

# Factors affecting young adults' purchase intention of green food products in Malaysia

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## Abstract

This study aims to analyse how factors such as willingness to pay, green advertisement and trust affect the intention to purchase green food. Furthermore, this study also intends to explore the role of green food product attributes as a mediator. Survey questionnaires were collected from 306 university students through purposive sampling technique. The data was analysed using Partial Least Square Structural Equation Modelling (PLS-SEM) method. The findings indicated that green food product attributes have a significant mediation effect between the independent variables and purchase intention. The green advertisement was also found to have a complementary partial mediating effect. The interpretation of the results would shed light on the aspects that consumers value the most when considering purchasing green food products and how green food producers could better position and market their green food products to entice more people to try it.

## Keywords:

Green advertisement; green food attributes; purchase intention; trust; willingness to pay

## 1 Introduction

Consumers are becoming more aware of the different types of chemicals such as herbicides, pesticides, fungicides as well as insecticides that are exploited in the fruits and vegetable agriculture industry (Teng, Rezai, Mohamed & Shamsudin, 2011). There

is an increased focus on how the use of pesticide in conventional agriculture is one of the greatest threats to environmental sustainability (Zepeda & Nie, 2012). As a result, the realization towards the overuse of pesticide in agriculture and how it may impact human health and the environment has led consumers in the direction of green food product consumption.

Green food products are defined as food and products which are harmless when consumed, of excellent value, nourishing, place extra care towards the treatment of animals that are to be consumed, better for the environment and are wholesome. Green food consumption is referred as environmentally responsible consumption where consumers consider the environmental consequences and switch their attitude behaviour towards purchasing green food products (Motavalli, 2011; Lexico Publishing Group, 2017; Moisander, 2007). This kind of products are produced under the guidelines of sustainable expansion (Liu, 2003).

### **1.1 Problem Statement**

Consumers are more inclined towards buying green food products as it is safer for consumption and environmentally friendly (Saeed & Rashid, 2013). Previous researches discovered that the green food product consumption tends to influence consumers' attitude, subjective norms and perceived behavioural control factors which in turn affects purchase intention (Ali, Khan, Ahmed & Shahzad, 2011; Karatu & Mat, 2015). However, the outcome of purchase intention in previous studies cannot be said to be representative of the entire nation due to external factors such as culture, socio-economic background, lifestyle and so forth which varies from one area to another (Karatu & Mat, 2015). Thus, it has been justified in several studies in the past that there are a variety of factors that could contribute towards purchase intention that could differ based on the context of which it is studied. Therefore, further research into the factors and segment of consumers which influence their purchase intention to consume green food product is important to generate a deeper and overall understanding of the consumption and purchases of green food products.

Based on the review of the literature focused on consumer behavioural theories and models of intention consumption patterns, it is noticed that many of the intention to consume green food product is frequently and more extensively explored in several countries other than Malaysia. (Chen, 2010; Cronin et al., 2011; Dief & Font, 2010; Mishra & Sharma, 2010; Rahbar & Wahid, 2011; Sharma & Iyer, 2012; Tiwari et al., 2011; Zepeda & Nie, 2012; Fu & Elliott, 2013; Kumar, Philip, & Sharma, 2014; Joshi & Rahman, 2015; Chen & Deng, 2016). Based on a comprehensive review of various previous articles on consumers, it was discovered that some gaps need to be bridged. First, it was found through past researches, that although some food agriculture firms have readily complied with regulations governing green marketing, they still faced challenges on certain green food product attributes. This is because the green concept is very new in Malaysia. Hence, it is necessary for the food agriculture industries to

understand consumers' perception and purchase intention towards green food product attributes.

Secondly, there are many previous studies done on willingness to pay (Karatu & Mat, 2015; Suki & Suki, 2015; Saeed & Rashid, 2013). However, there have been fewer studies on willingness to pay more concerning a certain group of people which is young adults' intention towards green food products consumption. Hence, this study will determine whether the Green Food Product Attributes mediate between willingness to pay more factor and if it has a significant effect on young adult consumers' intention towards green food product consumption.

Third, nowadays, most of the young adult consumers gain knowledge through advertisements such as printed media or social media. Advertising is important to reach prospective young adults to influence their intention and buying behaviour. Green marketing is one of the major trends in current green agriculture activities. In fact, in the marketing mix context, one of the methods to gain green food knowledge is through advertising. Various studies on advertising factors have found significance on certain products (Rahim et al., 2012; Tsakiridou, Konstantinos, & Tzimitra-Kalogianni, 2006). Nevertheless, for one thing, the main weakness of previous studies is the failure to address how green food product attributes mediate between green advertisement factor influence young adults' purchase intention towards green food consumption. Therefore, exploration in this area is necessary.

Fourth, changing trends in food consumption have caused intense pressure on food producers to comply with the rules and regulation, in order to be accredited and certified by the respective certification issuing bodies. However, the question is, do the consumers in Malaysia trust the green food accreditation certification? There are several previous studies which discovered trust to have a positive significant influence on the purchase intention towards green food product consumption (Chen, 2013; Harris & Goode, 2010; Lee, 2011). However, many previous studies also fail to take into account the effect of how green food product attributes mediate between trust factors which may or may not influence young adults' purchase intention towards green food product consumption in Malaysia. Due to the limited study on young adults in this area, this construct should be included in the existing model. Consequently, this study will bridge the gap.

The finding of this study may assist the agriculture industry to serve better green food products in the future. Previous studies have also identified various product attributes that significantly influenced consumers' purchase intention towards green food products (Khan, Farah, & Siwar, 2015; Kruthlyte *et al.*, 2011; Ronald & Gary, 2017; Teng, 2011; Yeon, Kim & Chung, 2011). However, to our knowledge green food product attributes as a mediator factor is less researched with regards to young adults' intention towards green food products consumption. Therefore, this study included green food products attributes as a mediator factor to further explore its influence on the factors that determine young adult's purchase intention towards green food

product consumption. The finding may contribute numerous benefits particularly in the preservation of the natural environment and society in a more sustainable manner (Welford, 2007).

## **2 Literature Review**

Previous studies reported that consumers are aware of the deterioration of environmental resources, however, consumers lack concern for environmental protection and buying activities (Dief & Font, 2010; Mishra & Sharma, 2010; Rahbar & Wahid, 2011). The depletion of resources has certainly raised alarms on sustainable living practices and if nothing is done about it, it would affect the needs of generations to come (Sharma & Iyer, 2012; Tiwari et al., 2011). Thus, there is an urgent need for Malaysian consumers to change their consumption practice in order to support green food sustainability development (Suhaimi et al., 2019; Yogananda & Nair, 2019). Despite some studies indicating that Malaysians are doing so, further exploration on factors influencing such practices needs to be done in order to give a more holistic view on consumers' behaviour surrounding green food purchases. Added to this, many of the studies on green food consumption investigates or is confined within the variables present in the Theory of Planned of Behaviour (TPB) such as attitude, subjective norm, perceived behavioural control and intention (Nguyen, Nguyen & Hoang, 2019; Nguyen et al., 2019; Teng et al., 2018; Yogananda & Nair, 2019). Thus, there is an opportunity to further explore variables beyond those present in TPB that could also lead towards the intention to purchase green food products.

In terms of the purchase behaviour showcased by consumers, consumers will first undergo several influences that will then determine their intention to purchase green food products. This includes information, knowledge, and self-confidence (Hasbullah et al., 2014). Furthermore, behavioural theories such as Theory of Planned Behaviour (TPB) explained that an individual's attitude and subjective norm related to the environment could affect consumers' purchase intention toward green food product consumption (Ooi, Kwek, & Tan, 2012). TPB proved its applicability in explaining social behaviour influence on consumer's purchase intention to purchase green food products. It was also noted that a consumer's social circle could have a significant influence on their purchase intentions (Eles & Sihombing, 2017). On top of that, close friends may give information on what is the appropriate purchase behaviour (Eles & Sihombing, 2017). Ajzen (2005) found that the intention of customers to buy green food products is influenced by the positive attitude and green perceived value.

On the other hand, Ajzen (2002) described intention as being able to predict an individual's actual behaviour in the future effectively. Intention is an attitude-behaviour relationship which indicates the amount of work one needs to put in to accomplish something (Ramayah, Lee & Mohamad, 2010). The current environmental problem has been plaguing all nations on Earth. Therefore, there is a need to continue to study factors that influence consumers' intention towards the purchase of green

food products (Laureti & Benedetti, 2018; Mufidah et al., 2019). Many previous studies depended on the theory of planned behaviour (Amran & Nee, 2012; Phuah et al. 2012; Saleki, Seydsaleki, & Rahimi, 2012; Saleki, & Seydsaleki, 2012; Salleh, Ali, Harun, & Jalil, 2010; Voon, Ngui, & Agrawal, 2011). In fact, TPB has undergone numerous adaptations, modifications, and updates to suit the specific field of study. However, for the purpose of this study and keep to the goal of exploring other variables to add on to the pool of knowledge surrounding green food purchase intention, the following variables are explored within this context.

## **2.1 Green Food Product Attributes**

The green food product concept can be increasingly instilled within the minds of Malaysians when the consumers are made aware of the significance and benefits of this concept (Conway, 2019; Phuah et al., 2011, Qi & Ploeger, 2019). Consumers prefer green food products as it is nutritious, safe for consumption, produced in a human-animal treatment environment and it is healthier (Conway, 2019; Phuah et al., 2011). Green food product attributes comprise of different aspects such as being of good quality and safe to be consumed, provides health benefits, protective of animal welfare, environmentally friendly and is properly labelled.

One of the most important attributes to most consumers is food safety which reflects that the food has been handled properly and is of proper quality (Peltjak et al., 2018; Razmi & Harun, 2019; Ronald & Gary, 2017). In this current age and time, consumers are gaining more information and knowledge about the pesticide, insecticide, fungicide and herbicide that are used in food production (Teng, 2011). Therefore, food safety is important to any food industry operators as consumers now look for safe, high quality and wholesome food products (Khan, Farah, & Siwar, 2015; Kruthlyte, et al., 2011).

Besides that, the health benefits of different food and products have been widely studied. Health-conscious consumers seek healthy food and products that benefit them (Mai & Hoffmann, 2012). Such consumers value health-oriented dishes that are organic, natural, and fresh or offer health benefit (Kim et al., 2013). Moreover, these health-conscious consumers are aware of and concerned about the health benefit of green food product as they attribute it to great health and a better quality of life (Yeon, Kim & Chung, 2011).

Other than that, green food has also been positively linked to animal welfare which refers to the intention to care and protect animals from suffering (Michael & Barry, 2017). The constant pressure from various parties such as NGOs and the media has increased the focus on the improvement of animal welfare (Luisne et al., 2013). Most of the European citizens believe that the producer is to be held as mainly responsible in ensuring that green food products have been produced in an animal welfare-friendly method (Faical, 2016; Franz, Deimel & Spiller, 2012). Therefore, it is

up to the farmers to practice and push for better agricultural methods that protect the welfare of animals (Faical, 2016; Franz, Deimel & Spiller, 2012).

Environmentally friendly green food products are harmless to humans, they are conducive for the environment as it is less harmful to nature (Kamyar, Ahmad, & Maryam, 2014). In the stream of research for profiling, measuring and understanding consumer behaviour for environmentally friendly food products, systematic attempts have been made for over two decades by various researchers to identify and define interrelationships between various demographic, attitudinal and personality variables. One particular study found that consumers of the Indian hotel industry are aware of environmentally friendly practices in India (Rohit, Jayesh, & Jignasa, 2015). However, certain business firms find it difficult to adopt green marketing practices readily due to it being difficult to predict consumers' reaction to green food products since no comprehensive market information is available (Lee, 2009). It is being assumed that an individual's attitude may influence his or her willingness to purchase environmentally friendly food products (Cheah & Phau, 2011).

Besides that, the green food products' label is also taken into account. Product labelling is meant to showcase various information about the food product for the knowledge of consumers (Dimara & Skuras, 2005). The information on the label could act as an external influence on the consumer during their purchase behaviour process. Furthermore, labelling is also positioned at the interface of the consumers' point of purchase, the regulation and functioning of the market (Kolodinsky, 2012). Niraj Kumar Sanjeev Kapoor (2017) discovered that the labels on food items played a significant role in influencing new or first-time consumers (Bissinger & Leufkens, 2017; Kolodinsky, 2012; Latiff, Rezai, & Ayob, 2015; Niraj et al., 2017). Since then, labelling, health benefit, animal welfare, and environmentally friendly under previous studies found that green food product attributes have significant influence over consumer purchase intention. However, the role of green food attributes as a mediator in influencing the relationship between green advertisement, trust, willingness to pay more and purchase intention is less research on young adults in Malaysia.

Therefore, this study incorporated green food products attribute as a mediator variable in the conceptual framework to determine young adults' purchase intention towards green food product.

## **2.2 Green Advertisement**

Advertising is described as explicitness of an advertisement to portray the desire of consumers to persuade and to introduce purchase intention (Chan, Jiang, & Tan, 2010). Green advertising can be seen as an advertisement that links the food products with the natural environment (Schmuck, Matthes & Naderer, 2018; Septianto, Kemper & Paramita, 2019). On top of that, it also acts as a catalyst that promotes a green lifestyle and enhances a company's corporate social responsibility image (Rahim *et al.*, 2012).

Consumers usually obtain information related to green food product via information campaigns and promotion. Surprisingly, it has been reported that there are usually no promotion or advertising support for any green food product brands in Malaysia (Tsakiridou, Konstantinos, & Tzimitra-Kalogianni, 2006). However, to our knowledge, the influence of green advertising on young adult consumers is less extensively studied in Malaysia. Since there is limited research on green food product attributes mediating the relationship between green advertisements to determine young adult consumers' purchase intention toward green food product, it is imperative to explore the impact of such influences on consumers further. Therefore, this study has formulated the following hypothesis.

*Hypothesis 1: Green food product attribute mediates the relationship between Green food advertisement and purchase intention of green food products among young adults.*

### **2.3 Trust on Green Food Products**

Trust is defined as the "consumer's willingness to purchase green food products as a result of his belief in its environmental credibility, benevolence and ability" (Chen, 2013, Ricci, Banterle & Stranieri, 2018). Consumers' intentions to purchase are affected by consumers' trust (Harris & Goode, 2010; Kang, 2012; Qi & Ploeger, 2019). In other words, trust has a positive effect on purchase intention to buy eco-friendly food products. Moreover, consumer trust is seen as a key that helps predict their long-term behaviour (Lee, 2011; Qi & Ploeger, 2019, Ricci, Banterle & Stranieri, 2018). If buyers have had a trust experience with the green food products, they would be more inclined towards making a purchase of the product.

Many previous researchers from Taiwan and China have found that the trust on green food products acts as an important factor which influences consumer's purchase intention (Chang, & Chou, 2014; Chen, & Chang, 2012; Chen, 2013; Thorgessen & Zhaou, 2012; Tang, Wang & Lu, 2014). However, in the review of the literature, it was discovered that there were not many studies on the role of green food product attributes in mediating the relationship between green advertisements to determine young adult consumers' purchase intention toward green food product in Malaysia. As a result, this study developed the following hypothesis.

*Hypothesis 2: Green food product attribute mediates the relationship between trust and purchase intention of green food products among young adults.*

### **2.4 Willingness to Pay More**

Previous studies have shown that those who are highly concerned about the environment do not necessarily purchase green food products. Consumers usually have the practice of seeking for more information until they feel more confident about their choice. They will search for the desired information until a satisfying saturation point is reached (Eles & Sihombing, 2017). Once consumers have satisfied their needs

for information, they are willing to pay more regardless of the price (Li et al., 2019). Price denotes the cost that a customer must be willing to give up in order to get a product or service in return. The American Marketing Association defined price as the formal ratio that indicates the amount of money needed to acquire a given quantity of goods or service (Karatu & Mat, 2015). Previous studies have found that more consumers are inclined in supporting environmentally friendly products (Ali & Ahmad, 2012; Jang, Woo, & Bonn, 2011; Michel, Jasmin, & Guido, 2001; Saeed & Rashid, 2013). This could indicate that consumer's willingness to pay more for green food product has been increasing (Suki & Suki, 2015, Li et al., 2019).

Some of the research states that consumers are more hesitant to pay a premium for environmentally friendly products (Manaktola & Jauhari, 2007), while other research states that consumers are willing to pay a premium for green food products (Choi et al., 2009; Schubert, Kandampully, Solnet, & Kralj, 2010). Only a small number of respondents indicated their unwillingness to pay more for fresh food products, such as vegetables, fruit, poultry, and meat (Yaowarat et al., 2015). Few researchers found that consumers complain of high prices of green food products (D'Souza, Taghian, & Lamb, 2009; The Revolution, 2013). There is a significant study which proves that the high price of green food products can inhibit the actual purchase (Marin, Riner, & Ulrich, 2016). Based on the review of literature, there is inconsistency in the findings of the previous studies regarding willingness to pay more. Furthermore, the role of green food product attribute as a mediating variable between the willingness to pay more and purchase intention was less mentioned in previous studies within the context of young adult consumers. Therefore, this study developed the following hypothesis.

*Hypothesis 3: Green food product attribute mediates the relationship between willingness to pay more and purchase intention of green food products among young adults.*

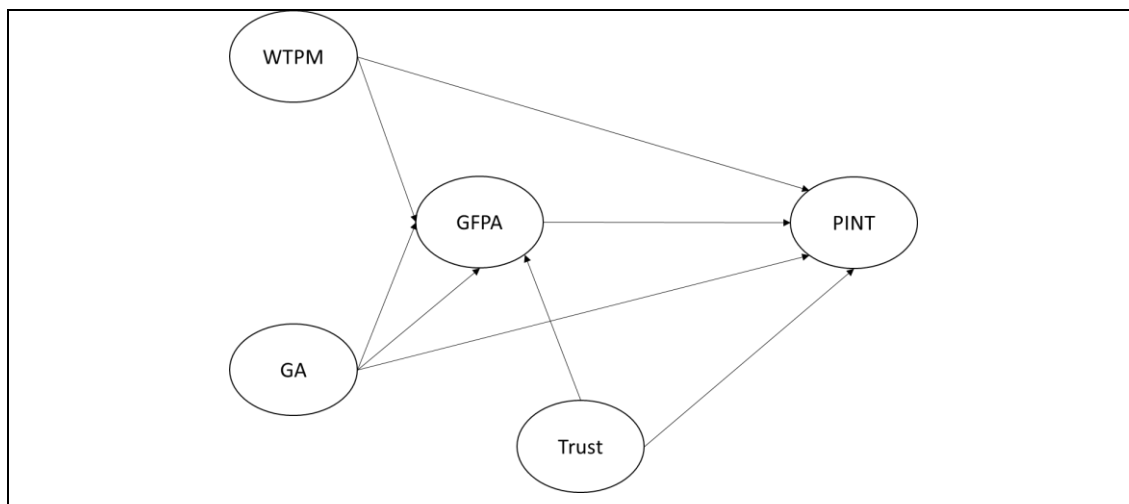


Figure 1: Green Food Conceptual Model



(WTPM: Willingness to pay more, GA: Green Advertisement, GFPA: Green food product attributes, PINT: Purchase Intention)

### **3 Methodology**

Ngunjiri, Hernandez and Chang (2010) claimed that quantitative research is more reliable as it is able to use statistics to generalize on a population. Since the aim of this study is to explore the factors that could influence young adults to consume the green food product, this study, therefore, employed the quantitative research method as it is more appropriate.

The targeted population are young adults within the age range of 18 -25 years old. Young adults were chosen in this study because they are willing to spend more money on green food products compared to the older group (Yu, Gao & Zeng, 2009). Descombe (2003) claimed that most of the college students are young adults and it is valid to be employed as respondents. As a result, college students from a local college were chosen as our sampling population. Non-probability sampling such as purposive sampling was used in the sampling procedure. This is because it involves drawing samples that are both easily accessible and willing to participate in a study (Teddlie & Yu, 2007). The population of the college student about 1500 students. To determine the sample size, we followed the table recommended by Krejcie & Morgan (1970), according to the table, if the population is 1500 then 306 samples will require.

The instrument employed was an adopted and adapted questionnaire. Section A of the questionnaire includes the Demographic profile such as gender, age, race and level of education. First part is to determine the respondent's gender which is either female or male. This is then followed by the age of the respondent, especially since it is important to analyse the results based on the age of young adults. The ethnicity selection for the respondents consisted of the three major ethnic groups which are Malay, Chinese and Indian. The education level of the respondent includes Diploma, Degree and others. For section B, the variables studied were measured using a 5-point Likert scale interval. The score of "1 to 5" which represents from "strongly disagree", "disagree", "neutral", "agree" and "strongly agree" for the questionnaire.

An initial draft of the adopted and adapted survey questionnaire was developed based on the literature and evaluated by seven experts to check on the items and sentences. This process was completed to assure that the items have an acceptable level of content validity. Given the unanimity of the expert reviewers' endorsement of the items, we can state that these items have an acceptable level of content validity (Jana-Masri & Priester, 2007). The survey questionnaires were then pilot tested, and the reliability of the results was within the Cronbach's alpha value range of 0.83-0.93. For the willingness to pay more, the Cronbach's alpha is 0.90. The green food products attribute is 0.86. The green advertisement is 0.93. The trust, the Cronbach's alpha is 0.84 and finally, for purchase intention, it has a Cronbach's alpha value of 0.83.

A total of 310 questionnaires were received. However, only 306 questionnaires were usable for this study and met the required inclusion criteria as discussed in the previous section. This study employed Partial Least Squares SEM (PLS-SEM) to estimate research models. PLS-SEM proxy's latent conceptual variables with linear weighted composites that aim at maximizing explained variances among the set of determinate composite scores. As such, it has a special emphasis on prediction orientation. In contrast to covariance-based structural equation modelling (CB-SEM), it trades parameter efficiency for prediction accuracy, simplicity and fewer assumptions. Thus, the method is applicable to large and complex models with relatively few observations. An additional advantage of the PLS-SEM method is the unrestricted incorporation of latent variables in the path model that draws on both reflective and formative measurements models (Tomás, 2017).

The following measurement would be conducted to demographic, skewness and kurtosis results through SPSS and SmartPLS 3.0 software to check and determine hypotheses, measure properties of the reflective constructs of composite reliability, Fornell-Larcker criterion analysis. Heterotrait-Monotrait Ratio (HTMT), and convergent validity (Average Variance Extract). The coefficient of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), and effect size ( $F^2$ ), and summary of the chapter will also be reported.

#### **4 Findings**

Out of the demographic profile total of 306 respondents, 149 of the respondents are males who represent 48.7% of the total sample group while 157 respondents are females, which represent 51.3% of the total sample group. With regards to age, 134 of the respondents are of the ages between 18 until 20 which represent 43.8% and 122 respondents are aged between 21 until 23, which represent 39.9%. Besides, 50 respondents are aged between 24 until 25 which represent 16.3%. Therefore, the results showed that the majority of the respondents were young consumers aged between 18-20. In terms of ethnicity, most of the respondents are Chinese which represents 80.4%. Next, Indian respondents represent 13.7%. This is followed by Malay respondents which represent 5.6% and the remaining 0.3% are from other race groups. The level of education of 306 respondents has been separated into three categories which comprise of Diploma, Degree and Others. 217 respondents have a Diploma level education which is 70.6%. 90 respondents are of a Degree level education level which is 29.4%.

The Skewness and Kurtosis between -2 to +2 is acceptable (George & Mallery, 2010). Table 1 results show that the value of all items was within the acceptable range of -2 to +2, indicating that the data is fairly normal. The skewness appropriate tools to test the equivalence of the variable distribution and the kurtosis is to test the data normal or non-normal distribution (West, Finch, & Curran, 1995). The skewness of negative value will be indicated as skewed left, in contrast to the positive value. In Table 1, it is shown that most of the variables' skewness are of positive value except

for green food attribute which is of negative value. The kurtosis should be of the excess value of zero for a perfectly normal distribution. Table 1 below indicated that every variables' kurtosis value exceeded the value of zero.

Table1: Skewness and kurtosis result

	WTPM	GFP A	GA	Trust	PI
Skewness	-.444	.000	-.275	-.731	-.632
Std. Error of Skewness	.139	.139	.139	.139	.139
Kurtosis	.576	-.355	.576	1.019	.863
Std. Error of Kurtosis	.278	.278	.278	.278	.278

*WTPM= Willingness to Pay More; GFP A = Green Food Product Attributes; GA= Green Advertising; PI= Purchase Intention*

The testing of the average variance extracted (AVE) should exceed 0.5 value in the convergent validity to test the reflectiveness of the latent variable (Fornell & Larker, 1981). Bagozzi and Yi (1988) also mentioned that the model of convergent validity should illustrate more than 50 percent of the indicator's variance extracted (AVE). The construct of the convergent validity was derived from the average variance extracted (AVE) value should be higher than the (>0.50) of validity (Fornell & Larker, 1981)

According to previous studies, the highest AVE reported is 0.59 and the lowest is 0.50. This means that every AVE in this study meets the level of acceptance. The average variance extracted were within the range of 0.50 to 0.59. Consequently, there are high levels of convergent validity of the total five reflective constructs measurements as shown in Table 2.

Table 2: Measurement properties of the reflective constructs

Construct & Measured Items	Factor Loading (> 0.60)	CA	CR (> 0.70)	AVE (>0.50)
<b>Willingness to pay more</b>				
A1: I am willing to pay more for green environmentally friendly vegetables.	0.731	0.767	0.843	0.518
A2: I am willing to pay more for green environmentally friendly fruits.	0.694			
A3: I am willing to pay more on green food since it is safe to consume.	0.696			
A4: I am willing to pay more on green food since it is good for the environment.	0.793			
A5: I am willing to pay more on green food since it contributes towards a positive sustainable environment.	0.677			

Green food product attributes				
B1: I consume green food because it is healthier than conventional food.	0.573	0.671	0.798	0.500
B2: I think the purchase of green food can benefit animal welfare.	0.741			
B3: I think the purchase of green food is environmentally friendly.	0.801			
B4: The label on green food product will influence me to purchase green food.	0.695			
Green advertisement				
C3: I am influenced by green food product's advertisement on social media.	0.883	0.827	0.879	0.593
C4: I am influenced by green food product's advertisement on Facebook.	0.782			
C6: I am influenced by green food product's advertisement on Instagram.	0.725			
C9: I am influenced by green food product's advertisement on Twitter.	0.734			
C10: I am influenced by the green food product's advertisement found through Internet.	0.771			
Trust				
D1: I trust my purchases of green food product.	0.756	0.722	0.827	0.545
D2: I trust the description on the label of green food product.	0.736			
D3: I trust Malaysian green food product in the market.	0.770			
D4: I trust imported green food product sold in Malaysia.	0.688			
Purchase intention				
E1: I intend to change my lifestyle by purchasing green food products.	0.671	0.835	0.876	0.504
E2: I prefer green products than non-green products.	0.793			
E4: I intend to buy green food products even if they are more expensive than the non-green ones.	0.773			
E5: I intend to buy green food product tomorrow.	0.703			
E6: I intend to purchase green food product in the future.	0.675			
E7: I intend to consider green food product as my first choice.	0.693			
E8: I intend to purchase green food because it is safer to consume.	0.653			

CA: Cronbach Alpha; CR: Composite Reliability; AVE: Average Variance Extract

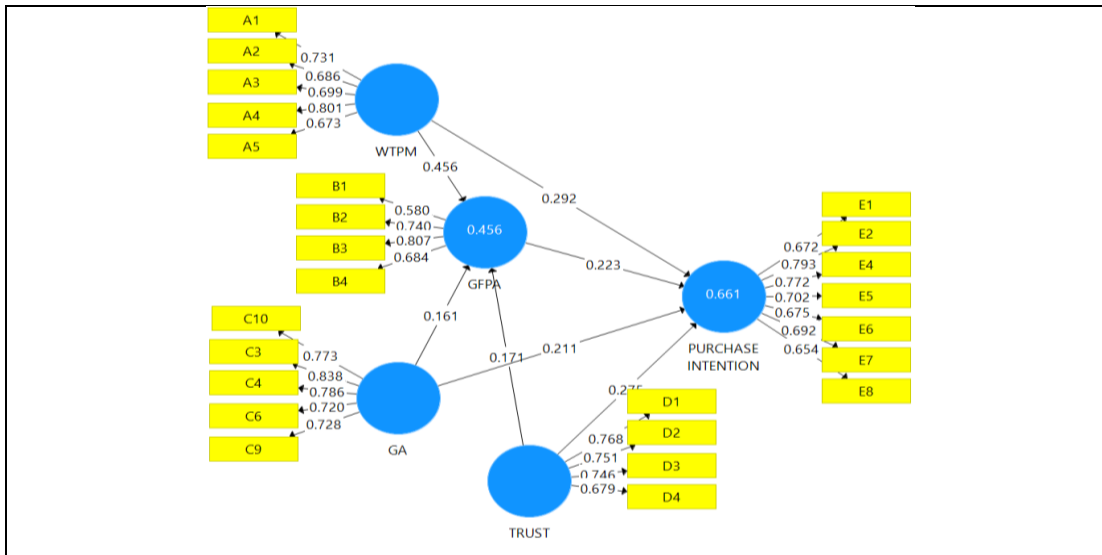


Figure 2: Structural I Model

The measured Cronbach's Alpha, items loadings and composite reliability of all reflective constructs are presented in Table 2. According to Tavakol and Dennick (2011), Cronbach's Alpha provides a measure of internal consistency that the researchers expressed as a value between 0 and 1 (Tavakol & Dennick, 2011). Table 2 shows that the reliability coefficient analysis of each variable. George and Mallery (2003), the rule of thumb is to provide Cronbach's alpha coefficient. The alpha value greater than 0.9 is excellent, 0.8 is good, 0.7 is acceptable, 0.6 is problematic, 0.5 is poor, and less than 0.5 is not acceptable (George & Mallery, 2003).

In this study, the Cronbach's Alpha for willingness to pay more is 0.767 and five items were used to measure it. For green food product attribute, four items were used to measure it and the Cronbach's Alpha is 0.671. Besides that, the Cronbach's Alpha for green advertisement is 0.827 and the number of items used to measure it was five. Next, Cronbach's Alpha for trust is 0.722 and four items were used to measure it. The values indicate that these four variables have good reliability in determining consumer purchase intention as they all fall in the range that is more than 0.7. On the other hand, seven items were used to measure purchase intention and the Cronbach's Alpha is 0.835, this shows that purchase intention has a good internal consistency.

To measure factor loadings, the measurement of high factor loads indicates that they converge in one common aspect of the structure (Hair *et al.*, 2010). In general, a good rule of thumb is that the load for PLS should be 0.60 or higher (Hair *et al.* 2010). Analyses have shown that all measured items loadings in this study are greater than 0.6, except green food product attribute B1 due to 4 items which is limited so 0.573 is acceptable. Some of the items have been removed due to its factor loading not being more than 0.60. The items that have been removed include A6, C1, C2, C5, C7, C8, D5, D6, E3, and E9.

The composite reliability (CR) estimates the proportion of a set of measured items in their measurements. In PLS, the composite reliability accepted range should be equal to or greater than 0.7 (Hair et al., 2010). This study found that all composite reliability values were greater than 0.7, indicating acceptable reliability range. According to Hair et al. (2014), to establish convergent validity, the outer loadings of indicator and average variance extracted (AVE) need to be assessed, the results showed that AVE value was higher than 0.5, and therefore is satisfactory. The AVE value of 0.5 or higher indicates that the constructs explained more than half of the variance of its indicators (Hair, Ringle & Sarstedt, 2014). Since the AVE is higher than 0.5 therefore, this indicated that the convergence validity is achieved.

In PLS-SEM, the Fornell and Larcker criterion (1981) is an ordinary and traditional approach to evaluate the discriminant validity (Fornell & Larcker, 1981). As seen in Table 3 as according to Hair et al., (2014) suggestion on the Fornell-and Larcker criterion analysis, discriminant validity can be accepted for this measurement model and supports the discriminant validity between the constructs (Hair et al., 2014).

Table 3: Fornell–Larcker criterion analysis

	GA	GFPA	PI	T	WTPM
Green Advertisement	<b>0.770</b>				
Green Food Product Attributes	0.500	<b>0.707</b>			
Purchase Intention	0.627	0.652	<b>0.710</b>		
Trust	0.523	0.497	0.654	<b>0.738</b>	
Willingness to Pay More	0.545	0.634	0.697	0.537	<b>0.720</b>

*GA: Green Advertisement, GFPA: Green Food Product Attributes, PI: Purchase Intention, WTPM: Willingness to Pay More.*

*Notes: \*Diagonal elements report the AVE and other matrix entries report the squared correlation estimation between them.*

In order to create discriminant validity, the value of the average variance extracted (AVE) of each latent variable must exceed the latent variance correlation (LVC). Table 4 indicated that the discriminant validity is achieved in this research since the square foot of AVE for green advertisement, Green Food Product attribute, purchase Intention, Trust and willingness to pay more exceeded the value the corresponding LVC. Henseler, Ringle, and Sarstedt (2015) stated that Heterotrait-Monotrait is the most suggested method to test the discriminative validity in the variance-based SEM as researchers found that Heterotrait-Monotrait Ratios (HTMT) is a more stable and accurate outcome compared to the other two criteria which is called Cross Loading (Chin W. W., 1998) and Fornell and Lacker criterion (Henseler & Dijkstra, 2015). The Heterotrait-Monotrait Ratios (HTMT) according to Henseler, Ringle, and Sarstedt's (2015) suggestion, The Heterotrait-Monotrait Ratios (HTMT) at Table 4 shown all

construct value to be lower than 0.90. These HTMT results indicate satisfactory discriminant validity within the data (Hair, Ringle, & Sarstedt, 2014).

Table 4: Heterotrait-Monotrait Ratio (HTMT)

	GA	GFPA	PI	T	WTPM
Green Advertisement					
Green Food Product Attributes	0.647				
Purchase Intention	0.751	0.844			
Trust	0.667	0.698	0.839		
Willingness to Pay More	0.682	0.865	0.865	0.707	

GA: Green Advertisement, GFPA: Green Food Product Attributes, PI: Purchase Intention, T: Trust, WTPM: Willingness to pay more.

Hair et al. (2014) pointed out that it is essential to test the level of collinearity in the structural model before moving on to the assessment part (Hair et al., 2014). To measure this level of collinearity, we employed SmartPLS for testing since SmartPLS generates the Variance Inflation Factor (VIF). According to Hair et al. (2014), low VIF values are preferred to ensure a low degree of multicollinearity among variables. Table 5 indicates that all VIF value is less than 3.30 (Diamantopoulos & Siguaw, 2006).

Table 5: Measurement properties of green food purchase intention construct

Model	Collinearity Statistics	
	Tolerance	VIF
WTPM	.456	2.192
GFPA	.546	1.832
GA	.511	1.957
Trust	.485	2.063

GA = Green Advertisement, GFPA = Green Food Product Attributes, WTP = Willingness to Pay more

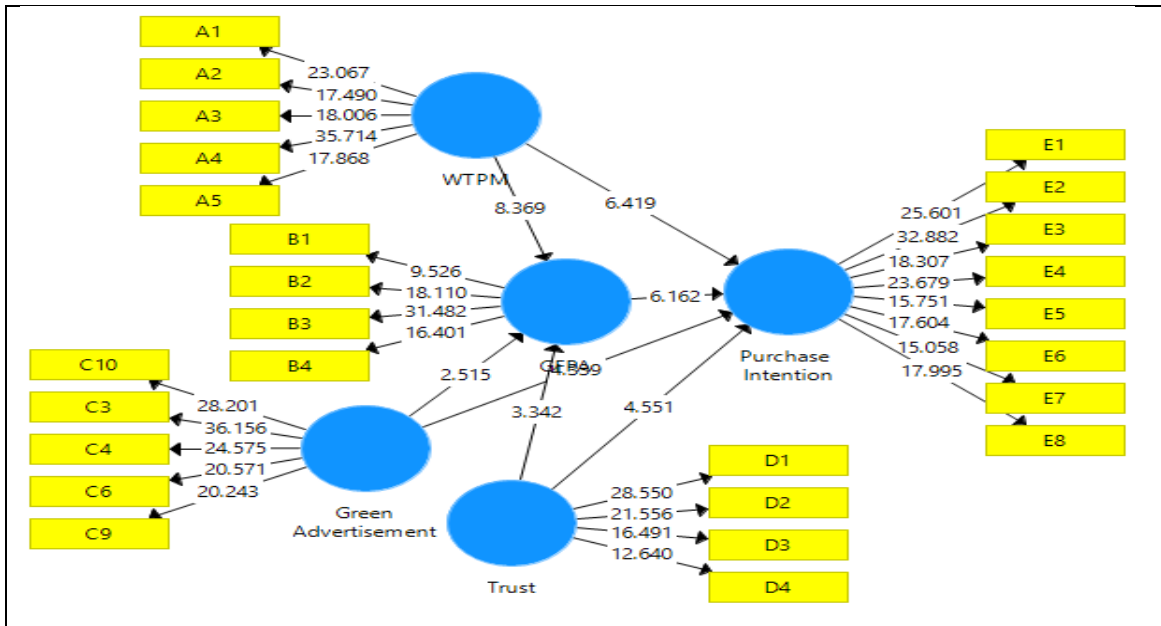


Figure 3: Green Food Structural Conceptual Model

Table 6: Mediation result

Hypothesis Relationship	Effect	Std Beta	Std Deviation	t-value	P-Value	95% LL	95% UL
H <sub>1</sub> . GA->GFPA->Purchase Intention.	Direct	0.211	0.047	4.535	0.000*	0.159	0.344
	Indirect	0.036	0.016	2.288	0.022*	0.009	0.070
H <sub>2</sub> . Trust->GFPA->Purchase Intention	Direct	0.275	0.052	5.325	0.000*	0.208	0.415
	Indirect	0.038	0.014	2.773	0.006*	0.014	0.068
H <sub>3</sub> . WTP->GFPA->Purchase Intention	Direct	0.292	0.050	5.866	0.000*	0.301	0.484
	Indirect	0.102	0.023	4.437	0.000*	0.061	0.150

Note: \*\* t-value > 1.96, (two-tailed)

GA = Green Advertisements; GFPA = Green Food Product Attributes; WTP = Willingness to Pay more

The structural model for this study involved five constructs at two levels of relationships. The three predictor variables are Green Advertisement, Trust, and Willingness to pay more. Green Food Product Attributes mediates between the three predictor variables and the final target construct purchase intention. The



bootstrapping results shown in Table 6 for testing the mediation effects (Preacher & Hayes, 2004) of Green Food Product Attributes between Green Advertisement, Trust, Willingness to pay more and Purchase Intention at 95% confidence interval confirmed the mediator role of Green Food Product Attributes. Based on the interpretation of “complementary partial mediation” (Nitzl, Roldan & Cepeda, 2016; Zhao, Lynch, & Chen, 2010). Green Food Product Attributes has a complementary partial mediating effect on the relationship between Green Advertisement ( $H_1$ ), Trust ( $H_2$ ), Willingness to pay more ( $H_3$ ) and Purchase Intention. This is clearly revealed from the indirect and direct effects which are all significant result.

The study examined the mediating role of green food product attributes in purchase intention green food product among young adults. In this study, Hypothesis 1 was partially supported, Green Food Product Attributes partially mediates between Green Advertisement and purchase intention green products. Similarly, Hypothesis 2 was partially supported, green food product attributes fully mediates the relationship between trust and green product purchase intention. Hypothesis 3 was also partially supported as green food product attributes partially mediates the relationship between willingness to pay more and green product purchase intention. In this study, consumers prefer green food products as it healthier, nutritious, safe for consumption, produced in a human-animal treatment environment (Phuah et al., 2011). Green food product attributes can be separated into different categories such as quality and safety, health benefit, animal welfare, environmentally friendly and label.

Evidence from this study brought out that green advertisement can be seen as an advertisement that relates the green food products with the natural environment. On top of that, it also assists the company in being able to promote a green lifestyle while further enhancing its corporate image (Rahim et al., 2012). It has long been known that advertising is seen as a medium to portray the desire of consumers with the goal of persuading their purchase intention (Chan, Jiang & Tan, 2010). Purchase intention was found to be partially influenced by green food product attributes, suggesting that green advertisement provides information to consumers which address their concerns and needs towards green food consumption. Hence, consumers usually obtain information related to green food products via information campaigns and promotion.

Another variable partially influenced by green food product attributes is Trust which refers to the trust of green food product attributes from young adults. The finding in this study suggests that green food product attributes and trust in green food products within young adults influenced the achievement of the intention to purchase such products. Therefore, it is undeniable that trust needs to be maintained by the producers of green food as it will help sustain the young adults’ purchase intention and probably lead to creating significant customer lifetime value through the increment of purchases made by these consumers.

The results showed that Green food product attributes also partially mediated the relationship between willingness to pay more and purchase intention. The American

Marketing Association defined price as the formal ratio that indicates the amount of money needed to acquire a given quantity of goods or service (Karatu & Mat, 2015). Previous studies found more consumers are inclined in supporting environmentally friendly products (Ali & Ahmad, 2012; Jang, Woo & Bonn, 2011; Michel, Jasmin & Guido, 2001; Saeed & Rashid, 2013). This could indicate that consumer's willingness to pay more for green food product has been increasing (Suki & Suki, 2015). This willingness to pay more factor remains important even with the green food product attributes as a mediator.

#### 4.1 Overall Model

The predictive capacity of this model also found the dependent variable as the variance ( $R^2$ ) and the cross-validated redundancy index ( $Q^2$ ) for the endogenous reflective construct object (Chin, 2010). In the use of SmartPLS, the blindfolding process needs to be adopted to predict accurately on the indicators in the reflective endogenous construct measurement model. Chin (1998) stated that to have good predictive relevance in the model,  $Q^2$  value must be larger than zero (Chin, 1998).  $R^2$  is commonly believed that the closer the value 100 percentages, the better the model (Gramatica, 2004).

In order to search for the strength of the relationship in the path coefficient one to another, the  $R^2$  value is to be measured to predict accuracy (Magdalene, Ramayah, & Handin, 2015). The  $R^2$  value for Purchase Intention to green food product,  $R^2 = 0.66$ . As the structural model is relevant to the predictive power, whereby  $Q^2$  value was found to be higher than 0 which is then deemed as having good predictive value and  $R^2$  values were 66 and as such is moderate.

Table 7:  $R^2$  and  $Q^2$  value

Endogenous variable	$R^2$	$Q^2$
Green Food Product Attributes	0.46	0.21
Purchase Intention	0.66	0.32

*Notes:  $R^2$  score interpretation (0.75 – Substantial, 0.50 – Moderate, 0.25 – weak)  
 $Q^2$  score (value larger than 0 indicates that the exogenous construct has predictive relevance over endogenous constructs).*

Table 8: Effect Size ( $f^2$ ) ( $q^2$ )

Construct	$f^2$	$q^2$
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Willingness to pay more	0.161	Medium	0.031	Small
Green advertisement	0.065	Small	0.013	None
Trust	0.104	Small	0.017	None
Green Food Product Attributes	0.117	Small	0.024	Small

*Note: For interpretation of  $f^2$  effect size, Hair et al., (2014) suggest the following (0.02 – small effect size, 0.15 – Medium effect size, 0.35 – Large effect size).*

Next is to test the effect Size ( $f^2$ ). According to Hair et al., (2014), the effect is large when  $f^2$  is 0.35, medium when  $f^2$  is 0.15, and small when  $f^2$  is 0.03. The Effect Size ( $f^2$ ) seen in Table 8 shows that the willingness to pay more construct value is of medium effect size and the rest of the value of the construct are of small effect size.

## 5 Conclusion

The primary insight derived from this study was that green food product attributes played an important mediating role in the relationship between willingness to pay more, green advertisement, trust and green food product purchase intention. Review of literature found a lack of green advertisement and product attribute factors studied in relation to Malaysian consumers purchase intention of green food products. Thus, this study closes the gap by exploring the impacts of green advertisement, green food product attributes, trust on green food products as well as willingness to pay more on consumers' intention, particularly the young adults' group of consumers. This contributes into gaining a better understanding of the emerging market of young adults' consumption inclination towards green food products. By understanding young adults' green food purchasing intention, especially in relation to green advertisements, willingness to pay more and green food product attributes, green food producers can better align their marketing mix to be more appealing to this large group of consumers. This would then lend a hand in attracting new customers, retaining existing customers while ultimately leading to higher sales and profits for green food producers.

The green advertisement was found to have a complementary partial mediating effect which has contributed to adding on to the list of new findings for the green food product literature. This indicates that consumers do pay attention to green advertisements and it influences their purchase intention. Thus, green food producers, as well as marketers, would need to further utilise various advertising mediums such as social media sites as the results indicate that these young adult consumers obtain their green food product information through online channels. Using such channels, marketers too can increase their public promotions of green food products to create an increase in the development of consumers' green products awareness of eco-labels,

inform young adults about the meaning and availability of the green food products, as well as position the benefits of using green food products in consumers' minds.

The positive and significant results of this study showcase that despite existing literature, there are still more variables to be explored in relation to green food purchase intention as these variables play a role in influencing consumers' green purchasing decisions. As such, this study adds on to closing the aforementioned gap discovered on inconsistencies of results in previous literature surrounding green food products. The proposed research model used for this study can be further extended to broaden and deepen consumer behaviour theories such as the Theory of Planned Behaviour, especially within the context of green food purchases.

The practical implication of this study suggests that producers should not be averse to producing better quality of green food products even if the costs are higher because the results indicate that consumers are willing to pay more to obtain a better quality of green food products. Besides that, green food producers and marketers need to aim to develop consumers' trust in their products as it does influence their purchase intention. Notwithstanding, this study is still able to obtain new findings to ensure a significant contribution to the body of knowledge.

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