



# INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



## The Role of Pricing and Product Knowledge on Malaysian Consumers' Green Purchase Intention

Loh Shi Wei, Thoo Ai Chin, Adaviah Mas'od, Nur Shafeera Mohamad

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v12-i7/13336>

DOI:10.6007/IJARBSS/v12-i7/13336

**Received:** 18 May 2022, **Revised:** 19 June 2022, **Accepted:** 29 June 2022

**Published Online:** 11 July 2022

**In-Text Citation:** (Wei et al., 2022)

**To Cite this Article:** Wei, L. S., Chin, T. A., Masod, A., & Mohamad, N. S. (2022). The Role of Pricing and Product Knowledge on Malaysian Consumers' Green Purchase Intention. *International Journal of Academic Research in Business and Social Sciences*. 12(7), 1698 – 1732.

**Copyright:** © 2022 The Author(s)

Published by Human Resource Management Academic Research Society ([www.hrmars.com](http://www.hrmars.com))

This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: <http://creativecommons.org/licences/by/4.0/legalcode>

Vol. 12, No. 7, 2022, Pg. 1698 – 1732

<http://hrmars.com/index.php/pages/detail/IJARBSS>

JOURNAL HOMEPAGE

Full Terms & Conditions of access and use can be found at  
<http://hrmars.com/index.php/pages/detail/publication-ethics>



# INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



## The Role of Pricing and Product Knowledge on Malaysian Consumers' Green Purchase Intention

Loh Shi Wei, Thoo Ai Chin, Adaviah Mas'od, Nur Shafeera Mohamad

Azman Hashim International Business School, Universiti Teknologi Malaysia, Johor Bahru, Malaysia

Email: acthoo@utm.my

### Abstract

Green consumption has also risen globally to prevent further damages to the environment. Therefore, it is important to understand the intent of consumers to buy environmentally friendly products as the willingness to buy green products will maintain and protect the quality of natural environment, thus contribute to sustainable environmental development. Even though the number of consumers ready to purchase green products has increased in recent years, there is no indication that this trend would increase in Malaysia. As such, to address the limitations and to cope with the green purchase intention issues, this study aims to propose a framework to investigate the relationships between attitudes, subjective norms, perceive behavior control, product knowledge, price and green purchase intention among consumers in Malaysia by application of Theory of Planned Behavior (TPB) model. The modifications to the original TPB structure help to identify potential factors that affect consumers' willingness to purchase green products. This study employed an online survey and collected 216 questionnaires from Malaysian respondents aged 18 years old and above by using a purposive sampling method. Multiple regression analysis was employed for data analysis. The findings indicated that attitude, subjective norm, perceived behavioral control and product knowledge have a positive and significant relationship with green purchase intention while price has a negative and significant relationship with green purchase intention. Using the findings of the study, marketers could understand the potential factors that affect consumers' willingness to purchase green products. The findings of the study can be a guideline for future studies to determine the customers' intentions for environmentally friendly products.

**Keywords:** Green Purchase Intention, Theory of Planned Behavior (TPB)

### Introduction

Consumers all over the world have expanded their consumption of products and services in the recent decade, resulted in the exploitation of natural resources and serious environmental degradation (Waris *et al.*, 2020). The earth is suffering from environmental degradation, leading to serious environmental pollution, global warming and climate change due to the rapid growth of economic and industrial development (Manisalidis *et al.*, 2020).

The degradation of natural habitats, the depletion of biodiversity and natural resources, the generation of waste have threatened the future sustainable life on earth (Singh *et al.*, 2017). Hence, the Living Planet Report 2020 estimated that humans exceed the biological capacity of the Earth by 50% on average, which proves that human beings exacerbate environmental vulnerability by consuming more than the earth's carrying limit (WWF, 2020). On the other hand, Global Green Economy Index (GGEI) 2020 reported that Malaysia ranks 55<sup>th</sup> with an average of 49 percent among the 130 nations, which means that Malaysia is behind and needs to be improved to meet international standards for green progress report (Simon *et al.*, 2020). All countries around the world have been aware of the threat and strive to minimize the harmful effects of their business activities on the environment (Onel *et al.*, 2015). The awareness and attention to the environment and society has led to the emergence of sustainable development, which emphasizes the need to promote sustainability and advocates a form of development that minimizes the negative impacts on the environment and society (Al Mamun *et al.*, 2020a; Kautish *et al.*, 2018).

Thus, going green appears to be a series of journeys leading to a more sustainable planet (Gazzola *et al.*, 2019). Moreover, the concept of sustainable development is now leading the way and regarded as a vital business goal (Huang *et al.*, 2014; Le *et al.*, 2019). Many countries aim to protect the planet from rapid degradation in order to ensure a prosperous standard of living by 2030 as part of the Sustainable Development Goals (SDG) (Briceño *et al.*, 2019; Zinkernagel *et al.*, 2018). The 2030 Global Agenda's Goal 12 aims to develop environment-friendly consumption and production in order to preserve the environment, as the sustainable environment is critical to well-being and human life on the planet (United Nations, n.d). On the other hand, the sustainable development market is expected to grow from USD 11.43 billion in 2021 to USD 41.62 billion in 2028, with a compound annual growth rate of 20.3 percent (Fortune Business Insights, 2021). When a company offers green products and services, it will make a great impression on consumers and become a very profitable business (Suki, 2016). As such, enterprises are aware of green products have a large market potential and are eager to promote them (Sun *et al.*, 2019). For instance, GreenTechMalaysia, a Ministry of Environment and Water (KASA) organisation, was founded as a starting point for Malaysia to develop a green market consisting of manufacturers, government organisations and businesses that fulfil the national green criteria (Abidin *et al.*, 2018).

Apart from that, companies are increasingly focusing on sustainable production for the purpose of not only gaining consumer support but also raise consumer awareness of the need for environmental protection. Consumers have become more environmentally conscious all over the world, a new sort of consumer behaviour has emerged called green consumption (Augustine *et al.*, 2019; Ghazali *et al.*, 2017). Green consumption is usually associated with environmental consciousness, where consumers examine the environmental impact of using, purchasing, and discarding various things or using various green services (Wijekoon *et al.*, 2021). Green consumption is getting popular since it not only alleviates climate problems but also provides potential for business growth (Maichum *et al.*, 2016). The global market for green cosmetics is expected to reach US\$32.3 billion by 2027, with an expanding at an annual rate of 8.3 percent from 2020 to 2027 (Market Research, 2021). The increase in market size and consumer interest in green products makes it worthwhile to explore this consumer market segment (Al Mamun *et al.*, 2020b; Dhanwani *et al.*, 2020). Moreover, study showed that chemical-free cosmetics are popular among female consumers since they serve to

protect the skin while having little or no negative impact on the environment (Jaini *et al.*, 2019). However, green consumers pay different attention to environmental protection behaviors and this difference causes consumers to make different purchasing decisions (Jahanshahi *et al.*, 2018; Ogiemwonyi *et al.*, 2020a; Ogiemwonyi *et al.*, 2020b).

An understanding consumer who cares about the environment and practices green behaviour is an excellent method to address environmental issues and concerns (Ogiemwonyi *et al.*, 2020a). This is because consumers can play a significant role in environmental degradation by purchasing green products to prevent or mitigate it (Wijekoon *et al.*, 2021). Previous research has shown that the use of Theory of Planned Behaviour (TPB) in determining customers' environmental behaviour is unquestionable (Amoako *et al.*, 2020; Nguyen *et al.*, 2019a; Tanwir *et al.*, 2020). For example, TPB was used to explore a wide range of social and behavioral research fields such as green entrepreneurship intention (Alvarez-Risco *et al.*, 2021), energy-saving behaviour (Lopes *et al.*, 2019) and sustainable transport behavior (Liu *et al.*, 2017). Afroz *et al.* (2015) highlighted that TPB not only helps to study consumer behavior, but also helps the marketers to formulate strategies to encourage the widespread adoption of green products. Despite TPB's widespread and powerful application, extra variables appear to be useful in enhancing TPB's explanatory power (Tanwir *et al.*, 2020; Wang *et al.*, 2018; Yadav *et al.*, 2017).

According to TPB, the influence of intention on response is regulated by actual behavioral control (Ajzen, 2020). The primary assumption of determining a person's actual control is to completely comprehend numerous internal and external aspects such as talents, knowledge, physical stamina, intelligence and legal barriers, money, and product availability (Ajzen, 2020; Bosnjak *et al.*, 2020). Therefore, internal and external aspects are very important variables to assess the degree to which an individual has or can assemble the required resources and overcome any challenges that may arise such as when actual control is high, intentions are more likely to be followed by behaviours (Sun *et al.*, 2019; Wang *et al.*, 2018). Attitude, subjective norms and perceived behavioural control are determinants of intents and actual control refers to the elements that influence individual's behaviour (Ajzen *et al.*, 2011). A study showed that 70 percent of consumers believed that they have a responsibility to apply more environmentally friendly behavior (Wijekoon *et al.*, 2021). When consumers have a positive attitude towards environmental protection, their attention will affect their purchasing choices and will guide them to purchase green products that have a significant impact on the environment (Kashi, 2019; Maichum *et al.*, 2016; Tan *et al.*, 2018). Following that, an attitude has been determined to be a significant predictor of sustainable consumption (Amoako *et al.*, 2020; Ojo *et al.*, 2019).

Besides, subjective norms is an essential social pressure for behavioural intentions (Ajzen, 2020). Many studies showed that external pressure drives consumers to buy green products and is one of the leading factors that affect the sustainable consumption (Ko *et al.*, 2017; Suryanda *et al.*, 2021; Zhuang *et al.*, 2021). A cross-cultural study showed that subjective norms and interactions of green product knowledge significantly determine the green buying behavior of various countries (Liobikiene *et al.*, 2016). On the other hand, perceived behavioural control is regarded as the vital element because original model has shortcomings in predicting behaviours which are not entirely controlled by personal will (Ajzen, 2020; Liu *et al.*, 2020b). Therefore, this study applies attitudes, subjective norms, and perceived behavior

control to understand consumers' intentions of buying green products using TPB model (Ajzen, 2020).

Apart from the dimensions proposed in TPB, various studies have used a wide range of variables to identify the green purchase intention. Many studies emphasize that knowledge plays a key role in shaping consumer intentions in environmental ecological research (Amoako *et al.*, 2020; Sun *et al.*, 2019; Troudi *et al.*, 2020). Groening *et al.* (2018) found out that consumers' attitudes towards green purchases are strongly influenced by knowledge. Many consumers believe that pricing is a major factor in their green purchase decisions. (Lanzini *et al.*, 2016; Liobikienė *et al.*, 2016). According to a study of nine developed countries, more than 50 percent of people buy sustainable brands, with another 24 percent prepared to spend a premium price for environmentally friendly goods (Chen *et al.*, 2018). However, Jahanshahi *et al.* (2018) claimed that some consumers resist sustainable consumption while others committed to green products. Studies have shown that product knowledge and green characteristics, as well as personal knowledge and attention to the environment are important driving factors. Whereas the high price of green products is the main obstacle to consumers' green purchase intention (Joshi *et al.*, 2015; Liobikiene *et al.*, 2016; Qi *et al.*, 2021; Sun *et al.*, 2019). Hence, one of the primary motivators for businesses to pursue new strategies to position themselves as green brands is consumer willingness to pay for environmentally friendly products (Tan *et al.*, 2018). As such this study adds product knowledge and price in the original TPB model to investigate the green purchase intentions among Malaysian consumers.

### **Problem Statement**

A recent report showed that many developing countries in Asia like Malaysia is facing major environmental challenges (Ogiemwonyi *et al.*, 2020a). For instance, the rapid growth of Malaysia's population, along with the rapid pace of industrialization and urbanization has resulted in massive environmental issues, such as increased solid waste and greenhouse gas emissions (Afroz *et al.*, 2015; Al Mamun *et al.*, 2018). By considering its stronger influence, Malaysia has adopted the 2030 Agenda for Sustainable Development at the United Nations General Assembly (UNGA) on 25<sup>th</sup> September 2015 in New York (Yusof *et al.*, 2020). One of Malaysia's commitment to the Sustainable Development Goals (SDG) strategy is to be more responsible in the production and consumption stages (Ghazali *et al.*, 2021). The government provides financial incentives for green technology and renewable energy to optimize the use of resources to produce sustainable products and encourages industries to evaluate their environmental impact-related activities during the production stage (Chua *et al.*, 2019; Ghazali *et al.*, 2021). However, the challenge is the stage of consumption by consumers in Malaysia (Ghazali *et al.*, 2021; Suki, 2016). This may due to Malaysia's green trend is in its early stages (Tanwir *et al.*, 2020). For example, Malaysian consumers underexamined the benefits of green products due to no information about green product retailers and high price of green products (Al-Kumaim *et al.*, 2021). In addition, some Malaysian consumers have low confidence or insufficient product information about green products that hinder them to purchase the green products (Latip *et al.*, 2021).

Even though the number of green products and services registered under the MyHIJAU logo is gradually increasing as shown in Figure 1 (Statistics, 2022). Nevertheless, the Edge Malaysia reported that policies for sustainable action and the adoption of green products are doomed

to fail without consumer support and knowledge (Banoo, 2021). Apart from that, the World Wide Fund for Nature Malaysia (WWF-Malaysia) emphasized the need of businesses to communicate their sustainability activities to consumers in order to educate them about the importance of sustainable consumption (Malay Mail, 2019). In fact, consumer willingness to purchase and adopt green products may stimulate the green product demand, which in turn to reduce the green product costs and accelerate the green product adoption in the long run (Banoo, 2021). As highlighted by The Star news, Malaysian consumers often mention that they will pay a premium for sustainable products, but in fact, they are not keeping their promises due to no actions from their intentions (Lee, 2022). As the globe progressively recovers from the epidemic, there are growth of consumers' willingness to purchase green products that may increase the need of consumer-facing businesses (Rogers, 2021). Therefore, enterprises must understand the determinants of green consumption as well as green purchase intentions (Tan *et al.*, 2017).

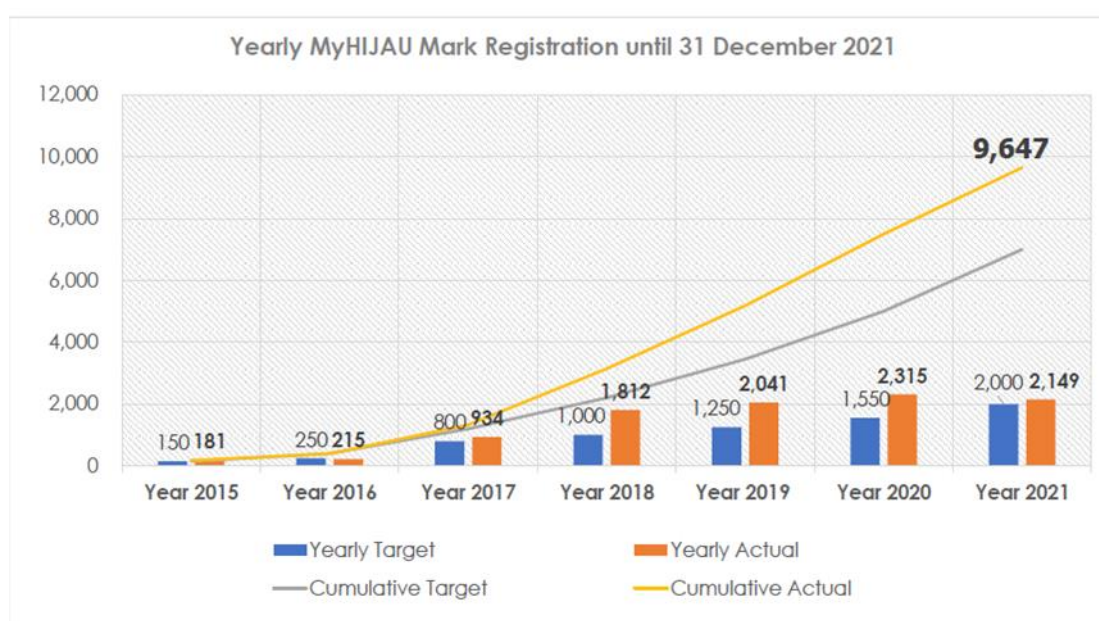


Figure 1 Statistic for the registration under MyHIJAU Mark as of 31 December 2021 (Statistics, 2022)

According to a 2015 survey on consumer sustainability behaviour in 51 countries, over 90 percent of Malaysians are worried about environmental issues, but most respondents are unwilling to change their purchasing habit because they are worried about other pressures, such as the economy and cost of living, which will cause them to look for cheaper alternatives (The Nielsen Global Survey, 2015). Therefore, despite environmental issues are widely known around the world, not every Malaysian is willing to buy green products in their daily activities (Quoquab *et al.*, 2019). Moreover, Quoquab *et al.* (2017) pointed out that although consumers know the advantages of green products, many consumers in developing countries such as Malaysia do not buy them. However, Ghazali *et al.* (2021) claimed that consumers' intentions for environmentally sustainable green products have appeared in developing countries such as Indonesia and Malaysia. Due to inconsistent findings, it is essential to identify the major driving factors that influence green buying intentions to improve green product purchases and consumption which can reduce environmental damage and provides additional motivation for current study (Joshi *et al.*, 2015).

In cosmetic industry, the demand for sustainable products is increasing across generations as showed in Figure 2 (Illera, 2021). Even though the number of people eager to buy green products has increased in recent years, there is no evidence that this number will increase in Malaysia (Jaini *et al.*, 2019; Wijekoon *et al.*, 2021). Tan *et al.* (2019) also claimed that despite a growing interest in and concern for the environment, the elements underpinning consumers' low acceptance of green products have yet to be thoroughly understood. The majority of studies on consumers purchase intentions for environmentally friendly items come from the Western countries, with limited research coming from Asian countries (Al Mamun *et al.*, 2018). Furthermore, Maichum *et al.* (2016) stated that there are still deficiencies among consumers in developing countries who respond to the information of environmentally friendly products and purchase intentions. As a result, there is an urgent need for more research into the topic (Dahalan *et al.*, 2020).

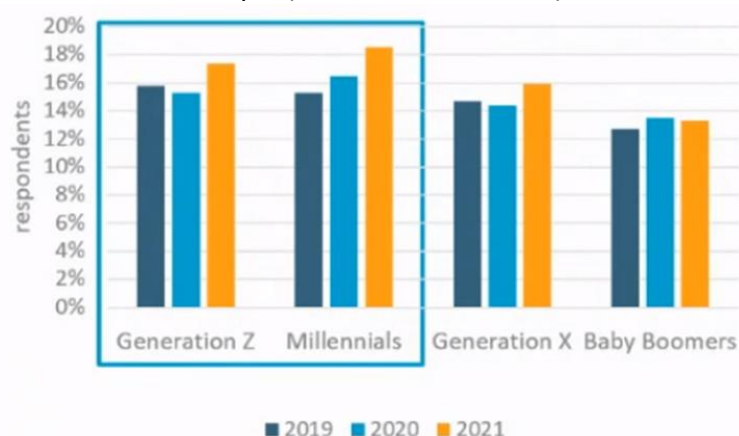


Figure 2 Preference for Environmental Features in Skin Care by Generations 2019 – 2021 (Illera, 2021)

Although the society's high degree of concern for environmental and sustainable development issues has prompted scholars and practitioners to deeply understand the factors that shape consumers' green purchasing intentions (De Canio *et al.*, 2021; Kwon *et al.*, 2020; Nguyen *et al.*, 2019b). TPB has been widely and successfully applied in consumer behavior research (Ajzen, 2020; Joshi *et al.*, 2015; Zhang *et al.*, 2019). Nonetheless, it is recommended to include other variables in the TPB model to explain the complexity of human behavior and to improve the predictive ability of TPB (Ajzen, 2020; Bosnjak *et al.*, 2020). As TPB did not take into account the external factors that affect consumers' intentions towards environmentally friendly products (Joshi *et al.*, 2015). Furthermore, there is evidence that the inclusion of external factors in the TPB plays an important role in improving the predictive power of the framework, ranging from 23% to 31.4% (Nguyen *et al.*, 2019b). For this reason, the value of this study lies in the application of the TPB with price and product knowledge to determine the significant factors that lead to the purchase intention of Malaysian consumers.

Most of the literature review applied in the Malaysian context does not include research based on the extended TPB model, which contains additional factor product knowledge and price (Kwon *et al.*, 2020; Mansor *et al.*, 2021). As much of the literature tends to focus on other variables such as moral norm (Tan *et al.*, 2017), perceived risk (Tan *et al.*, 2018) and availability (Al Mamun *et al.*, 2020b). Aschemann *et al.* (2017) declared that the most significant perceived obstacle to purchase green products is price. Tan *et al.* (2019) emphasized that price-sensitive consumers believe that product price is the most significant

factor affecting their purchase decision. Additionally, consumers' understanding of products and the environment is related to their green purchase intentions (Yadav *et al.*, 2017). Wang *et al.* (2020) believed that consumers' knowledge of products and contextual attributes such as promotional activities are the potential determinants of purchasing intention.

Since many scholars emphasized that more study is needed to better understand consumers' green buying intentions to prevent environmental degradation in developing countries (Helfaya, 2016; Le *et al.*, 2019; Maichum *et al.*, 2016; Ray *et al.*, 2018; Suki, 2016). Hence, the purpose of this study will help to determine vital factors towards sustainable products among consumers in Malaysia by including product knowledge and price in TPB. As a result, marketers can implement effective communication strategies, so that consumers not only understand the ecological benefits of green products but also helps to cultivate positive attitudes and willingness of consumers towards green products (Liu *et al.*, 2020b; Mo *et al.*, 2018).

### Research Objectives

This study listed five main objectives:

RO1: To examine the influence of attitude on purchase intention of green products  
RO2: How subjective norm influences on purchase intention of green products?

RO2: To examine the influence of subjective norms on purchase intention of green products

RO3: To examine the influence of perceived behavioural control on purchase intention of green products

RO4: To examine the influence of price on purchase intention of green products  
RO5: How product knowledge influence on purchase intention of green products?

RO5: To examine the influence of product knowledge on purchase intention of green products

### Literature Review

#### Green Purchase Intention

Zhuang *et al.* (2021) defined purchase intention is measure of the strength of a person's intention to carry out a certain action or make a choice to purchase a service or products. Purchase intention refers to willingness of a customers toward purchasing a product or availing a service because they find that a particular product or service fulfil their requirement and attitudes towards a product/service and perception of the product/service (Rahim *et al.*, 2016; Vazifehdoust *et al.*, 2013). Green is relative, describing products with low environmental impact, nontoxic and minimally packaged. (Durif *et al.*, 2010; Rahim *et al.*, 2016; Tsay, 2009). On the other hand, Nguyen *et al.* (2019a) claimed that green purchase refers to purchase of green products that are defined as low polluting, less detrimental to human health, made from recycle material, are manufactured in a more energy-efficient conservative way.

Green purchase intention is defined as a consumer desires to purchase the product after they are aware it is a green product or green brand (Huang *et al.*, 2014; Oliver *et al.*, 2010; Rahardjo, 2015; Zeithaml, 1988). Chen *et al.* (2012); Zhuang *et al.* (2021) believed that green purchase intention is the possibility of consumers wishing to purchase environmentally friendly products. Besides that, green purchase intention is the probability of consumers to give preference to green products compared to conventional products to express their concern for the environment (Rahim *et al.*, 2016; Vazifehdoust *et al.*, 2013; Wang *et al.*, 2021).



On the other hand, green purchase intention is the likelihood and willingness to consume the product that has biodegradable and eco-friendly features (Rashid, 2009; Zhuang *et al.*, 2021). It can also be defined as the probability of consumers to purchase green products according to environmental requirements (Chen *et al.*, 2012; Zhuang *et al.*, 2021). Consumers with green purchase intentions defined in this study are consumers willing to spend more for green products when consumers think that the premium of green products is about high quality and low environmental impact (Sun *et al.*, 2019).

Green purchase intention can be measured by considering purchasing sustainable products, switching to green brands or eco-friendly packaging (Zhuang *et al.*, 2021). The green purchase goal has been analysed over a generous scope of green items, example such as organic food (Dangi *et al.*, 2020; Rana *et al.*, 2017), environmentally sustainable apparel (Nguyen *et al.*, 2019a), environmentally friendly wines (Pomarici *et al.*, 2016), eco-friendly products (Pudaruth *et al.*, 2015; Sobuj *et al.*, 2021) and green vehicle (Bhutto *et al.*, 2020). With the public's responsibility towards corporate social responsibility (CSR), consumers prefer the housing developers with sense of social responsibility and are committed to satisfying their housing needs (Tan *et al.*, 2018).

TPB has been used widely to examine green consumer purchase intentions and behaviors (Kashi, 2019; Suryanda *et al.*, 2021; Zhuang *et al.*, 2021). In European Union, the notion of green consumerism TPB was used as their measurement as well in their facilitate policy implementation (Liobikiene *et al.*, 2016). An extension of the TPB on green purchase intention in China identified Chinese people's willingness to buy environmentally friendly products is based on their inner sense of moral obligation, they will do what they "feel" right to them, rather than need to abide by social standards. (Liu *et al.*, 2020a). Various studies have proposed some modifications and extensions to TPB in order to overcome its limitation such as lack of consideration of external factors (situational factors or environmental factors) that affect the consumer's intention to buy and the lack of consideration of moral commitment which will influence ethical behavior (Chaudhary, 2018; Joshi *et al.*, 2015; Liu *et al.*, 2020b; Sun *et al.*, 2019).

Therefore, Liu *et al.* (2020a) revealed that the extended TPB model that incorporates moral norms as an intermediary in the relationship between subjective norms and purchase intentions is more suitable for determining the green purchase intentions of Chinese consumers. Chaudhary (2018) extended the TPB by including perceived value and willingness to pay in predicting the green buying intentions of Indian millennials. Joshi *et al.* (2015) reviewed that TPB research model should incorporate knowledge, product's functional, price and inconvenience to predict consumers' intention towards green products. These extensions and modifications to the original TPB structure may help to identify potential factors that affect consumers' willingness to purchase green products and identify the reasons for the observed inconsistencies in green buying attitudes and behaviors (Liu *et al.*, 2020a; Sun *et al.*, 2019).

A result shows that the important driving factors of green purchase intention are environmental concern, product functions and green attributes whereas the main obstacles to consumers' green purchases are the high product prices and inconvenient to purchase (Joshi *et al.*, 2015). Besides that, significant variables influencing consumer purchase intention towards green residential buildings include the attitude, financial risk, environmental

concern, perceived moral obligation, perceived self-identity and perceived value (Tan *et al.*, 2018). Subsequently, the purchase intention is a vital predictor of consumers towards green items (Chaudhary, 2018; Tan *et al.*, 2018; Zhuang *et al.*, 2021).

### **Theory of Planned Behavior**

Theory of Planned Behavior indicates behavioral intention, which predicts whether a person will perform a certain behavior and the central dependent variable of TPB is consumer intention, which shows that a person is prepared to act in a certain way (Ajzen, 1991). The TPB is an extended model from the theory of reasoned action (TRA) (Ajzen, 1991). According to the TRA, individual behaviour is determined by two main factors which are attitude and social norms (Al-Suqri *et al.*, 2015). The TRA model assumes that an individual's perception of what others think is relevant is affected by his/her intentions, and attitudes play a major role in predicting behavior but behavior is not completely controlled by the individual's volition (Ajzen, 1991; Al-Suqri *et al.*, 2015; Liu *et al.*, 2020).

Therefore, TPB added one more component as a determining factor of individual behaviour called perceived behavioural control (Ajzen, 1991; Al-Suqri *et al.*, 2015; Joshi *et al.*, 2015). In short, actual behavior is determined by behavioral intentions and which is affected by three factors: attitudes toward behavior, subjective norms and perceived behavioural control (Ajzen, 1991). TPB assumes that people are willing to perform particular actions when people who have a positive attitude towards behavior, the implementation of subjective norms about behavior is beneficial and the greater the tendency to perceive behavioural control (Ajzen, 1991; Varah *et al.*, 2021). Hence, behavioral intention is determined by three significant elements in the TPB structure, namely attitude toward behavior, subjective norms of behavior, and perceived behavioural control. These three principle factors are also considered suitable for predicting pro-social and environmentally friendly actions, such as preference for green product (Maichum *et al.*, 2016; Varah *et al.*, 2021) and green cosmetic (Kim *et al.*, 2011; Wilson *et al.*, 2018). According to the TPB, attitude is the first predictor and a key determinant of behavioral intention (Ajzen, 1991). Attitude can be regarded as a person's evaluation level of a particular behavior, whether it is favorable or unfavorable (Ajzen, 1991). Tan *et al.* (2017) defined attitude as a mental state of preparation, learning from experience, has a specific impact on a person's response to a situation, an object or a person related to it. Hence, green attitude refers to an individual's attitude towards the environment, which is conducive to protecting the environment, protecting natural resources or reducing environmental degradation (Amoako *et al.*, 2020; Casalo *et al.*, 2018). Liobikienė *et al.* (2016) analysis expanded attitude concept and analysed impact of interaction of confidence and knowledge in green products on purchase behavior.

The second predictor is subjective norms which refers to people responding to important reference groups, such as family and peers with specific behaviors and when people decide to perform specific behaviors, these responses will be taken into consideration (Ajzen, 1991). Ajzen (1991) claimed that the fundamental factor of social influence on behavioral intentions is subjective norms since subjective norms related to sensitivity of individuals to social pressures to perform specific behaviors. People may or may not engage in certain behavior when they believe that a person who is important to them either accepts or condemns a certain behavior (Amoako *et al.*, 2020). Sun *et al.* (2019) emphasized that subjective norms are a decisive factor that positively affects China's green product purchase intentions. This is

because of the collectivist culture of Chinese society, Chinese people believed that they must be consistent with others and follow subjective norms to build a harmonious community between people (Sun *et al.*, 2019; Yen *et al.*, 2017).

Perceived behavioural control refers to the perceived ease or difficulty of performing a certain behavior is last predictor in TPB (Ajzen, 1991). The analysis of Ajzen (2002) concluded that perceived behavioural control should contain two distinct components which are self-efficacy and controllability. Self-efficacy refers to the degree to which people believe in their abilities and ease of performing certain behaviors then controllability refers to the individual's perception of whether the behavior is completely controlled (Ajzen, 2002; Liu *et al.*, 2020a). On the other hand, Varah *et al.* (2021) identified that perceived behavioural control is resulted of control belief and perceived power. Control beliefs refer to individuals' perceptions of how the environment responds to their actions and behaviors while perceived power refers to the individual's assessment of the situation through factors such as time, opportunity and money (Ajzen, 2002; Varah *et al.*, 2021). A study shows that when consumers think they can control factors, they are more willing to participate in green purchasing behavior (Sun *et al.*, 2019).

Consequently, Liobikiene *et al.* (2016) study showed that the most applicable theory of green products purchase determinants is the TPB because it is used for predicting human behavior. Sun *et al.* (2019) result showed that that attitude, subjective norms and perceived behavioural control positively affect purchase intentions on green products. On the other hand, Liu *et al.* (2020a) added moral norms as a predictive factor in TPB to study the potential factors that influence Chinese consumers' willingness to purchase green products.

## **Hypotheses Development**

### **Attitude and Green Purchase Intention**

Attitude refers to the outcome of personal behaviour, whether positive or negative and willingness to perform the task (Varah *et al.*, 2021). Consumers' attitude predicting their behavior and deciding what to buy is part of the consumer behavior (Singhal *et al.*, 2018). When consumers perceive an attitude toward the environment, they believe that behaviour results will help to minimize environmental degradation, conservation and preservation of natural resource (Casalo *et al.*, 2018). Therefore, attitudes can be used to predict green purchasing intentions through the purchase of green products (Sun *et al.*, 2019). When the consumer has a positive attitude toward eco-friendly products, the intention to purchase will be stronger (Sun *et al.*, 2019). Besides that, positive images and emotions are the fundamental reactionary power that shape consumers attitudes and affect their willingness to buy environmentally friendly products (Suki, 2016; Thøgersen *et al.*, 2015). When consumers who have a more positive attitude toward the environment are more likely to engage in environmentally beneficial practices such as minimizing plastic containers, shopping for recyclable products, and purchasing sustainable goods (Varah *et al.*, 2021). Studies indicated that consumer attitudes are not only an important predictor of green purchasing decisions but also the intention of diverse ecological behaviors such as reuse and recycle activities in daily life or participate in socially responsible consumption (Nguyen *et al.*, 2019a; Prendergast *et al.*, 2019). Honkanen *et al.* (2015) identified that consumers' attitudes played a critical role in predicting their motivation to buy green seafood in addition to the influence of friends and family. Schniederjans *et al.* (2014) also indicated that consumers' attitudes towards sustainable development had an impact on their purchasing intentions for green products. In addition, the consumer attitude is more likely to buy energy-saving devices

(Tan *et al.*, 2017; Waris *et al.*, 2020; Xu *et al.*, 2017). Tan *et al.* (2018) found out that those who have a more positive attitude towards greenhouses will be more likely to buy such houses. This also aligns with the study showed that eco-labelled residential buildings have a positive effect on consumer attitudes to behavioural intentions (Liu *et al.*, 2020b). Based on the literature, the following hypothesis is proposed:

H1: Attitude positively and significantly influences consumers' purchasing intention towards green products

### **Subjective Norm and Green Purchase Intention**

Subjective norms can be described as the perception of the social pressure on individuals who are important to them and motivate them to adopt specific behaviours (Ajzen, 2020). Subjective norms refer to people who are persuaded by family or friends and educated to purchase environmentally friendly goods (Wang, 2014). The subjective norm can be comprehended as the norm according to personal motivation based on individual reference or recommendation (Troudi *et al.*, 2020). People conform to subjective norms because their referrers advise them on proper or beneficial behaviour in the community, or because they are afraid of the social pressure (Huang *et al.*, 2014). Numerous studies identified that consumers would develop positive intents to purchase green products once they recognize that their "significant others" intend to do so (Amoako *et al.*, 2020; Paul *et al.*, 2016; Suki, 2016).

Responding to social and ethical responsibilities is the key driving force for the implementation of environmental behaviours, so when people feel greater pressure from the reference group, it may lead to more participation in environmental behavior by purchasing environmentally friendly products (Ko *et al.*, 2017; Wang, 2014). Haj-Salem *et al.* (2021); Prendergast *et al.* (2019) found that subjective norms have a positive impact on the recycling intentions. Consumers intend to buy sustainable products due to the influence of individual social environment (Choi *et al.*, 2019; Liobikienė *et al.*, 2016; Troudi *et al.*, 2020; Wang, 2014). In addition, while consumers are deeply trusted by others, they also hope that others can participate in environmental protection. (Pop *et al.*, 2020). Many studies have shown that subjective norms are variables that have a positive impact on the willingness to buy sustainable products (Maichum *et al.*, 2016; Varah *et al.*, 2021; Zhuang *et al.*, 2021), green clothing (Nguyen *et al.*, 2019a) and green cosmetic (Pop *et al.*, 2020). According to the above discussion, this study assumes that:

H2: Subjective norms positively and significantly influences consumers' purchasing intention towards green products.

### **Perceived Behavioural Control and Green Purchase Intention**

Perceived behavioural control refers to measuring the difficulty or complexity of a person's behavior in a specific way (Ajzen, 2020; Amoako *et al.*, 2020). According to Kwon *et al.* (2020). perceived behaviour control as consumers who have enough chances and resources, as well as strong desires, will engage in certain behaviours. Perceived behavioural control is personal assessment of the situation through situational factors, such as money, convenience, and time, to perform particular behavior (Chaudhary, 2018; Varah *et al.*, 2021). For instance, consumers will buy green products that are easily available and affordable (Liobikienė *et al.*, 2016). Those who perceive behavioural control and responsibility for the environment are more willing to buy green products (Singhal *et al.*, 2018). Studies showed that when

consumers have more opportunities and resources with less challenges and more control over their behavior, then they are more likely to purchase the green products (Suki, 2016; Xu *et al.*, 2020; Zhuang *et al.*, 2021).

Nguyen *et al.* (2019b) determined that perceived behavioural control is one of a positive contribution to the purchase intention of green clothing. Consumers with perceptual behaviour control are positively committed to minimize the use of products with low environmental impact (Prendergast *et al.*, 2019). In addition, Liu *et al.* (2020b) discovered that perceived behavioural control of purchasing environmentally friendly products is positively related to the willingness to implement green purchasing behaviour. In the context of energy-saving behaviour, perceptual behaviour control has a significant effect on Beijing residents' behavioural intention to purchase energy-saving appliances (Tan *et al.*, 2017; Wang *et al.*, 2014). Wilson *et al.* (2018) also revealed that, compared with other variables, the perceived behavioural control is more significant variable, which directly affects the purchase intention of green cosmetics. Moreover, Qi *et al.* (2021) recognized that perceived behavioural control is an important indicator of willingness to buy sustainable food. This is confirmed by a study that the greatest impact of perceived behavioural control on the purchase intention of Italian consumers for organic milk is mainly due to convenience issue (Carfora *et al.*, 2019). Therefore, this study proposes the following hypothesis:

H3: Perceived behavioural control positively and significantly influences consumers' purchasing intention towards green products.

#### **Price and Green Purchase Intention**

Price has been regarded as one of the most critical roles in the decision-making process of consumers (Yadav *et al.*, 2017). Price also serves as an obstacle to the purchase intention and behavior of green products (Chaudhary, 2018). This is because environmentally friendly products have been found to be more expensive than traditional products, which may be due to processing costs, selection of better raw materials and additional costs for label certification (Ling, 2013; Zhao *et al.*, 2015). Kaufman (2014) claimed that to ensure that prices do not become an obstacle to the purchase of environmentally friendly products, government measures could reduce the price difference by subsidizing green consumption or charging fees for the consumption of traditional goods. Evidently, price is the most significant factor to purchase green products (Liobikiene *et al.*, 2016; Tan *et al.*, 2018). When consumers perceive a price difference between green and non-green products, they are more inclined to purchase the green products when they are less expensive (Aschemann *et al.*, 2017).

A study showed that consumers are unwilling to pay extra, even though they care about sustainable development and prefer to choose accommodation with green practices (Manaktola *et al.*, 2007). Further study also showed that when consumers have a better understanding of the advantages of biofuels, consumers are less willing to pay high prices for such green products (Lanzini *et al.*, 2016). Chaudhary (2018) highlighted those American consumers are hesitant to pay extra price for green products. Similarity, a study reported that the willingness to spend more was found to be negatively associated with the intention to buy green personal care items (Ling, 2013). Moreover, Van Doorn *et al.* (2015) indicated that price has a negative impact on the purchase of green products. Considering the above discussion, this study proposes the following hypothesis:

H4: Price negatively and significantly influences consumers' purchasing intention towards green products.

### Product Knowledge and Green Purchase Intention

Product knowledge about green products refers to the individual's ability to distinguish the difference between ordinary items and green items; able to identify ecological icons or statements (Al Mamun *et al.*, 2018; Sun *et al.*, 2019). Product knowledge also regarded as one of the most vital factors that affect all stages of a consumers' decision-making process (Sun *et al.*, 2019). Therefore, Al Mamun *et al.* (2018) stressed that consumers should be educated about the product's overall influence on the environment, as well as whether the product is manufactured in an environmentally responsible way. On the other hand, Zsoka *et al.* (2013) claimed mentioned that increase awareness of environmental issues may enhance people's concern but it may not always lead to behavioural changes. As studies showed that when consumers have sufficient information and product knowledge about sustainable products, they have a greater willingness to purchase green products (Suki, 2016; Troudi *et al.*, 2020).

Cheah *et al.* (2011) pointed out that product knowledge is significantly related to consumers' green purchasing intentions; when consumers are environmentally conscious, they intend to buy environmentally friendly products. Kanchanapibul *et al.* (2014) determined that knowledge is the main driving force behind young consumers' willingness to participate in green purchasing. Subsequently, Polonsky *et al.* (2012); Groening *et al.* (2018) identified that green purchasing intentions are deeply influenced by knowledge. Studies identified that product knowledge also significantly affects consumers' green purchases in different context, such as organic food (Nuttavuthisit *et al.*, 2017; Thøgersen *et al.*, 2015), ethical or environmentally fashionable products (Han *et al.*, 2017; Liu *et al.*, 2021) and organic personal care products (Zollo *et al.*, 2021). Accordingly, this study proposes the following hypothesis: H5: Product knowledge positively and significantly influences consumers' purchasing intention towards green products.

### Research Framework

This study aims to measure the relationship between attitude, subjective norms, perceived behavioural control, price, product knowledge and consumers' willingness to buy green products as shown in Figure 3.



Figure 3: Research Framework

## Research Methodology

### Research Design

The research design specifies the details of choosing respondents and variables, collecting and evaluating data, as well as controlling irrelevant variability in order to solve a research problem (Dannels, 2018). Bloomfield *et al* (2019) defined research design as a plan that provides the infrastructure to integrate all the elements of quantitative research so that the results are unbiased, reliable and can be summarized to the greatest extent. Regardless of the complexity of the statistical analysis, the results may be meaningless if an ineffective research design was adopted (Dannels, 2018). Therefore, a research design aims to provide an appropriate research design for the purpose of a study (Sileyew, 2019). There are three types of research design such as exploratory, descriptive and explanatory (Rahi, 2017).

When researchers have little or unfamiliar with a situation or problem, naturalistic observation methods or qualitative approach are particularly useful for exploratory purposes (Geoffrey, 2019). In addition, when the concepts are not well-defined to generate an operational definition, exploratory purposes are frequently used in the early stages of study for gaining new perspectives on current issues and problem (Rahi, 2017). On the other hand, descriptive research methods refer to a sort of study that seeks to gather data and to have a clear picture on the status of phenomenon (Rahi, 2017). Descriptive research provides a wealth of information, such as an accurate overview of people, events, or situations that are easy to understand and explain, and this method can also identify problems and propose solutions (Sileyew, 2019). Besides descriptive design is a method of conducting research that aims to discover the occurrence of variables or the association among variables (Abutabenjeh *et al.*, 2018). On the other side, explanatory research typically uses in the form of casual relationships between the independent and variables to describe a scenario or problem.

The objective of this study is to investigate relationship between attitudes, subjective norms, perceived behavioural control, price, product knowledge and green purchase intention among Malaysian consumers by applying an extended TPB model. Since this study extend TPB to enhance green purchase intention and develop hypotheses to examine the variables that can influence green purchase intention. Hence, the most appropriate research design for this study is a descriptive research design.

### Population and Sampling

The target population is the group of people who will be studied for research conclusions (Gregory *et al.*, 2017). The target population is more refined than the overall population since it excludes any attribute that conflicts a research hypothesis, context or purpose (Asiamah *et al.*, 2017). The determination of target populations is important since it defines whether the survey's sampled cases are either eligible or ineligible (Zhao *et al.*, 2013). The term population refers to all individuals or items that are being studied, whereas sampling refers to the process of picking a subset of the population to investigate (Rahi, 2017). A smaller group of people may infer information about a bigger group of people (Acharya *et al.*, 2013). The type of sampling method is determined by the research study's nature (Rahi, 2017)

In general, there are two types of sampling methods which are probability sampling and non-probability sampling. Probability sampling is a sampling method in which each unit has an equal probability of being selected where as non-probability sampling is a sampling method in which the probability of each unit being selected is unknown or confirmed (Rahi, 2017).

Simple random sampling, systematic random sampling, stratified random sampling and cluster sampling are classified as types of probability sampling (Taherdoost, 2016). Convenience sampling, purposive sampling, quota sampling and snowball sampling are categorized as non-probability sampling techniques (Taherdoost, 2016).

Simple random sampling conforms to the definition of randomization which is a method of sampling in which each unit of the population has the same chance of being included in the sample (Rahi, 2017). On the other hand, the systematic sampling method is more practical than random sampling in terms of operational efficiency and it also assures that each unit has an equal chance of being included in the sample (Pal *et al.*, 2019). In systematic sampling method, the first unit is chosen at random, and the other units are chosen regularly according to a specified pattern (Taherdoost, 2016). Besides, stratified sampling divides the population into strata (or subgroups) with common characteristics such as gender, race, age, education, income and occupation and then randomly draws samples from each subgroup (Acharya *et al.*, 2013). Cluster sampling is the division of the entire population into clusters or groups, usually geographic regions. Subsequently, clusters are picked at random and all individuals of the cluster are included in the sample (Rahi, 2017; Taherdoost, 2016).

Due to the subjective nature of selecting the sample, non-probability sampling has several limits and hence is not a good representative of the population; yet it is useful when randomization is impractical, such as when the population is very big (Etikan *et al.*, 2016). Showkat *et al.* (2017) claimed that researcher can examine specific phenomena that have the capability to generate useful insights by using the non-probability method. Convenience sampling is a sort of non-probability sampling where members of the target population who fulfil a set of practical criteria such as ease of access, geographic closeness, availability at a specific time, or desire to participate are included in the study (Vehovar *et al.*, 2016). Quota sampling is a non-random sampling approach in which respondents are chosen based on specified parameters so that the overall sample has the same parameters distribution as the overall population (Taherdoost, 2016). Judgmental sampling, also known as purposive sampling, is a procedure in which a researcher uses his or her own judgement to select a group of people who are familiar with the topic (Rahi, 2017). In the snowball sampling technique, the researcher establishes a preliminary contract with a limited number of persons who are related to the research topic and utilizes them as a referral to make contact with others (Rahi, 2017).

In this study, the non-probability sampling technique was chosen using purposive sampling method which is a non-random strategy that does not require any underlying ideas or a specified number of participants (Etikan *et al.*, 2016). The researcher determines what information is required and sets out to discover persons who are willing to offer information based on their knowledge or experience (Etikan *et al.*, 2016). Scholars highlighted that the green context is complicated to understand and respondents who aged above 18 years old have a better capacity to analyse and evaluate possibilities before making a decision (Chan, 2001; Paul *et al.*, 2016). Tan (2011) claimed that Malaysians over 18 are individual potential buyers of green products. Hence, the targeted respondents of this study are Malaysian consumers who aged 18 years old and above.



### Research Instrument

The quantitative research design was utilized in this study to examine the hypotheses that have been developed to meet the research objectives. This method is applicable to collect a large number of samples and numerical data that can be measured by statistical analysis (Trigueros *et al.*, 2017). In addition, the quantitative method explores the relationships between variables and provides an in-depth insight into the problem of interest (Vogt, 2011). The questionnaire was distributed to target respondents via Google form to obtain and gather data for this study. The target respondents of this study were Malaysian consumers who aged above 18 years old, and the target respondents was examined in terms of attitude, subjective norm, perceived behavioural control, price, product knowledge and green purchase intention.

This study applied closed-end survey. This study consists of 28 questions and is divided into two parts. Part A consists of the demographic information of the respondents and Part B consists of independent variables (factors affecting consumers' green purchase intention) and dependent variable (green purchase intention). Part A is a respondent's background information, which include general questions on gender, age, education, occupation, and individual income using nominal scale and ordinal scale. Part B of the questionnaire consists of 23 items that are graded on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). 5-point Likert-type scale was utilized in order to boost response rates and quality, with a particular emphasis on lowering respondent annoyance (Rahi, 2017). If an individual's position of neutrality is exactly in the middle between two extremes of strongly agree and strongly disagree, it gives them the freedom to pick any response in either direction in a balanced and symmetric manner (Joshi *et al.*, 2015). The five-point scale is easily understood by respondents and allows them to react more effectively (Rahi, 2017). Furthermore, Likert items would become less accurate when the number of ratings drops below five (Rahi, 2017). Jigeesh (2019) also pointed out that 5-point Likert scale is better than 7-point Likert scale to get reliable answer and to avoid confusion and get reliable answers, the 5-point system is better than the 7-point system. As a result, the result of the data would be more reliable. This section seeks to identify the elements that influence consumers' willingness to purchase green products.

### Data Analysis and Results

Data analysis is a method of analysing, cleaning, transforming, modelling and transforming data into meaningful information to determine trends, patterns or relationships to draw conclusions in order to address research challenges and help decision-making (Brown *et al.*, 2014). Descriptive analysis, normality analysis, reliability test, multicollinearity test and multiple regression analysis were applied to analyse data for the hypotheses testing. In this study, Statistical Package for the Social Science (SPSS) was applied to clarify and examine the survey data

### Response Rate

The data collection was performed online using the Google form from November 2021 to December 2021. The Google form was distributed to respondents above the age of 18 using WhatsApp and LinkedIn via private message. The minimum sample size based on calculation of Tabachnick *et al.* (2007) was 140. The total number of returned surveys was 220. However,

the overall accepted sample was 216 with 4 surveys being excluded due to incomplete responses from respondents. As a result, the response rate is 98.18% in this study.

### Profile of Respondents

Descriptive analysis was carried out to obtain information about the demographics of the respondents. From the perspective of gender, there were more women (73.1%) than men (26.9%). In terms of age, majority of respondents (33.8%) were between 41 and 50 years old. This was followed by respondents between 31 and 40 years old (28.7%), 18-30 years old (25.0%) and 9.3% between 51 and 60 years old. The remaining 3.2% were above 61 years old.

In this study, most of the respondents were well-educated which more than half (53.2%) of the respondents had a bachelor's degree and 8.3% of the respondents were postgraduate level. Furthermore, 18.1% of them holding a certificate or diploma. On the other hand, 18.1% of them completed their secondary education and 2.3% of them received university foundation level.

There was a big difference in occupational status whereby approximately three-quarters of the respondents (70.4%) were private sector whereas 11.6% of the respondents were public sector. This was followed by housewife (6.9%), entrepreneurs (6.5%), and 2.8% of respondents were students. Besides, only 1.8% of respondents were retirees.

In terms of monthly income, 21.3% of respondents earned (RM 2000 and below) income category and 23.6% of respondents earned (RM 2001 – RM 3000) income category whereas about 27.3% of respondents had earned more than RM 6001 and above per month. Furthermore, 11.1% of respondents reported that their income level between RM 3001 and RM 4000, 5.6% of respondents reported that their income level between RM 4001 and RM 5000 and 11.1% of them earned between RM 5001 and RM 6000.

### Descriptive Analysis

Since Likert scale is an ordinal or interval scale, descriptive statistics in the form of mean and standard deviations were conducted for the five principal constructs of the study. The findings presented in Table 1 showed that the average value of attitude and price is about 4 (agree). On the other hand, subjective norm, perceived behavioral control, product knowledge and green purchase intention have a mean value greater than 3 but less than 4. In general, all variables are higher than the midpoint of the Likert five-point scale, which is greater than 3. Furthermore, subjective norm has highest standard deviation at 0.9185 while attitude has lowest standard deviation at 0.6142.

Table 1

#### *Descriptive Analysis*

<b>Variables</b>	<b>Mean</b>	<b>Std. Deviation</b>
Attitude	4.5093	0.6142
Subjective Norm	3.9830	0.9185
Perceived Behavioral Control	3.9965	0.7312
Price	4.0995	0.8331
Product Knowledge	3.6065	0.8628
Green Purchase Intention	3.7488	0.7216

### Normality Test

George (2011) stated that to verify a normal univariate distribution, values for asymmetry and kurtosis between -2 and +2 are regarded acceptable. However, Hair *et al.* (2010) claimed that data is normal if the skewness is between -2 and +2 and the kurtosis is between -7 and +7. As shown in Table 2, Skewness and Kurtosis values for attitude, subjective norm, perceived behavioral control, price, product knowledge and green purchase intention are between -2 and +2, which is within an acceptable range. Thus, tested variables follow a univariate normal distribution.

Table 2

*Values of Skewness and Kurtosis*

Variables	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Attitude	216	-1.196	0.166	1.288	0.330
Subjective Norm	216	-0.427	0.166	-0.845	0.330
Perceived Behavioral Control	216	-0.384	0.166	-0.561	0.330
Price	216	-0.700	0.166	-0.382	0.330
Product Knowledge	216	-0.135	0.166	-0.572	0.330
Green Purchase Intention	216	-0.163	0.166	-0.888	0.330

### Reliability Test

The Cronbach Alpha coefficient is used to determine internal consistency reliability (Ursachi *et al.*, 2015). The internal consistency measures the consistency of outcomes across variables within a test (Cortina, 1993). According to Taber (2018), the internal consistency is acceptable and reliable when the Cronbach alpha score is 0.7 or greater. However, Cronbach's Alpha value greater than 0.95 are not favorable, as it could indicate redundancy (Ursachi *et al.*, 2015). In this study, the Cronbach alpha value reported for each structure is higher than 0.70, indicating reliability as shown in Table 3. Since the ranged of attitude, subjective norm, perceived behavioral control, price, product knowledge and green purchase intention between 0.806 and 0.911. The coefficient alphas of these results exceeded the threshold value of 0.70, indicating a satisfactory level of reliability (Hair *et al.*, 2014).

Table 3

*Cronbach's Alpha Values*

Variables	No. of Item	Cronbach's Alpha
Attitude	4	0.893
Subjective Norm	3	0.911
Perceived Behavioral Control	4	0.828
Price	4	0.870
Product Knowledge	4	0.911
Green Purchase Intention	4	0.806

**Multicollinearity Test**

As depicted in Table 4, the variance inflation factors (VIF) values for attitude, subjective norm, perceived behavioral control, price and product knowledge are less than 10 and each of the variable tolerance value is higher than 0.1. This implied that absence of multicollinearity in this study.

Table 4

*Multicollinearity Test*

Collinearity Statistics (Dependent Variable: Green Purchase Intention)		
Variables	Tolerance	VIF
Attitude	0.457	2.190
Subjective Norm	0.317	3.156
Perceived Behavioral Control	0.350	2.858
Price	0.817	1.224
Product Knowledge	0.343	2.912

**Multiple Regression Analysis**

Table 5 presents the results of the hypothesis test based on the multiple regression analysis. Based on the findings, all independent variables indicate a significant and positive association with green purchase intention, including attitude, subjective norm, perceived behavioral control, price and product knowledge because p-value of the factors are lower than 0.05.

The results indicated that attitude ( $t = 4.439$ ,  $p < .000$ ,  $\beta = 0.242$ ), subjective norm ( $t = 3.655$ ,  $p < .000$ ,  $\beta = 0.239$ ) and perceived behavioral control ( $t = 3.206$ ,  $p < .002$ ,  $\beta = 0.200$ ) have a positive and significant effect on purchase intention of green products. Therefore, H1 – H3 are supported. On the other hand, price has a significant and negative relationship with the purchasing intention of green products ( $t = -2.086$ ,  $p < .038$ ,  $\beta = -0.085$ ). Thus, H4 is supported. The findings also provide evidence to support H5, whereby product knowledge ( $t = 2.663$ ,  $p < .008$ ,  $\beta = -0.168$ ) demonstrates a significant positive influence on green purchase intention. In general, the results of hypothesis testing are summarized in Table 4.7. The greatest predictor of green purchase intention is attitude, with a beta value of 0.242.

Table 5  
Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Attitude	0.285	0.064	0.242	4.439	0.000
Subjective Norm	0.188	0.051	0.239	3.655	0.000
Perceived Behavioral Control	0.168	0.052	0.200	3.206	0.002
Price	-0.074	0.035	-0.085	-2.086	0.038
Product Knowledge	0.140	0.053	0.168	2.663	0.008

a. Dependent Variable: Green Purchase Intention

## Discussion and Conclusion

### Discussion of Findings based on Research Objectives

#### RO1: To examine the influence of attitude on purchase intention of green products

Finding indicates that attitude is statistically significant and positively correlated to green product purchase intention. The finding of this study was in line with previous studies of Suki (2016), Tan *et al.* (2018), Nguyen *et al.* (2019b) and Sun *et al.* (2019). The result shows that consumers' attitudes towards environmentally friendly products have significant and positive impact on their purchase intentions. This finding also confirms the previous finding of Honkanen *et al.* (2015), consumer attitudes play an important role in predicting the motivation to purchase environmentally friendly products. This study implies that majority of respondents' intentions to purchase green products would increase when their attitudes regarding environment friendly products increase. This shows that Malaysian consumers have a positive attitude towards purchase intentions, because they believe that the positive results of purchasing environmentally friendly products are beneficial and help protect the environment, protect natural resources and minimize environmental degradation. Therefore, H1 is supported in this study.

#### RO2: To examine the influence of subjective norms on purchase intention of green products

Result demonstrates that subjective norms had a significant and positive effect on the consumer purchase intention towards green products. The result is consistent with previous studies of Maichum *et al.* (2016), Nguyen *et al.* (2019b), Pop *et al.* (2020), Varah *et al.* (2021) and Zhuang *et al.* (2021). The finding shows that subjective norm plays a significant role and has a positive impact on the purchase intention of ecological products. The result of this study also concurs with Taufique *et al.* (2021) finding that subjective norms such as social pressure are positively connected with consumers' willingness to purchase green products. Majority of respondents may feel social pressure and need to participate in environmental protection activities such as green product purchases according to subjective norms to meet the expectations of external references. The result represents those Malaysian consumers recognize that their significant reference group prefers environmentally friendly products, and they will have a higher intention to purchase them. Hence, H2 is supported.

**RO3: To examine the influence of perceived behavioural control on purchase intention of green products**

The findings provided support for H3 to confirm that perceived behavioural control is positively and significantly related to green purchase intention. This finding is aligned with previous studies such as (Tan *et al.*, 2017; Nguyen *et al.*, 2019b; Prendergast *et al.*, 2019; Liu *et al.*, 2020b). The finding also corroborates with previous study of Xu *et al.* (2020) and found that willingness to engage in green purchase intention is significantly associated with perceived behavioural control of purchasing ecologically friendly products. When purchasing green products, respondents would consider some external elements such as affordability, availability and ability that may be beyond their control. Malaysian consumers' perceived behavioural control will be stronger to trigger them for green purchase if they believe that they have more resources and opportunities with fewer obstacles. Correspondingly, result implies that when Malaysian consumers perceive that they can manage uncontrollable external factors such as price, skill and knowledge, then, they are more willing to purchase environmentally friendly products.

**RO4: To examine the influence of price on purchase intention of green products**

The finding implies that pricing has a significant and negative impact on consumers' intentions to purchase green products. This finding was consistent with previous studies of Van Doorn *et al.* (2015), Lanzini *et al.* (2016) and Chaudhary (2018). Price plays a crucial role in the minds of respondents in the context of purchasing green products. When Malaysian consumers believe that price is more important, they will rarely purchase green products. This is because when it comes to pricing, it is also critical to consider one's financial level (Liobikienė *et al.*, 2016). This can be explained that more than 40% of respondents in the study had an income level less than RM3000, thus, they became very price-sensitive when making purchase decisions. Consumers in Malaysia may be reluctant to purchase green products when their budgets are constrained due to lower earnings, which has resulted price perceptions as barriers. Apparently, Malaysian consumers are unwilling to spend more money for environmentally friendly products. Thus, H4 is supported.

**RO5: To examine the influence of product knowledge on purchase intention of green products**

Result demonstrates that product knowledge a positive and significant effect on the consumer purchase intention towards green products, which supports H5. The finding is in favour of the results of previous studies of (Han *et al.*, 2017; Groening *et al.*, 2018; Liu *et al.*, 2021; Zollo *et al.*, 2021). The finding highlighted that product knowledge is a significant predictor of a consumer's willingness to engage in green purchasing (Kanchanapibul *et al.*, 2014). However, product knowledge was the weakest power in predicting consumers' green purchase intentions in this study. This result indicates that respondents are not familiar with green products. This finding is consistent with the Malaysia scenario. Green product promotion in Malaysia is still in its early stages, and consumers are unfamiliar with green products. When Malaysian consumers have more information about environmentally friendly items, they are more willing to purchase them. This implies that consumers' motivation to act responsibly toward the environment is consequently influenced by user experience and knowledge of environmentally friendly product as well as environmental challenges. As a result, the finding reveals that product knowledge has a favourable impact on green purchase intent among the Malaysian consumers.

### Research Implications

The findings of this study consist of several theoretical and practical implications. From a theoretical point of view, this study contributes to academic research by extending the TPB framework in terms of green purchase intentions among consumers in Malaysia. This study attempts to examine the willingness of Malaysian consumers toward green products by using an extended model of the TPB, which incorporates price and product knowledge.

The findings show that attitude is a strongest determinant of behavioral intentions as attitude has a positive and significant impact on Malaysian consumers' green purchase intentions. Moreover, present study also determined the positive and significant relationship between subjective norm and green purchase intentions. The study findings show that subjective norms are the second significant determinant for explaining Malaysian consumers' willingness to purchase ecological products. Furthermore, perceived behavioral control was also found to be a significant factor in explaining Malaysian consumers' willingness to purchase green products in this study. Thus, this study contributes to the green consumption literature by providing a solid theoretical TPB framework to predict the purchase intention and behavior of Malaysian consumers.

Apart from that, this study also extends the TPB by highlighting the significance of additional constructs, which include price and product knowledge in predicting green purchase intention consumers in Malaysia. The findings present that price has a negative and significant relationship with the purchase intention of ecological products. In addition, the study results show that product knowledge is the least important element predicting consumers' purchase intentions. However, the willingness to purchase green product by consumers may increase by enhancing the environmental product awareness level of consumers. This inspires future scholars to explore for more elements to deeply understand Malaysian consumers' purchasing intention and behavior in response to green products. Furthermore, purchase intention is established as a key underpinning psychological process where price and product knowledge could influence green buying behavior significantly.

From a practical point of view, the findings of this study are vital as it could provide several practical implications for business practitioners to establish marketing strategies as well as provide policy recommendations and guidance. The study found that attitude is the strongest determinant of predicting consumers' green purchase intention among the measured variables. Consumers who have a positive attitude towards environmentally friendly products are more likely to buy these products. Marketers and the government might collaborate to shape a positive image of green products and to help consumers to develop favourable perceptions toward green products. On the other hand, consumers are easily influenced by significant reference groups. In this study, subjective norm is the second most influential determinant of consumer intentions to purchase green products. To ensure business practitioners to expand the market share, famous public figures such as celebrities or influencers, could be employed to organize campaigns to emphasize the harmful effects of certain daily behaviours and to emphasize what should and should not be done to increase the environmental awareness of Malaysian consumers.

By considering the impact of perceived behaviour control, manufactures should promote more experience, information and knowledge on how consumers can conveniently acquire

sustainable product. Manufacturers also should attempt to justify the pricing differences between green and non-green items by highlighting the manufacturing costs and benefits of green products. Furthermore, marketers should pay close attention to the identification of acceptable platform and customise advertising to achieve a competitive advantage in the market by increasing green attitudes and purchase intentions. On the other hand, study found that product price discourages Malaysian consumers from purchasing environmentally friendly products. The government could offer financial subsidies to the green manufacturing industry to encourage more production companies to develop green products, thereby reducing manufacturing costs. The government should also encourage consumers to purchase green products by offering them with the appropriate rewards. Besides, product knowledge has a least significant impact on green purchase intentions. Strengthening education on green products can raise the awareness of consumers who are less willing to buy. Green product knowledge should be promoted with a focus on sustainable consumption and lifestyle behaviors. In addition, green product characteristics should be effectively communicated to consumers on mass media and marketers should emphasise the benefits of green products while assuring customers that the quality is like or better than that of alternative products.

### **Limitations and Future Recommendations**

Despite the significant implications of the study, there are some limitations that should be considered in future research. The first limitation is the implementation of a purposive sampling strategy on target respondents may lead to a misrepresentation problem of the Malaysia population. This study was performed in the states of Selangor and Johor, with most respondents being from Johor Bahru, which may not be representative of the entire Malaysian population. There are several improvements that could be implemented in the future for comparative research. Samples of similar subjects for future research should be collected based on the actual demographic structure of Malaysia. Besides that, respondents need to expand to other states in Malaysia for future research to fully understand overall situation in Malaysia. Future research can also examine the effect of similar variables and consumers from other countries to investigate the findings of this study. Furthermore, Malaysian females (73%) dominated the respondents in this study, which contradicts Malaysia's actual population structure. As a result, the population who can extend the results to Malaysia may be limited. The samples obtained for future research should prevent the domination of female group.

Apart from that, this study concentrated on intention of purchasing green products, rather than the actual buying behavior. Ajzen (2020) argued that although intention is the most precise and immediate indicator of actual behaviour, there are gaps between intention and actual behaviour of consumer. The intention of the consumer does not always reflect actual behavior (Sun *et al.*, 2019; Waris *et al.*, 2020). Further research could examine the purchasing behavior of green products to gain a deeper understanding of the of the tendencies in actual purchasing behavior or purchasing decisions. Thus, researchers should integrate actual consumer behaviour by conducting interviews or collecting data from the same consumers after a three-to-six-month period to improve research applicability

In addition, the R-squared value of green product purchase intention is shown as 71%. This finding implies that there are more contributing elements that may be explored in relation to



consumers' intentions to purchase green products. As this study only found that attitudes, subjective norms, perceived behavior control, price and product knowledge are important driving factors that determine consumers' willingness to purchase green products. Thus, this allows further experimental research to examine other factors that can be used as predictors of green purchase intentions. On the other hand, further research can explore these variables as moderators, which can provide a deeper understanding of the boundary conditions of the proposed relationship. Future research may need to incorporate the construct of purchase behaviour, as well as certain mediators or moderators, to better understand purchasing intention and purchasing behaviour toward green products.

### Conclusion

This study explores consumers' green purchase intentions according to modification of the TPB framework with significant variables (product knowledge and price). This finding determined that Malaysian consumers' willingness to purchase green products is positively and significantly affected by attitudes, subjective norms, perceived behavior control and product knowledge whereas it is negatively affected by price. The empirical findings indicate that extended model of the TPB has an impact on Malaysian consumers' intentions toward environmentally friendly products. This study contributes to the green marketing literature by examining the combination of variables in predicting green purchasing intention in an extended framework of the TPB. Moreover, this study identifies the appropriateness of extended TPB framework with additional variables such as price and product knowledge to predict consumers' intention toward purchasing ecological products in Malaysia. The empirical findings for this study are in line with most of the previous research. The limitations of the study such as lack of generalizability, geographic coverage limitations and variable constraints are discussed in detail. Recommendations for future study are suggested by diversifying research methods to obtain more precise and accurate finding. Moreover, future studies are recommended by adopting the TPB framework and include new elements in connection to states of Malaysia to have a more comprehensive understanding of green purchase intention.

### References

- Abutabenjeh, S., & Jaradat, R. (2018). Clarification of research design, research methods, and research methodology: A guide for public administration researchers and practitioners. *Teaching Public Administration, 36*(3), 237-258.
- Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it. *Indian Journal of Medical Specialties, 4*(2), 330-333.
- Afroz, R., Masud, M. M., Akhtar, R., Islam, M. A., & Duasa, J. B. (2015). Consumer purchase intention towards environmentally friendly vehicles: an empirical investigation in Kuala Lumpur, Malaysia. *Environmental Science and Pollution Research, 22*(20), 16153-16163.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes, 50*(2), 179-211.
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior 1. *Journal of applied social psychology, 32*(4), 665-683.
- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies, 2*(4), 314-324.

- Ajzen, I., Joyce, N., Sheikh, S., & Cote, N. G. (2011). Knowledge and the prediction of behavior: The role of information accuracy in the theory of planned behavior. *Basic and applied social psychology, 33*(2), 101-117.
- Al-Kumaim, N. H., Shabbir, M. S., Alfarisi, S., Hassan, S. H., Alhazmi, A. K., Hishan, S. S., Al-Shami, S., Gazem, N. A., Mohammed, F., & Abu Al-Rejal, H. M. (2021). Fostering a Clean and Sustainable Environment through Green Product Purchasing Behavior: Insights from Malaysian Consumers' Perspective. *Sustainability, 13*(22), 12585.
- Al-Suqri, M. N., & Al-Kharusi, R. M. (2015). Ajzen and Fishbein's theory of reasoned action (TRA)(1980). In *Information seeking behavior and technology adoption: Theories and trends* (pp. 188-204). IGI Global.
- Al Mamun, A., Fazal, S. A., Ahmad, G. B., Yaacob, M. R. B., & Mohamad, M. (2018). Willingness to pay for environmentally friendly products among low-income households along coastal peninsular Malaysia. *Sustainability, 10*(5), 1316.
- Al Mamun, A., Mohan, K. M., Nawil, N. C., Masud, M. M., Muniady, R., & Zainol, N. R. (2020a). Environmentally Friendly Business Practices among Low-Income Households in Rural Peninsular Malaysia. *Sustainability, 12*(18), 7338.
- Al Mamun, A., Nawil, N. C., Hayat, N., & Zainol, N. R. B. (2020b). Predicting the Purchase Intention and Behaviour towards Green Skincare Products among Malaysian Consumers. *Sustainability, 12*(24), 10663.
- Alvarez-Risco, A., Mlodzianowska, S., García-Ibarra, V., Rosen, M. A., & Del-Aguila-Arcentales, S. (2021). Factors Affecting Green Entrepreneurship Intentions in Business University Students in COVID-19 Pandemic Times: Case of Ecuador. *Sustainability, 13*(11), 6447.
- Amoako, G. K., Dzogbenuku, R. K., & Abubakari, A. (2020). Do green knowledge and attitude influence the youth's green purchasing? Theory of planned behavior. *International Journal of Productivity and Performance Management*.
- Aschemann, & Zielke, S. (2017). Can't buy me green? A review of consumer perceptions of and behavior toward the price of organic food. *Journal of Consumer Affairs, 51*(1), 211-251.
- Asiamah, N., Mensah, H. K., & Oteng-Abayie, E. F. (2017). General, target, and accessible population: Demystifying the concepts for effective sampling. *The Qualitative Report, 22*(6), 1607.
- Augustine, A. A., Rindita, A. S., & Muniandy, S. L. (2019). Factors Influencing the Purchase Behaviour of Sustainable Fashion among Millennial Consumers in Kuala Lumpur. Proceedings of the 2nd International Conference on Big Data Technologies,
- Banoo, S. (2021). The future economy is green. Retrieved April 23, 2022, from <https://www.theedgemarkets.com/article/future-economy-green>
- Bhutto, M. H., Tariq, B., Azhar, S., Ahmed, K., Khuwaja, F. M., & Han, H. (2020). Predicting consumer purchase intention toward hybrid vehicles: testing the moderating role of price sensitivity. *European Business Review*.
- Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. *Journal of the Australasian Rehabilitation Nurses Association, 22*(2), 27-30.
- Bosnjak, M., Ajzen, I., & Schmidt, P. (2020). The theory of planned behavior: Selected recent advances and applications. *Europe's Journal of Psychology, 16*(3), 352.
- Briceno, C. E. B., & Santos, F. C. A. (2019). Knowledge management, the missing piece in the 2030 agenda and SDGs puzzle. *International Journal of Sustainability in Higher Education*.

- Brown, M. S., & Kudyba, S. (2014). Transforming unstructured data into useful information. In *Big Data, Mining, and Analytics: Components of Strategic Decision Making*. Taylor & Francis.
- Carfora, V., Cavallo, C., Caso, D., Del Giudice, T., De Devitiis, B., Viscecchia, R., Nardone, G., & Cicia, G. (2019). Explaining consumer purchase behavior for organic milk: Including trust and green self-identity within the theory of planned behavior. *Food Quality and Preference*, 76, 1-9.
- Casalo, L. V., & Escario, J.-J. (2018). Heterogeneity in the association between environmental attitudes and pro-environmental behavior: A multilevel regression approach. *Journal of Cleaner Production*, 175, 155-163
- Chan, R. Y. (2001). Determinants of Chinese consumers' green purchase behavior. *Psychology & Marketing*, 18(4), 389-413.
- Chaudhary, R. (2018). Green buying behavior in India: an empirical analysis. *Journal of Global Responsibility*.
- Cheah, I., & Phau, I. (2011). Attitudes towards environmentally friendly products: The influence of ecoliteracy, interpersonal influence and value orientation. *Marketing Intelligence & Planning*.
- Chen, C.-C., Chen, C.-W., & Tung, Y.-C. (2018). Exploring the consumer behavior of intention to purchase green products in belt and road countries: An empirical analysis. *Sustainability*, 10(3), 854.
- Chen, Y. S., & Chang, C. H. (2012). Enhance green purchase intentions. *Management Decision*.
- Choi, D., & Johnson, K. K. (2019). Influences of environmental and hedonic motivations on intention to purchase green products: An extension of the theory of planned behavior. *Sustainable Production and Consumption*, 18, 145-155.
- Chua, K. B., Quoquab, F., & Mohammad, J. (2019). Factors affecting environmental citizenship behaviour: an empirical investigation in Malaysian paddy industry. *Asia Pacific Journal of Marketing and Logistics*.
- Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of applied psychology*, 78(1), 98.
- Dahalan, D., Rahman, H. A., & D'Silva, J. L. (2020). Malaysian Public's Concern About the Environment During the Covid-19 Pandemic: A Study of a Selected State in Peninsular Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 10(15), 368-378.
- Dangi, N., Gupta, S. K., & Narula, S. A. (2020). Consumer buying behaviour and purchase intention of organic food: a conceptual framework. *Management of Environmental Quality: An International Journal*.
- Dannels, S. A. (2018). Research design. In *The reviewer's guide to quantitative methods in the social sciences* (pp. 402-416). Routledge.
- De Canio, F., Martinelli, E., & Endrighi, E. (2021). Enhancing consumers' pro-environmental purchase intentions: the moderating role of environmental concern. *International Journal of Retail & Distribution Management*.
- Dhanwani, N., Jainani, K., & Ojha, N. (2020). Green products a myth or worth: An Indian consumer perspective. *Int. J. Psychosoc. Rehabil*, 24, 18-22.
- Durif, F., Boivin, C., & Julien, C. (2010). In search of a green product definition. *Innovative Marketing*, 6(1), 25-33.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), 1-4.

- Fortune Business Insights. (2021). Green Technology and Sustainability Market Size, Share & Covid 19 Impact Analysis, By Component (Solutions, Services), By Industry (Air and Water Pollution Monitoring, Carbon Footprint Management, Crop Monitoring, Fire Detection, Forest Monitoring, Green Building, Soil Condition/Moisture Monitoring, Sustainable Mining and Exploration, Water Management, Weather Monitoring and Forecasting, and Other), and Regional Forecast, 2021-2028. Retrieved September 10, 2021 from <https://www.fortunebusinessinsights.com/toc/green-technology-and-sustainability-market-102221>
- Gazzola, P., Del Campo, A. G., & Onyango, V. (2019). Going green vs going smart for sustainable development: Quo vadis? *Journal of Cleaner Production*, 214, 881-892.
- George, D. (2011). *SPSS for windows step by step: A simple study guide and reference, 17.0 update, 10/e*. Pearson Education India.
- Ghazali, E., Soon, P. C., Mutum, D. S., & Nguyen, B. (2017). Health and cosmetics: Investigating consumers' values for buying organic personal care products. *Journal of Retailing and Consumer Services*, 39, 154-163.
- Ghazali, I., Abdul-Rashid, S. H., Dawal, S. Z. M., Aoyama, H., Sakundarini, N., Ho, F. H., & Herawan, S. G. (2021). Green product preferences considering cultural influences: a comparison study between Malaysia and Indonesia. *Management of Environmental Quality: An International Journal*.
- Gregory, S., Stevens, M., & Fraser, J. F. (2017). *Mechanical circulatory and respiratory support*. Academic Press.
- Groening, C., Sarkis, J., & Zhu, Q. (2018). Green marketing consumer-level theory review: A compendium of applied theories and further research directions. *Journal of Cleaner Production*, 172, 1848-1866.
- Hair, J., Black, W., Babin, B., & Anderson, R. (2010). Pearson Education International; Upper Saddle River, New Jersey: 2010. *Multivariate data analysis (7th Ed.)*[Google Scholar].
- Hair, J., Black, W. C., Babin, B., Anderson, R., & Tatham, R. (2014). Pearson new international edition. *Multivariate data analysis, Seventh Edition*. Pearson Education Limited Harlow, Essex.
- Haj-Salem, N., & Al-Hawari, M. A. (2021). Predictors of recycling behavior: the role of self-conscious emotions. *Journal of Social Marketing*.
- Han, J., Seo, Y., & Ko, E. (2017). Staging luxury experiences for understanding sustainable fashion consumption: A balance theory application. *Journal of Business Research*, 74, 162-167.
- Honkanen, P., & Young, J. A. (2015). What determines British consumers' motivation to buy sustainable seafood? *British Food Journal*.
- Huang, Y.-C., Yang, M., & Wang, Y.-C. (2014). Effects of green brand on green purchase intention. *Marketing Intelligence & Planning*.
- Illera, J. (2021). From Sustainable to Purposeful Beauty. In-cosmetics Asia Online Conference. Retrieved December 14, 2021 from <https://www.workcast.com/?cpak=5036223880242054&pak=9571960929165456>
- Jahanshahi, A., & Jia, J. (2018). Purchasing green products as a means of expressing consumers' uniqueness: Empirical evidence from Peru and Bangladesh. *Sustainability*, 10(11), 4062.

- Jaini, A., Quoquab, F., Mohammad, J., & Hussin, N. (2019). "I buy green products, do you...?": The moderating effect of eWOM on green purchase behavior in Malaysian cosmetics industry. *International Journal of Pharmaceutical and Healthcare Marketing*.
- Joshi, & Rahman, Z. (2015). Factors affecting green purchase behaviour and future research directions. *International Strategic management review*, 3(1-2), 128-143.
- Joshi, A., Kale, S., Chandel, S., & Pal, D. K. (2015). Likert scale: Explored and explained. *British Journal of Applied Science & Technology*, 7(4), 396.
- Kanchanapibul, M., Lacka, E., Wang, X., & Chan, H. K. (2014). An empirical investigation of green purchase behaviour among the young generation. *Journal of Cleaner Production*, 66, 528-536.
- Kashi, A. N. (2019). Green purchase intention: A conceptual model of factors influencing green purchase of Iranian consumers. *Journal of Islamic Marketing*.
- Kaufman, N. (2014). Overcoming the barriers to the market performance of green consumer goods. *Resource and Energy Economics*, 36(2), 487-507.
- Kautish, P., & Sharma, R. (2018). Study on relationships among terminal and instrumental values, environmental consciousness and behavioral intentions for green products. *Journal of Indian Business Research*.
- Ko, S. B., & Jin, B. (2017). Predictors of purchase intention toward green apparel products: A cross-cultural investigation in the USA and China. *Journal of Fashion Marketing and Management: An International Journal*.
- Kwon, J., & Ahn, J. (2020). Socio-demographic characteristics and green consumption behavior in developing countries: the case of Malaysia. *Social Responsibility Journal*, ahead-of-print(ahead-of-print). <https://doi.org/10.1108/SRJ-02-2020-0071>
- Lanzini, P., Testa, F., & Iraldo, F. (2016). Factors affecting drivers' willingness to pay for biofuels: the case of Italy. *Journal of Cleaner Production*, 112, 2684-2692.
- Latip, M. S. A., NEWAZ, F. T., LATIP, S. N. N. A., MAY, R. Y. Y., & RAHMAN, A. E. A. (2021). The sustainable purchase intention in a new normal of COVID-19: An empirical study in Malaysia. *The Journal of Asian Finance, Economics and Business*, 8(5), 951-959.
- Le, A. N. H., Tran, M. D., Nguyen, D. P., & Cheng, J. M. S. (2019). Heterogeneity in a dual personal values–dual purchase consequences–green consumption commitment framework. *Asia Pacific Journal of Marketing and Logistics*.
- Lee, J. (2022). Managing a tightrope. Retrieved April 23, 2022, from <https://www.thestar.com.my/business/business-news/2022/02/26/managing-a-tightrope>
- Ling, C. Y. (2013). Consumers' purchase intention of green products: An investigation of the drivers and moderating variable. *Elixir Marketing Management*, 1, 14503-14509.
- Liobikiene, G., Mandravickaite, J., & Bernatoniene, J. (2016). Theory of planned behavior approach to understand the green purchasing behavior in the EU: A cross-cultural study. *Ecological Economics*, 125, 38-46.
- Liu, M. T., Liu, Y., & Mo, Z. (2020a). Moral norm is the key An extension of the theory of planned behaviour (TPB) on Chinese consumers' green purchase intention. *Asia Pacific Journal of Marketing and Logistics*, 32(8), 1823-1841.
- Liu, M. T., Liu, Y., & Mo, Z. (2020b). Moral norm is the key: An extension of the theory of planned behaviour (TPB) on Chinese consumers' green purchase intention. *Asia Pacific Journal of Marketing and Logistics*.

- Liu, Y., Liu, M. T., Perez, A., Chan, W., Collado, J., & Mo, Z. (2021). The importance of knowledge and trust for ethical fashion consumption. *Asia Pacific Journal of Marketing and Logistics*, 33(5), 1175-1194. <https://doi.org/10.1108/APJML-02-2020-0081>
- Liu, Y., Sheng, H., Mundorf, N., Redding, C., & Ye, Y. (2017). Integrating norm activation model and theory of planned behavior to understand sustainable transport behavior: Evidence from China. *International journal of environmental research and public health*, 14(12), 1593.
- Lopes, J. R. N., de Araujo Kalid, R., Rodríguez, J. L. M., & Ávila Filho, S. (2019). A new model for assessing industrial worker behavior regarding energy saving considering the theory of planned behavior, norm activation model and human reliability. *Resources, Conservation and Recycling*, 145, 268-278.
- Maichum, K., Parichatnon, S., & Peng, K.-C. (2016). Application of the extended theory of planned behavior model to investigate purchase intention of green products among Thai consumers. *Sustainability*, 8(10), 1077.
- Malay Mail. (2019). WWF-Malaysia says higher demand for sustainable products can help end haze. Retrieved April 17, 2022, from <https://www.malaymail.com/news/malaysia/2019/09/24/wwf-malaysia-says-higher-demand-for-sustainable-products-can-end-haze/1793881>
- Manaktola, K., & Jauhari, V. (2007). Exploring consumer attitude and behaviour towards green practices in the lodging industry in India. *International Journal of Contemporary Hospitality Management*.
- Manisalidis, I., Stavropoulou, E., Stavropoulos, A., & Bezirtzoglou, E. (2020). Environmental and health impacts of air pollution: a review. *Frontiers in public health*, 8, 14.
- Mansor, T. M. T., Ariff, A. M., Hashim, H. A., & Ngah, A. H. (2021). Whistleblowing intentions among external auditors: an application of the moderated multicomponent model of the theory of planned behaviour. *Meditari Accountancy Research*.
- Markets Research. (2021). Global natural and ORGANIC cosmetics Industry (2020 to 2027) - key market trends and drivers. Retrieved September 10, 2021, from <https://www.prnewswire.com/news-releases/global-natural-and-organic-cosmetics-industry-2020-to-2027---key-market-trends-and-drivers-301286622.html>
- Mo, Z., Liu, M. T., & Liu, Y. (2018). Effects of functional green advertising on self and others. *Psychology & Marketing*, 35(5), 368-382.
- Nguyen, Nguyen, L. H., & Nguyen, H. V. (2019a). Materialistic values and green apparel purchase intention among young Vietnamese consumers. *Young Consumers*.
- Nguyen, Yang, Z., Nguyen, T. T. N., & Cao, T. T. (2019b). Theory of Planned Behavior Approach to Understand the Influence of Green Perceived Risk on Consumers' Green Product Purchase Intentions in an Emerging Country. *International Review of Management and Marketing*, 9(3), 138.
- Nuttavuthisit, K., & Thøgersen, J. (2017). The importance of consumer trust for the emergence of a market for green products: The case of organic food. *Journal of business ethics*, 140(2), 323-337.
- Ogiemwonyi, O., & Harun, A. B. (2020a). Consumption of Green Product as a Means of Expressing Green Behaviour in an Emerging Economy: With the Case Study of Malaysia. *Environment and Urbanization ASIA*, 11(2), 297-312.
- Ogiemwonyi, O., Harun, A. B., Alam, M. N., Karim, A. M., Tabash, M. I., Hossain, M. I., Aziz, S., Abbasi, B. A., & Ojuolape, M. A. (2020b). Green product as a means of expressing green

- behaviour: A cross-cultural empirical evidence from Malaysia and Nigeria. *Environmental Technology & Innovation*, 20, 101055.
- Ojo, A. O., Raman, M., & Downe, A. G. (2019). Toward green computing practices: A Malaysian study of green belief and attitude among Information Technology professionals. *Journal of Cleaner Production*, 224, 246-255.
- Oliver, J. D., & Lee, S. H. (2010). Hybrid car purchase intentions: a cross-cultural analysis. *Journal of consumer marketing*.
- Onel, N., & Mukherjee, A. (2015). Understanding environmentally sensitive consumer behaviour: an integrative research perspective. *World Journal of Entrepreneurship, Management and Sustainable Development*.
- Pal, S. K., & Kumar, D. (2019). A study based on chain ratio-type and chain ratio-ratio-type exponential estimator for estimating the population mean in systematic sampling. *Int. J. Agricult. Stat. Sci*, 15(2).
- Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services*, 29, 123-134.
- Polonsky, M. J., Vocino, A., Grau, S. L., Garma, R., & Ferdous, A. S. (2012). The impact of general and carbon-related environmental knowledge on attitudes and behaviour of US consumers. *Journal of Marketing Management*, 28(3-4), 238-263.
- Pomarici, E., Amato, M., & Vecchio, R. (2016). Environmental friendly wines: a consumer segmentation study. *Agriculture and agricultural science procedia*, 8, 534-541.
- Pop, R.-A., Săplăcan, Z., & Alt, M.-A. (2020). Social media goes green—The impact of social media on green cosmetics purchase motivation and intention. *Information*, 11(9), 447.
- Prendergast, G. P., & Tsang, A. S. (2019). Explaining socially responsible consumption. *Journal of consumer Marketing*.
- Pudaruth, S., Juwaheer, T. D., & Seewoo, Y. D. (2015). Gender-based differences in understanding the purchasing patterns of eco-friendly cosmetics and beauty care products in Mauritius: a study of female customers. *Social Responsibility Journal*.
- Qi, X., & Ploeger, A. (2021). An integrated framework to explain consumers' purchase intentions toward green food in the Chinese context. *Food Quality and Preference*, 92, 104229.
- Quoquab, F., & Mohammad, J. (2019). *Green behavior and corporate social responsibility in Asia*. Emerald Publishing Bingley.
- Quoquab, F., Thurasamy, R., & Mohammad, J. (2017). *Driving green consumerism through strategic sustainability marketing*. IGI Global.
- Rahardjo, F. A. (2015). The roles of green perceived value, green perceived risk, and green trust towards green purchase intention of inverter air conditioner in Surabaya. *iBuss Management*, 3(2).
- Rahi, S. (2017). Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics & Management Sciences*, 6(2), 1-5.
- Rahim, R. A., Sulaiman, Z., Chin, T. A., Baharun, R., & Muharam, F. M. (2016). Measuring electronic word of mouth review adoption on green purchase intention using source credibility theory. *Advanced Science Letters*, 22(12), 4283-4287.
- Rana, J., & Paul, J. (2017). Consumer behavior and purchase intention for organic food: A review and research agenda. *Journal of Retailing and Consumer Services*, 38, 157-165.

- Rashid, N. (2009). Awareness of eco-label in Malaysia's green marketing initiative. *International Journal of Business and Management*, 4(8), 132-141.
- Ray, S. K., & Sahney, S. (2018). Indian consumers' risk perception in buying green products: the case of LED light bulbs. *Asia Pacific Journal of Marketing and Logistics*.
- Rogers, K. (2021). The CEO Imperative: Make sustainability accessible to the consumer. Retrieved April 23, 2022, from file:///C:/Users/TOSHIBA/Downloads/ey-make-sustainability-accessible-to-the-consumer-june-2021%20(1).pdf
- Statistics. (2022). Retrieved April 24, 2022, from <https://www.myhijau.my/statistics/>
- Schniederjans, D. G., & Starkey, C. M. (2014). Intention and willingness to pay for green freight transportation: An empirical examination. *Transportation Research Part D: Transport and Environment*, 31, 116-125.
- Showkat, N., & Parveen, H. (2017). Non-probability and probability sampling. *Media and Communications Study*, 1-9.
- Sileyew, K. J. (2019). Research design and methodology. In *Cyberspace*. IntechOpen.
- Singh, R. L., & Singh, P. K. (2017). Global environmental problems. In *Principles and applications of environmental biotechnology for a sustainable future* (pp. 13-41). Springer.
- Singhal, A., & Malik, G. (2018). The attitude and purchasing of female consumers towards green marketing related to cosmetic industry. *Journal of Science and Technology Policy Management*, ahead-of-print(ahead-of-print). <https://doi.org/10.1108/JSTPM-11-2017-0063>
- Sobuj, M., Khan, A. M., Habib, M. A., & Islam, M. M. (2021). Factors influencing eco-friendly apparel purchase behavior of Bangladeshi young consumers: case study. *Research Journal of Textile and Apparel*.
- Suki, N. M. (2016). Green product purchase intention: impact of green brands, attitude, and knowledge. *British Food Journal*.
- Sun, Y., & Wang, S. (2019). Understanding consumers' intentions to purchase green products in the social media marketing context. *Asia Pacific Journal of Marketing and Logistics*.
- Suryanda, A., Sigit, D. V., & Safitri, H. (2021). Relationship between environmental pollution knowledge and green purchase intention of students. AIP Conference Proceedings.
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5). Pearson Boston, MA.
- Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in science education*, 48(6), 1273-1296.
- Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. *How to Choose a Sampling Technique for Research* (April 10, 2016).
- Tan, B.-C. (2011). The role of perceived consumer effectiveness on value-attitude-behaviour model in green buying behaviour context. *Australian journal of basic and applied sciences*, 5(12), 1766-1771.
- Tan, C.-S., Ooi, H.-Y., & Goh, Y.-N. (2017). A moral extension of the theory of planned behavior to predict consumers' purchase intention for energy-efficient household appliances in Malaysia. *Energy Policy*, 107, 459-471.
- Tan, C. N. L., Ojo, A. O., & Thurasamy, R. (2019). Determinants of green product buying decision among young consumers in Malaysia. *Young Consumers*.



- Tan, W.-L., & Goh, Y.-N. (2018). The role of psychological factors in influencing consumer purchase intention towards green residential building. *International Journal of Housing Markets and Analysis*.
- Tanwir, N. S., & Hamzah, M. I. (2020). Predicting purchase intention of hybrid electric vehicles: Evidence from an emerging economy. *World Electric Vehicle Journal*, 11(2), 35.
- Taufique, K. M. R., & Islam, S. (2021). Green marketing in emerging Asia: antecedents of green consumer behavior among younger millennials. *Journal of Asia Business Studies, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/JABS-03-2020-0094>
- The Nielsen Global Survey. (2015), "Sustainability continues to gain momentum among Malaysian consumers", Retrieved September 10, 2021, from [www.nielsen.com/my/en/insights/news/2015/sustainability-continues-gainingmomentum-among-malaysians.html](http://www.nielsen.com/my/en/insights/news/2015/sustainability-continues-gainingmomentum-among-malaysians.html)
- Thøgersen, J., de Barcellos, M. D., Perin, M. G., & Zhou, Y. (2015). Consumer buying motives and attitudes towards organic food in two emerging markets: China and Brazil. *International Marketing Review*.
- Trigueros, R., Juan, M., & Sandoval, F. (2017). Qualitative and quantitative research instruments: Research tools. *Handbook of research methods and applications in political science*, 341-342.
- Troudi, H., & Bouyoucef, D. (2020). Predicting purchasing behavior of green food in Algerian context. *EuroMed Journal of Business*.
- Tsay, Y.-Y. (2009). The impacts of economic crisis on green consumption in Taiwan. PICMET'09-2009 Portland International Conference on Management of Engineering & Technology,
- United Nations. (n.d.). *Sustainable consumption and Production – United Nations sustainable development*. United Nations. Retrieved September 10, 2021, from <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>.
- Ursachi, G., Horodnic, I. A., & Zait, A. (2015). How reliable are measurement scales? External factors with indirect influence on reliability estimators. *Procedia Economics and Finance*, 20, 679-686.
- Van Doorn, J., & Verhoef, P. C. (2015). Drivers of and barriers to organic purchase behavior. *Journal of Retailing*, 91(3), 436-450.
- Varah, F., Mahongnao, M., Pani, B., & Khamrang, S. (2021). Exploring young consumers' intention toward green products: applying an extended theory of planned behavior. *Environment, Development and Sustainability*, 23(6), 9181-9195.
- Vazifehdoust, H., Taleghani, M., Esmailpour, F., & Nazari, K. (2013). Purchasing green to become greener: Factors influence consumers' green purchasing behavior. *Management Science Letters*, 3(9), 2489-2500.
- Vehovar, V., Toepoel, V., & Steinmetz, S. (2016). Non-probability sampling. *The Sage handbook of survey methods*, 329-345.
- Vogt, W. P. (2011). *SAGE quantitative research methods*. Sage.
- Wang, Wang, S., Wang, Y., Li, J., & Zhao, D. (2018). Extending the theory of planned behavior to understand consumers' intentions to visit green hotels in the Chinese context. *International Journal of Contemporary Hospitality Management*.
- Wang, Wong, P. P. W., & Alagas, E. N. (2020). Antecedents of green purchase behaviour: an examination of altruism and environmental knowledge. *International Journal of Culture, Tourism and Hospitality Research*.

- Wang, H., Ma, B., Bai, R., & Zhang, L. (2021). The unexpected effect of frugality on green purchase intention. *Journal of Retailing and Consumer Services*, 59, 102385.
- Wang, S.-T. (2014). Consumer characteristics and social influence factors on green purchasing intentions. *Marketing Intelligence & Planning*, 32(7), 738-753.  
<https://doi.org/10.1108/MIP-12-2012-0146>
- Wang, S., Lin, S., & Li, J. (2018). Exploring the effects of non-cognitive and emotional factors on household electricity saving behavior. *Energy Policy*, 115, 171-180.
- Wang, Z., Zhang, B., & Li, G. (2014). Determinants of energy-saving behavioral intention among residents in Beijing: Extending the theory of planned behavior. *Journal of Renewable and Sustainable Energy*, 6(5), 053127.
- Waris, I., & Hameed, I. (2020). An empirical study of consumers intention to purchase energy efficient appliances. *Social Responsibility Journal*.
- Wijekoon, R., & Sabri, M. F. (2021). Determinants That Influence Green Product Purchase Intention and Behavior: A Literature Review and Guiding Framework. *Sustainability*, 13(11), 6219.
- Wilson, N., Theodorus, E., & Tan, P. (2018). Analysis of factors influencing green purchase behavior: A case study of the cosmetics industry in Indonesia. *Jurnal Muara Ilmu Sosial, Humaniora, dan Seni*, 2(1), 453-464
- WWF. (2020). Living Planet Report 2020. Retrieved September 10, 2021  
<https://livingplanet.panda.org/en-us/>
- Xu, X., Hua, Y., Wang, S., & Xu, G. (2020). Determinants of consumer's intention to purchase authentic green furniture. *Resources, Conservation and Recycling*, 156, 104721.
- Xu, X., Maki, A., Chen, C.-f., Dong, B., & Day, J. K. (2017). Investigating willingness to save energy and communication about energy use in the American workplace with the attitude-behavior-context model. *Energy research & social science*, 32, 13-22.
- Yadav, R., & Pathak, G. S. (2017). Determinants of consumers' green purchase behavior in a developing nation: Applying and extending the theory of planned behavior. *Ecological Economics*, 134, 114-122.
- Yen, G.-F., Wang, R.-Y., & Yang, H.-T. (2017). How consumer mindsets in ethnic Chinese societies affect the intention to buy Fair Trade products. *Asia Pacific Journal of Marketing and Logistics*.
- Yusof, M. I. B. M., & Ariffin, M. (2020). A journey towards sustainability: a review on sustainable development implementation in Malaysia. IOP Conference Series: Earth and Environmental Science.
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of marketing*, 52(3), 2-22.
- Zhang, L., Fan, Y., Zhang, W., & Zhang, S. (2019). Extending the theory of planned behavior to explain the effects of cognitive factors across different kinds of green products. *Sustainability*, 11(15), 4222.
- Zhao, L., Tian, L., Cai, T., Claggett, B., & Wei, L.-J. (2013). Effectively selecting a target population for a future comparative study. *Journal of the American Statistical Association*, 108(502), 527-539.
- Zhao, R., & Zhong, S. (2015). Carbon labelling influences on consumers' behaviour: A system dynamics approach. *Ecological indicators*, 51, 98-106.
- Zhuang, W., Luo, X., & Riaz, M. U. (2021). On the Factors Influencing Green Purchase Intention: A Meta-Analysis Approach. *Frontiers in Psychology*, 12, 1074.

- Zinkernagel, R., Evans, J., & Neij, L. (2018). Applying the SDGs to cities: business as usual or a new dawn? *Sustainability*, *10*(9), 3201.
- Zollo, L., Carranza, R., Faraoni, M., Diaz, E., & Martin-Consuegra, D. (2021). What influences consumers' intention to purchase organic personal care products? The role of social reassurance. *Journal of Retailing and Consumer Services*, *60*, 102432.
- Zsoka, A., Szerenyi, Z. M., Szechy, A., & Kocsis, T. (2013). Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students. *Journal of Cleaner Production*, *48*, 126-138.