GC (GC1、GC2)	0.650					0.423	0.647
GVS (GVS1、GVS2、GVS3)	0.461	0.503				0.253	0.548
GW (GW1、GW2)	0.333	0.446	0.520			0.270	0.807
GT (GT1、GT2、GT3)	0.438	0.485	-0.215	0.593		0.243	0.712
GVE (GVE1、GVE2)	0.510	0.506	-0.427	0.490	0.629	0.396	0.524

Note: GC1 and GC2 are subculture embeddedness and perceptions of a particular major culture, respectively; GC1 and GC2 are constructs for green communication (GC). GVS1, GVS2, GVS3 are a greater value goal, extending the explanation field and value innovation alternatives, respectively; GVS1, GVS2, and GVS3 are constructs of green value sharing (GVS). GW1 and GW2 have misled the green function and overestimated the green commitment, respectively; GW1 and GW2 are constructs of greenwashing (GW). GT1, GT2, and GT3 are credibility, benevolence, and ability, respectively; GT1, GT2, and GT3 are constructs of green trust (GT). GVE1 and GVE2 are value resonance and value as distinguishers, respectively; GVE1 and GVE2 are constructs of green value endorsement (GVE). AVE is the average variance extracted.

4.5 Structural equation model results

This study used a structural equation model (SEM) with the full information estimation method, run in SPSS-AMOS software. First, we calculated that $\chi 2/df = 2.318$, which was within the criterion for interval fitness [2–5]. In addition, the goodness-of-fit index (GFI) was 0.972, adjusted GFI (AGFI) was 0.952, CFI was 0.980, IFI was 0.980, and NFI was 0.966, indicating a good fit. We determined that the root-mean-squared residual (RMSR) was 0.036, and the RMSEA was 0.047, which fit the model with unknown but optimally chosen parameter values for the population covariance matrix, and the parameter values were available (Chen *et al.*,

2008). The RMSR (<0.05) and RMSEA (<0.08) scores indicated an acceptable fit.

Table 6 shows the structural model with the coefficients. Again, green communication had significant effects on green trust (H1: β_1 = 0.336, p = .001). Green value sharing had a positive effect on green trust (H2: β_2 = 0.130, p = .007). Greenwashing did not have a negative effect on green trust (H3: β_3 = -0.077, p = .078). Finally, green trust had a positive effect on green value endorsements (H4: β_4 = 0.286, p = .001). Therefore, we accepted H1, H2, and H4, and rejected H3.

4.6 Mediation effect analysis

The bootstrap method has become the most popular method for exploring the SEM computer application mediation effect. The bootstrap method is carried out virtually, and the confidence interval can be calculated when the extraction is repeated 1,000 times (Efron and Tibshirani, 1993). In the SEM model, the bootstrap method can be used to detect and analyze the mediation effect and obtain the confidence interval of the indirect effect—called the mediation effect—if the 95% confidence interval does not include 0 and reaches significance. If the direct effect in the 95% confidence interval includes 0, the direct effect is not significant, and there is a full mediation effect. If the direct and indirect effects on the 95% confidence interval do not include 0 and reach a significant level, this can be deemed a partial mediation effect (Preacher and Hayes, 2008).

We examined the mediation effects using the bootstrap method from the green communication (green value sharing or greenwashing) to the green value endorsements of the study, as shown in Table 7. There are three types of serial mediation effects: Does green trust mediate the relationship between green communication and green value endorsements (case 1)? Does green trust mediate the relationship between green value sharing and green value endorsements (case 2)? Does green trust mediate the relationship between greenwashing and green value endorsements (case 3)? A mediation effect was shown in all three cases (Table 7). Case 1 shows that the confidence interval [0.048–0.125] of the indirect effect (0.080; 0.080 =

Table 6

SEM empirical results of the study model

Hypothesized path	Coefficient	*t*-value	*p*-value	Test
H1：green communication →green trust	$\beta_1 = 0.336$	6.677	0.001**	Supported
H2：green value sharing →green trust	$\beta_2 = 0.130$	2.680	0.007**	Supported
H3：greenwash → green trust	$\beta_3 = -0.077$	-1.765	0.078	Not supported
H4：green trust → green value Endorsement	$\beta_4 = 0.286$	5.829	0.001**	Supported

Note: The significant ratio of the study model is 75%; χ^2/df =2.318; GFI=0.972; AGFI=0.952; CFI=0.980; NFI=0.966; IFI=0.980; RMSEA=0.047; and RMSR=0.036. Based on the two-tailed test, for t-value greater than 1.98 or smaller than -1.98 (*); based on the one-tailed test, for t-value greater than 2.58 or smaller than -2.58(**).

0.338 x 0.237) does not include 0 and has a significant effect (p < .05), indicating that green trust has a mediation effect between green communication and green value endorsements. In the direct effect of green communication and green value endorsements (0.480), the confidence interval [0.413–0.318] does not include 0. It reaches significance, showing that green trust has a partial mediation effect between green communication and green value endorsements. Case 2 shows that the confidence interval [0.039–0.113] of the indirect effect (0.078) does not include 0 and has a significant impact (p < .05), indicating that green trust has a mediation effect between green value sharing and green value endorsements. In the direct effect of green value sharing and green value endorsements (0.154), the confidence interval [0.063–0.243] does not include 0. It reaches significance. This shows that green trust has a partial mediation effect between green value sharing and green value endorsements. Case 3 shows that the confidence interval [0.015–0.094] of the indirect effect (0.050) does not include 0 and has a significant impact (p < .05), indicating that green trust has a mediation effect between greenwashing and green value endorsements. In the direct effect of greenwashing and green value endorsements (-0.029), the confidence interval [-0.104–0.054] does not include 0. It reaches significance shows that green trust has a full mediation effect between

Table 7

Empirical result of serial mediation effects

Case 1: GC → GT → GVE				
Effects	Contents	Estimate	*p*-value	Confidence interval
Indirect effect	GC→GT→ GVE	0.080	0.000	(0.048, 0.125)
Direct effect	GC→GT	0.338	0.000	(0.252, 0.422)
	GT→ GVE	0.237	0.000	(0.158, 0.318)
	GC→GVE	0.480	0.000	(0.413, 0.318)
Total effect	GC →GVE	0.560	0.000	(0.076, 0.180)
Case 2: GVS → GT → GVE				
Effects	Contents	Estimate	*p*-value	Confidence interval
Indirect effect	GVS→GT→GVE	0.078	0.001	(0.039, 0.113)
Direct effect	GVS→GT	0.211	0.000	(0.103, 0.315)
	GT→GVE	0.372	0.000	(0.281, 0.452)
	GVS→GVE	0.154	0.001	(0.063, 0.243)
Total effect	GVS→GVE	0.232	0.022	(0.010, 0.089)
Case 3: GW → GT → GVE				
Effects	Contents	Estimate	*p*-value	Confidence interval
Indirect effect	GW→GT→GVE	0.050	0.014	(0.015, 0.094)
Direct effect	GW→GT	0.122	0.006	(0.036, 0.208)
	GT→GVE	0.410	0.000	(0.321, 0.494)
	GW→GVE	-0.029	0.472	(-0.104, 0.054)
Total effect	GW→GVE	0.022	0.034	(0.006, 0.066)

greenwashing and green value endorsements. Therefore, we accept H5.

5. Discussion

We separated our samples into three nationality groups (Taiwan, South Korea, and Japan) and adopted the chi-square difference test to investigate the groups and make the results more useful. The one-way ANOVA analysis indicated that nationality affected green value endorsements ($F = 22.637$; $p < .001$). This study used nationality as a moderator variable to examine its effect on different paths. The results showed that $\chi 2$ in the three subgroups were 287.037, 110.621, and 104.272 (difference > 5.99); consequently, nationality

was indicated as a moderator for the difference $\chi^2_{0.05,2} = 5.99$. Therefore, we found that green value endorsements affected Taiwan, Korea, and Japan differently (see Table 8).

Table 8 shows that green communication had a statistically significant influence on green trust in the Taiwanese and Japanese groups but did not significantly influence the South Korean group. Green value sharing had a statistically or marginally significant impact on green trust in South Korea and Japan. In contrast, the Taiwanese group had no statistically significant effect, reflecting different impacts for the three groups. Greenwashing did not have a statistically significant effect on green trust.

Green trust significantly influenced green value endorsements in the Taiwanese and South Korean groups, but did not significantly impact the Japanese group (see Table 8). Therefore, we added a moderator variable to the paths from different green appeals to green trust / green value endorsements. The value of this study for policymaking is that companies should pay more attention to green trust formulation—mainly green communication and green value sharing—rather than employing only surface greenwashing to gain green trust.

In South Korea, companies achieved green trust through green value sharing from a consumer-oriented perspective; however, green communication was ineffective in producing green trust from a business-oriented standpoint. This means that business marketing abilities and skills were excellent, and consumer confidence was relatively sufficient (Kang and Hustvedt, 2014; Lee, 2019). Companies need to promote green communication skills to create adequate green trust with consumers (Lee *et al.*, 2020). Advertising abilities and skills used by companies are relatively weak, so companies should emphasize the environmental efforts of small and medium-sized enterprises (Wu and Lin, 2016).

Through green communication and green value sharing efforts, companies have achieved green trust in Japan. This means that green appeals are effective, and consumer green trust is strong. Japanese companies use professional

knowledge and green appeal techniques, and green marketers can develop green trust (Borel-Saladin and Turok, 2013). Adopting these tactics makes consumers feel more satisfied with customized services and motivated to be environmentally conscious (Lee, 2019; Olsen *et al.*, 2014). Consumers in Japan seem to believe in companies and their associated green products (Dyer and Chu, 2000; Sonnenberg *et al.*, 2014). In Japan, green trust exists, as strong support for business and product trust is embedded in Japanese society (Miyamoto and Rexha, 2004; Nair and Little, 2016). This may be because Japanese companies are good at taking care of their employees, with more harmonious labor and fewer strikes (Dyer and Chu, 2000; Nair and Little, 2016). Japanese companies have a lifelong employment system, and positive career and life experiences are essential for forming trust in Japan (Manrai *et al.*, 1997; Xue, 2015).

In Taiwan, companies emphasized green communication and did not use their marketing capabilities and professional skills in green value sharing. Companies emphasize green advertisement activities to affect the green trust of consumers and conduct these more carefully than product innovation, brand development, and channel management (Chen, 2013; Chen and Chang, 2013b; Walker and Wan, 2012). However, one-spot green advertisement activities cannot affect customers' environmental values in the long term (Chang and Hsu, 2016; Papadasa *et al.*, 2017; Wu and Lin, 2016). Therefore, green value sharing did not promote green trust through Taiwanese social presence procedures.

This study provides a win-win strategy for marketing a business. First, companies should pay attention to consumers' "specific environmental value to companies," which leads to the spontaneous production of green trust (Guo *et al.*, 2018). Second, empirical results can be used to explore the causal relationship between green trust and green appeals through an in-depth analysis of trust-building (Chen, 2010; Chen and Chang, 2013a; Minton *et al.*, 2012). Finally, this study recognized how consumers were oriented toward different business environmental values and made trade-offs between green communication and green value sharing. Green value sharing satisfies unmet consumer needs because the green values of target consumers play a meaningful

Table 8

Model comparison between Taiwan, South Korea, and Japan groups

Items	The Taiwan group			The South Korea group			The Japan group		
	Estimate	t-value	P-value	Estimate	t-value	P-value	Estimate	t -value	P-value
GC→ GT	0.443	4.828	0.001*	0.375	1.016	0.309	0.153	2.320	0.009**
GVS→ GT	0.015	0.186	0.853	0.995	2.510	0.012*	0.109	1.650	0.098*
GW→ GT	-0.014	-0.198	0.843	-0.131	-0.866	0.386	-0.218	-1.613	0.107
GT→GVE	0.472	6.264	0.001**	0.878	8.141	0.001**	0.050	0.631	0.528
GFI		0.931			0.924			0.929	
AGFI		0.883			0.866			0.876	
CFI		0.954			0.959			0.934	
NFI		0.916			0.932			0.892	
IFI		0.955			0.960			0.936	
RMSR		0.046			0.039			0.047	
RMSEA		0.043			0.082			0.070	
χ^2 /df		2.080			2.354			2.317	

Japan, Korea, and Taiwan are different in green value endorsement.

role in green marketing (Isa *et al.*, 2017; Xue, 2015).

6. Discussion

We developed a green appeal model to investigate green trust formation and found two main causal relationship routes. The first route is that green value sharing positively affects green trust, and green trust positively affects green value endorsements. The second route is that green communication positively affects green trust and positively affects green value endorsements. Thus, green value sharing plays a leading role in developing consumer green trust. Furthermore, green value sharing is superior to green communication in the direct effect on green trust. Therefore, we can employ green value sharing to build an effective social identity—an interactive sharing of goal-oriented

business style. The results agree with social cognitive theory (Bandura, 1986, 2001).

Regarding academic contribution, this study introduces three types of green appeals to affect green trust, which affects green value endorsements. Green communication is a cognitive learning factor, green value sharing is a cognitive response factor, and green communication is a cognitive appraisal factor for forming three new propositions. This study proposes a three-driver model, thus benefiting the green trust literature. However, empirical results show that the path from greenwashing to green trust is not supported in the pooled sample and three separate cases. Moreover, the path from green trust to green value endorsements is not supported in Japan. It needs further investigation in the future.

This study developed a novel pathway—namely, "from green value sharing to green value endorsements"—inspired by "value difference management" and expanded to green value sharing to affect green trust. Green value sharing was not included as an antecedent variable of green trust, and green value endorsements was not regarded as a consequent variable of green trust in previous studies. This new pathway provides practical conclusions about green value management. The related literature on green trust indicates the loyal purchase of products/services, and the relevant variables are perceived quality, perceived value, and satisfaction (Wood *et al.*, 2018). The green trust of this study is parallel to loyalty marketing. It refers to loyal purchase behavior regarding (intangible) environmental value rather than loyal purchase behavior regarding (tangible) green products (Wu and Lin, 2016). Green trust indicates that customers identify with the environmental value and commit through loyal purchase behavior (Dogerlioglu-Demir *et al.*, 2017).

A company can use a green value sharing strategy to achieve green trust formation and to create a win-win solution regarding practical contributions and managerial implications. This study provides solutions to companies and customers through practical implications. Green marketers can target a greater goal, enlarge their scope, and offer innovative alternatives to customers to

generate green trust formation. The findings enable firms to tap into their professional knowledge and design available programs through trust formation. Green marketers can achieve green endorsement with higher possibilities (Dogerlioglu-Demir *et al.*, 2017).

In practice, green marketers can employ three approaches. First, green marketers should announce the appeals. For instance, "We are different," "Green appealing is show-off behavior," and "The product is the green status of identification." Companies should show the green product message and adopt green-operation information on their websites. Such announcements can reinforce customer interest via the business website check-in product/service messages. Second, green marketers can create the unique attraction of green products/services via specific green appeals, producing a pride perception that customers would gain the product/service, therefore attaining green value-sharing operations. Third, green marketers can begin new green products/services with prominent brand logos via celebrity endorsements to promote green marketing. These strategies satisfy consumers with customized products or services and direct them toward green value endorsements. Thus, green marketers can carry out their green appeal strategy by reinforcing their green value sharing to promote consumer green trust and green value endorsements (Geletkanycz and Tepper, 2012; Wood *et al.*, 2018).

This study has several research limitations. First, this research focused on the appeal of green marketing and did not consider the possible impact of green products with different price levels on green trust. Future research can take product prices into account. Second, green products from other countries may also impact green trust. Although the cultural issues in the countries were initially considered, they were not included in the product country of origin. Future studies may consider the country of origin of the product. Third, the samples in this study were taken from Taiwan, Korea, and Japan, with the total number of valid samples being 600. However, the sample size was insufficient to analyze samples from individual countries; this is another research limitation. It would be appropriate further to expand the scope of the sample in future studies.

Finally, we dispatched paper questionnaires to Taiwan Taoyuan International Airport passengers due to budgetary constraints rather than issuing them in South Korea and Japan.

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Appendix: Questionnaires

Variables/Constructs		Measurable indicators
Green communication		
sub-culture embeddedness	1.	I think the green business will consider different gender when communicating to consumers.
	2.	I think the green business will consider different age when communicating to consumers.
	3.	I think the green business will consider different education and income level when communicating to consumers.
perceptions of the specific main culture	1.	I think the green business will consider consumer perceived company culture when use communication tool.
	2.	I think the green business will take the nature of company characteristics into considerations when use communication tool.
	3.	I think the green business presents the statements of daily affairs that are based on the consumer perceptions of how company culture and customs interpret sustainable environment values.
Green value sharing		
higher value goal	1.	When facing the value differences, the green business can seek higher value to examine the gap to attain co-prosperity.
	2.	When facing the value differences, the green business can find a mutually acceptable value for value adaptation to discover the entry point of the adjustments.
	3.	When facing the value differences, the green business can conduct value assimilation on other values based on the attraction of a specific value.
value augmented explanation	1.	When facing the value differences, the green business can extend the value of the original value and derive the commentary.
	2.	When facing the value differences, the green business can schedule outreach resources to alleviate the pressure from the value conflict.

	3.	When facing the value differences, the green business can expand the number and scope of the interpretation.
value innovation alternatives	1.	When facing the value differences, the green business can seek creative value solutions for our demand creation.
	2.	When facing the value differences, the green business can make a creative solution to meet customers' needs.
	3.	When facing the value differences, the green business can perform the associated customer segmentation to create enterprise solutions.
Green trust		
credibility	1.	I think the reputation of the product business is generally reliable.
	2.	I think the ambient performance of the product business is reliable.
	3.	I think the product is dedicated to the honesty and reputation of the enterprise.
benevolence	1.	The product business environmental concern meets your expectations.
	2.	The product business keeps promise and commitment to environmental justice.
	3.	The environmental protection requirements of the product business are generally worthy of my trust.
ability	1.	I think the business has an environment of friendliness and kindness.
	2.	I think the enterprise is willing to do a good job of environmental conservation.
	3.	I think the company is happy to benefit the consumer.
Green value endorsement		
value resonance	1.	I can across the core values of the sustainable environment as shared in the green business.
	2.	I can across the shared identity 'we are sustainable environment businesses.'
	3.	I can across geographical boundaries (e.g., my hometown) to share the same sense of working for a business.
value as distinguishers	1.	The sustainable environment values of the green business are unique compared to other enterprises.

	2.	The importance of sustainable environmental values of the green business is distinguished with other enterprises.
	3.	The environmental value of the green business contributes to sustainability and earth.
Green-washing		
mislead the green function	1.	The company misleads the consumer in its environmental features.
	2.	The company uses a visual or graphic misleading in its environmental attributes to be used by the consumer.
	3.	The company has a blurry or seemingly unproven green voice to mislead consumer.
over-statement green commitment	1.	The company boastful large or boastful its actual green functions.
	2.	The company is leaking or covering important information so that the green voice sounds better than it is now.
	3.	The company is obviously overestimating its stated green promise.