

## Assessing the Role of Self-Efficacy and Social Tendencies in Green Purchase Intention and Behavior

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### ارزیابی نقش خودکارایی و تمایلات اجتماعی در قصد و رفتار خرید سبز

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#### چکیده:

#### Abstract:

The present study was carried out aimed to investigate the role of self-efficacy and social tendencies in green purchase intention and behavior. This study is considered as applied research in terms of purpose and descriptive-survey research in terms of the data collection method. In this study, the statistical population includes all consumers of organic products supplied at Ofogh Koorosh chain stores (OKCS), including Talavang eggs and organic disposable tableware. Therefore, 384 questionnaires were collected. These questionnaires were distributed by the stratified probability sampling method. Cronbach's alpha coefficient was used in order to evaluate the reliability of the questionnaire, and confirmatory factor analysis technique was used to evaluate the validity of the questionnaire. Then, using structural equation modeling using Lisrel software was used to analyze data. According to the results of investigating the research hypotheses, social tendencies, self-efficacy and consumer attitude play a role in green purchase intention, and the role of environmental knowledge in consumer attitudes has been shown. And, finally, green purchase intention has played a role in green purchase behavior. Therefore, environmental knowledge has a significant effect on green purchase behavior through consumer attitudes and purchase intention.

هدف از پژوهش، بررسی نقش خودکارایی و تمایلات اجتماعی در قصد و رفتار خرید سبز بوده است. پژوهش حاضر از نظر هدف، کاربردی و بر اساس روش گردآوری داده‌ها، از نوع توصیفی-پیمایشی است. جامعه آماری موردبررسی کلیه مصرف‌کنندگان محصولات ارگانیک فروشگاه‌های افق کوروش شهر کرج است که شامل محصولات تخم‌مرغ تالوانگ و ظروف یک‌بارمصرف ارگانیک در فروشگاه‌های مذکور می‌باشند. بنابراین ۳۸۴ پرسش‌نامه جمع‌آوری شده است که به روش نمونه‌گیری احتمالی طبقه‌ای توزیع گردیده است. پایایی پرسش‌نامه تحقیق حاضر به روش ضریب آلفای کرونباخ موردسنجش قرار گرفته است و روایی پرسش‌نامه با تکنیک تحلیل عاملی تأییدی مورد ارزیابی قرار گرفته است. سپس داده‌ها با روش مدل‌سازی معادلات ساختاری و با استفاده از نرم‌افزار LISREL مورد تجزیه و تحلیل قرار گرفتند. نتایج حاصل از بررسی فرضیه‌های پژوهش نشان می‌دهند که تمایلات اجتماعی، خودکارایی و نگرش مصرف‌کننده در قصد خرید سبز نقش ایفا می‌کند، همچنین نقش دانش زیست‌محیطی در نگرش مصرف‌کننده نشان داده شده و در نهایت قصد خرید سبز در رفتار خرید سبز نقش داشته است. بدین ترتیب دانش محیط‌زیستی از طریق نگرش مصرف‌کننده و قصد خرید سبز در رفتار خرید سبز نقش ایفا می‌کند.

**واژه‌های کلیدی:** خودکارایی، تمایلات اجتماعی، دانش محیط‌زیستی، نگرش مصرف‌کننده، قصد خرید سبز و رفتار خرید سبز.

**Keywords:** Self-Efficacy, Social Tendencies, Environmental Knowledge, Consumer Attitude, Green Purchase Intention, And Green Purchase Behavior.

## Introduction

In 1987, the World Committee on Environment and Development has defined sustainable development as follows: «Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs». A major challenge has been raised for business entities in relation with making balance between growing demand and environmental concerns due to the overexploitation of *natural resources* of natural resources because of concerns about the availability of future generations to these resources. It is in line with the main philosophy of environmental sustainability development to draw a roadmap which leads to make a balance between protecting vulnerable natural resources and meet the needs of all stakeholders, including manufacturers, marketers and retailers active in such fields. A real commitment must be made by marketing science about the measures taken with environmental concerns, because social and environmental activists often believe that marketing is responsible for excessive consumption and leads to Unbalanced growth (Kahle & Gurel-Atay, 2013).

Environmentally sustainable products reach their actual meaning only when this scenario is implemented, because these products should be products that protect the environment and the safety of ecology (D Souza et al., 2007).

Even so, it's interesting to know that all the sustainable products production-related features, other than the human behavior related to the production of these products, have been realized. Given that environmental-related issues are inherently dependent on human behavior, this concern is more evident (Baca-Motes et al., 2013).

Naturally, some consumers who are aware of environmental protection to some extent apply such behaviors in their purchases (Laroche et al., 2001), which, as a result, an important sign is provided for researchers and

marketers.

Consumers believe that showing their solidarity with environmental concerns can convey their concerns to environmental companies in many cases (Kahle & Gurel-Atay, 2013).

Many studies have carried out on behavioral factors and this issue has been extensively investigated. The role of attitude is investigated by some researchers as the most important factor in the tendency to purchase products (Barber et al., 2009). Attitude means believing energy renewal as environmental behavior prejudice, and as an environmental value in the field of green consumption<sup>1</sup> (Koller et al., 2011). Also, previous studies have investigated the role of environmental attitude in public health (Royne et al., 2011), and the role of environmental awareness in the use of Green Products (Ying-Ching & Chiu-Chi, 2012).

Few studies have been carried out on the relationship between attitude and environmental behavior (Barker et al., 1994). Interesting suggestions are provided to retailers and manufacturers in developed countries following research on such diverse topics about the behavior of consumers who are aware of environmental conservation<sup>2</sup>.

It is necessary to create a theoretical framework to understand the variables related to purchase behavior for environmentally sustainable products due to growth in the retail sector, therefore, it helps retailers to understand different differences between this field with other fields (Kumar et al., 2017).

*Theory of Planned Behaviour*

(abbreviated TPB)<sup>3</sup> is used by several

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1. Green consumption, is closely related to the notions of sustainable development or sustainable consumer behaviour. It is a form of consumption that is compatible with the safeguard of the environment for the present and for the next generations.

2. Environmental conservation is the protection, preservation, management, or restoration of natural environments and the ecological communities that inhabit them.

3. In psychology, the *Theory of Planned Behaviour* (abbreviated TPB) is a *theory* that links one's beliefs and *behavior*. The *theory* states that attitude toward *behavior*, subjective norms, and perceived *behavioral* control, together shape an

researchers to understand the decision-making process about ethical purchase behavior (Sidique et al., 2010; Ramayah et al., 2012). It should be noted that, according to *Theory of Planned Behavior* (TPB) provided by Kumar, the purchase intention of eco friendly products<sup>1</sup> or *environmentally friendly* green products as an ethical principle or decision. The TPB provides a framework in which factors related to a particular behavior are investigated (Kumar et al., 2017).

Many researchers have used the TPB in various fields related to environmental aspects, including recycling behavior (Shaw, 2008; Begum et al., 2009; Ramayah et al., 2012,) or water-saving technologies (Lynne et al., 1995), and *environmental attitude*<sup>2</sup>. In addition, this theory makes possible to examine the role of some text variables, so behavior analysis will be possible in a complete and comprehensive manner (Ajzen, 1991).

There are many factors which have a significant effect on the motivations of individuals for environmental behaviors intentionally (Stern, 1999), as a who has a desire to recycle the recyclable goods, there should be centers near his or her residence where there is the possibility of receiving recyclable goods (Kumar et al., 2017).

*Environmentally Friendly Behavior* is considered as one of the factors affecting protecting the environment, which greatly depends on the environmental awareness of citizens (Sabzehei et al., 2016). The level of people awareness about environmental problems as well as their willingness to work together to solve them has a significant effect on the attention paid by them to the

surrounding environment. Human research in the field of biological sciences are done based these considerations, which has a close relationship with environmentally friendly behavior (Yadav & Pathak, 2016).

*Ofoogh Koorosh chain stores* (OKCS), is considered as the country's largest chain store and leading in protecting the environment due to manufacturing organic disposable tableware from recyclable materials, as well as by writing warnings about the water scarcity crisis, on biodegradable bags that "The *precipitation* ratio in Iran is about one third of the world's average *precipitation* , the ratio of domestic water consumption in Iran is twice the average of the world and the rate of evaporation in Iran is four times the world average".

*Ofoogh Koorosh chain stores* (OKCS) have tried to public opinion towards water-saving as much as possible in order to preserve environment.

In this study, the statistical population includes all consumers of organic products in *Ofoogh Koorosh chain stores* (OKCS) in Karaj, which includes Talavang eggs and organic disposable tableware in these stores. In this present study, the main question is "What is the role of self-efficacy and social tendencies in the green purchase intention and behavior?".

### **Environmental Knowledge**

Environmental knowledge refers to individual's knowledge on environmental issues and, in fact, it means understanding the importance of the environment (Leonidou et al., 2010). MacInnis et al. (1991) during a study concluded that knowledge plays a role in increasing the capacity of a person for information processing.

MacInnis & Jaworski, (1989) believe that knowledge plays a role in the individual's feeling about a product (environmentally sustainable product) and helps process information about that commodity in the same way.

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individual's *behavioral* intentions and *behaviors*.

1. *Eco-friendly products* are "products that do not harm the environment whether in their production, use or disposal".

2. Environmental Attitudes (EA) are a psychological tendency expressed by evaluative responses to the natural environment with some degree of favor or disfavor (Milfont & Duckitt, 2010). Environmental attitudes are a latent construct; therefore we cannot observe it directly.

Elaboration-Likelihood-Model<sup>1</sup> (ELM) developed by Petty & Cacioppo, (1983) provides guidance for discovering the relationship between environmental knowledge and individual attitudes. According to this model, the customers committed to environmental protection probably use logical methods for analysis and decision for purchase.

Laroche et al. (2001) during a study concluded that individual knowledge of the environment has a significant effect on shaping their favorable attitudes towards green products. Nowadays, many studies have conducted on the role of environmental knowledge on the power of forming attitudes and according to the results, it has a significant effect on the forming the attitudes. Therefore, the emergence of political, social, and religious views and increasing individual perception of the role and possible consequences of damage to the environment are effective in the forming positive environmental attitudes in a person (Ramsey & Rickson, 1976). The following hypothesis is provided according to these topics:

Hypothesis 1: Environmental knowledge plays a role in consumer attitude.

### Green Purchase Intention

The purchase intention of green products refers to the likelihood and desire of a person to achieve environmentally friendly products (Ali & Ahmad, 2012; Dehghanan & Bakhshandeh, 2014). The purchase intention of green products is considered as a significant predictor for green purchase behavior (Beckford et al., 2010; Chan, 2001). The decisions made by a person has a significant effect on the behavior of the individual (Ajzen, 1991), and this issue has been studied by many researchers (Ajzen & Fishbein, 1975; Sheppard et al., 1988).

Historically, the intention of each person is effective on predicting his behavior, but it may not be true in some cases (Kumar et al., 2017). Many researchers believe that there is a high degree of correlation between intention and behavior (Sheppard et al., 1988). A study was carried out on the purchase behavior of organic food and showed that there is a positive and significant relationship between purchase intention and behavior (Saba & Messina, 2003). The following hypothesis is provided according to these topics:

Hypothesis 2: Green purchase intention plays a role in green purchase behavior.

### Consumer Attitude

Allport, (1935) defines attitude as follows an attitude as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon an individual's response to all objects and situations with which it is related". The attitude of the individual towards environmental concerns is one of the reasons for the spread of this phenomenon, which is described by Zelezny & Schultz, (2000) in detail. They described this factor as the *deep. Rooted concept* in a person's self and is connected with the degree of connection between the individual and the environment (Kumar et al., 2017). Environmental protection is confirmed by most consumers, but they do not actually adhere to it, and consumers' attitudes towards green products are often mixed with its positive and negative reactions that lead to Uncertainty in purchasing green products (Hu & Parsa, 2017).

The environmental attitude of place *belonging* and commitment to the environment and preservation of it are considered as the main and social factors of environmental behaviors (Yazdani & Goli, 2018). Also, few studies have concluded that a favorable attitude toward a environmentally sustainable product would result in a favorable purchase of that product (Verbeke & Viaene, 1999; Chan, 2001).

1. The elaboration likelihood model of persuasion is a dual process theory describing the change of attitudes. The ELM was developed by Richard E. Petty and John Cacioppo in 1980. The model aims to explain different ways of processing stimuli, why they are used, and their outcomes on attitude change.

Attitudes can have a significant effect on the specific behavior of the consumer and finally leads to strengthen the consumer purchasing intention (Ajzen, 1991; Cheng et al., 2006).

The following hypothesis is provided according to these topics:

Hypothesis 3: Customer attitude plays a role in green purchase intention.

### Social Tendencies

Short et al. (1976) have defined social tendencies as follows: "As a significant degree (eg, quality and status) between two communicators using a communication media". According to social tendencies, there is a direct and positive relationship between the online purchase intention of users (Gefen & Straub, 2004; Hassanein & Head, 2007), and to strengthening trust in online environments and reducing the cognitive dissonance in online purchase (Dash & Saji, 2007).

Social tendencies don't have any positive and direct effects on the purchase intention of the users in the second life (virtual life) (Animesh et al., 2011). Therefore, social tendencies plays a role on the purchase intention of the users through two mechanisms: By influencing trust and building empathy in a network in a direct way, and reducing uncertainty about online purchase, and By increasing the value and credibility of the social network in an indirect way, and online purchase increases again (Mäntymäki & Salo, 2013). Therefore, the following hypothesis is presented:

Hypothesis 4: Social tendencies play a role in green purchase intention.

### Self Efficacy

*Self-efficacy* can be defined as one's belief in one's ability to perform a *specific behavior* and plays a role in choosing a person in relation to the behaviors that he or she is doing (Bandura, 1977). Social cognitive theory<sup>1</sup> establishes a three-way relationship

1. *Social cognitive theory* (SCT), used in psychology, education, and communication, holds that portions of an

between the behavior of the individual who intends to buy, cognitive perceptions and the environment.

According to social cognitive theory, individuals tend to do behaviors that will be associated with positive consequences in their own beliefs. *Self-efficacy* can be defined as follows: "People's judgment about their abilities in organizing and taking necessary measures to achieve a variety of goals". This issue does not relate to one person's ability, but there is a significant relationship between judgment and thinking about his skills.

Briefly, the role of *self-efficacy* as an informed and illustrative structure can attract much attention when it can affect the purchase intention in terms of the characteristics of information technology and user groups (Mäntymäki & Salo, 2013).

Therefore, the following hypothesis is presented: Hypothesis 5: *Self-efficacy* plays a role in green purchase intention.

### Green purchase behavior

Green purchase behavior refers to *the consumption* of environmentally friendly products that are useful for environment. These products are recyclable and sensitive and responsive to environmental concerns (Mostafa, 2007).

Consumers choose products based on a combination of product features that are able to meet their needs based on the dimensions of value, cost, and satisfaction in the best way. One of the most important factors of marketing mix<sup>2</sup> is price, and given that the price of green products is often higher than the price of ordinary products, this issue has become one of the major challenges for

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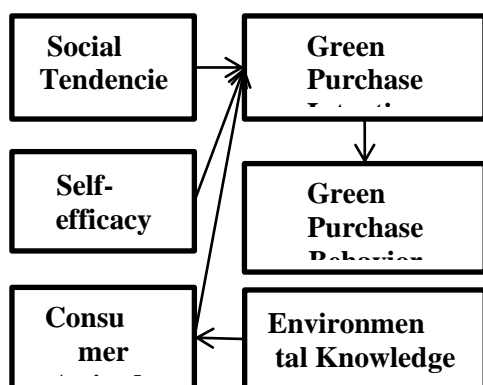
individual's knowledge acquisition can be directly related to observing others within the context of *social* interactions, experiences, and outside media influences.

2. The marketing mix is a foundation model for businesses. The marketing mix has been defined as the "set of marketing tools that the firm uses to pursue its marketing objectives in the target market". Thus the marketing mix refers to four broad levels of marketing decision, namely: product, price, place, and promotion.

marketers and consumers.

Some of the reasons that led to the lack of acceptance of these products by the consumers are: high price and lack of attractiveness of ecological products. Of course, it is important for green customers that not to spend their money on boosting, promoting or supporting a ordinary and non-green product, so they can take important steps towards protecting the environment and growing renewable resources (Abbasi et al., 2012). Some studies on green purchase behavior have measured the real behavior, and some studies have measured behavioral intention, and others, have measured both variables simultaneously (Abdul Rashid et al., 2009).

According to the results of most studies which have been recently conducted on organic products in the field of green marketing, behavioral intention predicts the real behavior very good. In this study, the statistical population includes all consumers of organic products supplied at *Ofogh* Koorosh chain stores (OKCS) in the city of Karaj, including Talavang eggs and organic disposable tableware. The present study has tried to answer this question: "What is the role of self-efficacy and social tendencies in the green purchase intention and behavior?"



**Figure 1.** Conceptual model of research

The conceptual model provided is based on the conceptual model presented by (B.kumar et al., 2017) and (Matti Mäntymäki & Jari Salo, 2013).

## Research Methodology

In this study, the statistical population includes all consumers of organic products supplied at *Ofogh* Koorosh chain stores (OKCS) in the city of Karaj, including Talavang eggs and organic disposable tableware.

Given that the statistical population is unlimited in this study, Cochran formula was used to determine the sample size which was equal to 384 people. The stratified probability sampling method was used and given that different regions of Karaj were studied, it was found that *Ofogh* Koorosh chain stores (OKCS) are located in Azimiyeh, Gohardasht, Mehrshahr, Baghestan, Hesarak and Shahin Villa. A store has been selected from each region, and the questionnaire was distributed among the customers of the selected stores who went to the stores and bought organic products such as Talavang eggs and organic disposable tableware during information collection step.

The information collection in the present study was conducted using two methods of field and library:

➤ Library method (Documents review): In this section, library resources, articles, books, and the World Wide Web (Internet) are used to collect information in the field of theoretical foundations and research topic literature.

➤ Field Method:

The field method has been used for collecting information about the research topic and testing hypotheses, which is done through a questionnaire.

In the present study, a 20-question questionnaire has been used. Questions related to the variables of environmental knowledge, green purchasing intention, consumer attitude and green purchase behavior were designed based on studies conducted by (Kumar, 2017) and questions related to social tendencies were designed based on studies conducted by (Cyr et al., 2007; Hassanein & Head, 2007) and questions related to self-efficacy variables were designed based on (Compeau & Higgins,

1995; Venkatesh et al., 2003). These questions are described in Table 1.

The Cronbach's alpha coefficient was used to investigate the reliability of this questionnaire. The reliability of the questionnaire is listed in Table 1 by variables.

Two methods of formal and content were used to measure and evaluate the validity of the questionnaire.

In formal validity assessment, the sources of questions and how to write by them were confirmed by the professors and experts. The Confirmatory Factor Analysis (CFA)<sup>1</sup> technique was used to measure the content validity of the questionnaire.

The environmental knowledge-related questions have 3 items and 3 indicators and the consumer knowledge of reducing pollution, reducing the inappropriate use of natural resources and maintaining natural resources has been investigated. Also, the green purchase intention has 4 items and 4 indicators. The consumer's intention for using organic products is investigated. Also, consumer attitude has 3 items and 3 indicators, and consumer attitude toward environmental improvement, use of natural resources and maintaining natural resources have been studied. Also, social tendencies have 3 questions and 3 indicators and the consumer tendencies are investigated in the fields of human contact and social sense. Also, self efficacy has 3 items and 3 indicators. The consumer self efficacy is investigated in the fields of feeling comfortable in using organic products, working in organic products stores and feeling comfortable despite the lack information on how to use organic products. Also, the green purchase behavior has 4 items and 4 indicators and the consumer behavior is investigated in relation with the same price, reducing plastic bags, *non-purchase of Products Harmful to the Environment* and lack of non-responsibility for the

environment.

As mentioned earlier, the reliability of all the variables is acceptable, and the Cronbach's alpha value of all the variables is greater than the criterion value of 0.7, that is the reliability of all variables and the reliability of the questionnaire are confirmed.

## Results

Parametric statistical method has been used to analyze the data in the present study. Descriptive statistics has been used to describe the data, and inferential statistics and structural equation modeling methods have been used for the data analysis and conclusions of the research hypotheses.

After the descriptive statistics of measurable variables were determined, it's time to determine the status of normality status of variables distribution.

The Kolmogorov-Smirnov test<sup>2</sup> is used to investigate the claims raised in relation with the data distribution of a quantitative variable. The statistical hypotheses related to normal distribution are as follows:

H0: The data has normal distribution.

H1: The data doesn't have normal distribution.

As shown in Table 2, and given that the significance level of the test for all variables is greater than 0.05, H0 is confirmed, thus distribution of these variables is normal.

## Confirmatory Factor Analysis

Confirmatory factor analysis technique has been used to investigate the validity of the construct of the questionnaire. The factor analysis can be used to measure the reliability or validity of the measurement scales. According to confirmatory factor analysis, the researcher follows his/her study based on a

1. *Confirmatory factor analysis (CFA)* is a multivariate statistical procedure that is used to test how well the measured variables represent the number of constructs.

2. In statistics, the Kolmogorov-Smirnov test (K-S test or KS test) is a nonparametric test of the equality of continuous, one-dimensional probability distributions that can be used to compare a sample with a reference probability distribution (one-sample K-S test), or to compare two samples (two-sample K-S test). It is named after Andrey Kolmogorov and Nikolai Smirnov.

predetermined factor structure and seeks to test the accuracy of the factor structure of a set of observed variables.

**Table 1.** Sources of questions, validity and reliability of the questionnaire

Variables	Item No	Item numbers	Source of variables	The amount of initial commons	Alpha Cronbach coefficient
Environmental knowledge	3	1-3	B.Kumar (2017)	0.74	0.74
Green purchase intention	4	4-7	B.Kumar (2017)	0.80	0.86
Consumer Attitude	3	8-10	B.Kumar (2017)	0.75	0.79
Social tendencies	3	11-13	Cyr et al., (2007); Hassanein & Head, (2007)	0.73	0.73
Autonomy	3	14-16	Compeau & Higgins, (1995); Venkatesh et al., (2003)	0.81	0.89
Green purchase behavior	4	17-20	B.Kumar (2017)	0.76	0.84

**Table 2.** Investigating the Normality of Research Variables Distribution (Kolmogorov -Smirnov Test )

Variables	Test statistic	Significance level	Status
Environmental knowledge	0.451	0.988	Normal
Green purchase intention	0.818	0.516	Normal
Consumer Attitude	1.335	0.057	Normal
Social tendencies	3.144	0.720	Normal
Self -efficacy	3.302	0.790	Normal
Green Purchase behavior	0.518	0.951	Normal

**Table 3.** The values of factor load, mean extracted variance and combined reliability of the environmental knowledge variable

Variable	Question No	Standard factor ( factor load )	Initial commons	Average variance extracted (AVE)	Combined reliability
Environmental knowledge	1	0.75	0.71	0.54	0.78
	2	0.63	0.67		
	3	0.82	0.57		

### Investigating the validity of the environmental knowledge variable

First-order confirmatory factor analysis was used in order to investigate the validity of the environmental knowledge variable. This variable has three questions, and the results with the initial commons, combined reliability, and the average value of the variance extracted are presented in table 3. According to the results obtained from the confirmatory factor analysis for the environmental knowledge variable, according to the value of factor load obtained for all the questions related to the environmental knowledge variable which is greater than 0.40

and is significant at the significant level less than 0.01 ( $P < 0.01$ ), it can be concluded that the structure validity of the environmental knowledge variable and all its questions is confirmed.

The combined reliability value is obtained 0.78, which is an acceptable value and indicates that the reliability of this variable is confirmed.

The average variance extracted (ave) that measures the convergent validity is obtained 0.54, which is an acceptable value for convergent validity. Therefore, it can be concluded that the reliability and validity of



the environmental knowledge structure is confirmed. Table 3, shows the results.

**Investigating the validity of the green purchase intention**

First-order confirmatory factor analysis was used in order to investigate the validity of the green purchase intention variable. This variable has four questions, and the results with the initial commons, combined reliability, and the average value of the variance extracted are presented in table 4.

According to the results obtained from the confirmatory factor analysis for the green purchase intention variable, according to the value of factor load obtained for all the questions related to the green purchase intention variable According to the results obtained from the confirmatory factor analysis for the green purchase intention variable,

according to the value of factor load obtained for all the questions related to the green purchase intention variable which is greater than 0.40 and is significant at the significant level less than 0.01 ( $P < 0.01$ ), it can be concluded that the structure validity of the green purchase intention variable and all its questions is confirmed.

The combined reliability value is obtained 0.90, which is an acceptable value and indicates that the reliability of this variable is confirmed.

The average variance extracted (ave) that measures the convergent validity is obtained 0.59, which is an acceptable value for convergent validity. Therefore, it can be concluded that the reliability and validity of the green purchase intention structure is confirmed. Table 4, shows the results.

**Table 4.** The values of factor load, mean extracted variance and combined reliability of the green purchase intention variable

Variable	Question No	Standard factor ( factor load )	Initial commons	Average variance extracted (AVE)	Combined reliability
green purchase intention	4	0.57	0.62	0.59	0.90
	5	0.73	0.44		
	6	0.79	0.73		
	7	0.91	0.82		

**Table 5.** The values of factor load, mean extracted variance and combined reliability of the consumer attitude variable

Variable	Question No	Standard factor ( factor load )	Initial commons	Average variance extracted (AVE)	Combined reliability
consumer attitude	8	0.46	0.42	0.54	0.77
	9	0.89	0.50		
	10	0.79	0.63		

**Investigating the validity of the consumer attitude variable**

First-order confirmatory factor analysis was used in order to investigate the validity of the consumer attitude variable. This variable has three questions, and the results with the initial commons, combined reliability, and the average value of the variance extracted are presented in table 5.

According to the results obtained from the confirmatory factor analysis for the consumer attitude variable, according to the value of factor load obtained for all the questions

related to the consumer attitude variable which is greater than 0.40 and is significant at the significant level less than 0.01 ( $P < 0.01$ ), it can be concluded that the structure validity of the consumer attitude variable and all its questions is confirmed.

The combined reliability value is obtained 0.77, which is an acceptable value and indicates that the reliability of this variable is confirmed.

The average variance extracted (ave) that measures the convergent validity is obtained 0.54, which is an acceptable value for

convergent validity. Therefore, it can be concluded that the reliability and validity of the consumer attitude structure is confirmed. Table 5, shows the results.

#### Investigating the validity of the social tendencies variable

First-order confirmatory factor analysis was used in order to investigate the validity of the social tendencies variable. This variable has three questions, and the results with the initial commons, combined reliability, and the average value of the variance extracted are presented in table 6.

According to the results obtained from the confirmatory factor analysis for the social tendencies variable, according to the value of factor load obtained for all the questions

**Table 6.** The values of factor load, mean extracted variance and combined reliability of the social tendencies variable

Variable	Question No	Standard factor ( factor load )	Initial commons	Average variance e xtracted (AVE)	Combined reliability
social tendencies	11	0.82	0.73	0.63	0.83
	12	0.87	0.74		
	13	0.67	0.64		

**Table 7.** The values of factor load, mean extracted variance and combined reliability of the self efficacy variable

Variable	Question No	Standard factor ( factor load )	Initial commons	Average variance e xtracted (AVE)	Combined reliability
self-efficacy	14	0.57	0.67	0.47	0.85
	15	0.43	0.63		
	16	0.81	0.62		

#### Investigating the validity of the self efficacy variable

First-order confirmatory factor analysis was used in order to investigate the validity of the self-efficacy variable. This variable has three questions, and the results with the initial commons, combined reliability, and the average value of the variance extracted are presented in table 7.

According to the results obtained from the confirmatory factor analysis for the self-efficacy variable, according to the value of factor load obtained for all the questions related to the self-efficacy variable which is greater than 0.40 and is significant at the significant level less than 0.01 ( $P < 0.01$ ), it can be concluded that the structure validity

related to the social tendencies variable which is greater than 0.40 and is significant at the significant level less than 0.01 ( $P < 0.01$ ), it can be concluded that the structure validity of the social tendencies variable and all its questions is confirmed.

The combined reliability value is obtained 0.83, which is an acceptable value and indicates that the reliability of this variable is confirmed.

The average variance extracted (ave) that measures the convergent validity is obtained 0.63, which is an acceptable value for convergent validity. Therefore, it can be concluded that the reliability and validity of the social tendencies structure is confirmed.

Table 6, shows the results.

**Table 6.** The values of factor load, mean extracted variance and combined reliability of the social tendencies variable

of the self-efficacy variable and all its questions is confirmed.

The combined reliability value is obtained 0.85, which is an acceptable value and indicates that the reliability of this variable is confirmed.

The average variance extracted (ave) that measures the convergent validity is obtained 0.47, which is an acceptable value for convergent validity. Therefore, it can be concluded that the reliability and validity of the self-efficacy structure is confirmed. Table 7, shows the results.

#### Investigating the validity of the green purchase behavior variable

First-order confirmatory factor analysis was used in order to investigate the validity of the

green purchase behavior variable. This variable has four questions, and the results with the initial commons, combined reliability, and the average value of the variance extracted are presented in table 8. According to the results obtained from the confirmatory factor analysis for the green purchase behavior variable, according to the value of factor load obtained for all the questions related to the green purchase behavior variable which is greater than 0.40 and is significant at the significant level less than 0.01 ( $P < 0.01$ ), it can be concluded that the structure validity of the green

purchase behavior variable and all its questions is confirmed.

The combined reliability value is obtained 0.87, which is an acceptable value and indicates that the reliability of this variable is confirmed.

The average variance extracted (ave) that measures the convergent validity is obtained 0.63, which is an acceptable value for convergent validity. Therefore, it can be concluded that the reliability and validity of the green purchase behavior structure is confirmed. Table 8, shows the results.

**Table 8.** The values of factor load, mean extracted variance and combined reliability of the green purchase behavior variable

Variable	Question No	Standard factor (factor load)	Initial commons	Average variance extracted (AVE)	Combined reliability
green purchase behavior	17	0.82	0.69	0.63	0.87
	18	0.76	0.48		
	19	0.87	0.80		
	20	0.71	0.49		

**Table 9.** Fit indices of research model

Indicators	Desirable amount	Result	Interpretation
Chi-Square (Chi-square statistic)	$P > 0.05$	$P < 0.05$	Lack of good fit
GFI (Goodness Fit Index)	$> 0.90$ (Greater than 0.90)	0.87	Medium fit
Root Mean Square Error of Approximation (RMSEA)	$> 0.80$ (Greater than 0.80)	0.079	Good Fit
Comparative Fit Index (CFI)	$> 0.90$ (Greater than 0.90)	0.86	Medium fit
The normed fit index (NFI)	$> 0.90$ (Greater than 0.90)	0.93	Good Fit
IFI (Incremental fit index)	$> 0.90$ (Greater than 0.90)	0.93	Good Fit
the adjusted goodness of fit index (AGFI)	$> 0.50$ (Greater than 0.50)	0.62	Good Fit
Parsimony Goodness of fit (PGFI)	$> 0.50$ (Greater than 0.50)	0.62	Good Fit
Chi-Square / df (Chi-square ratio per degree of freedom)	$3 \geq \text{Index} \geq 2$ (Between 2 and 3)	3.93	Medium fit

After the parameters of the model were estimated, this question arises that “How compatible is the model with the relevant data?”. It is possible to answer to this question only by assessing the *Fit* of the model. Therefore, in order to analyze the structural equations, the researcher needs to be sure of

the fit of the model before evaluating the parameters and before interpreting them.

Tables 9, shows the *indicators of the model fitness*. In general, after all fitness indicators were evaluated, it can be concluded that according to the fitting indicators, the data has an acceptable fit with the model, and the

model fitness can be confirmed approximately.

The results of structural model test are presented in table 10. The value of the standardized path coefficient and the t-value and the significant level (P-Value) obtained are listed in this table. The hypotheses are tested and the effect of variables is investigated based on the structural equation modeling test and Pearson correlation. About t-test, if the absolute value of t is greater than 1.96, that is the obtained relationship is significant at the error level less than 0.05 ( $P < 0.05$ ) and the relationship between the two variables is significant with 95% confidence, and if the absolute value of t is greater than 2.58, that is the obtained relationship is significant at the error level less than 0.01 ( $P < 0.01$ ) and there is a significant relationship between two variables with 99% confidence.

The results of the research hypotheses testing are as follows:

Hypothesis 1: Environmental knowledge plays a role in consumer attitudes.

According to the results of the structural equation modeling test, environmental knowledge plays a role in consumer attitude and this hypothesis is confirmed at the 99 percent *confidence level*. The relationship direction is positive and the intensity of the relationship is 0.48.

Hypothesis 2: Green purchase intention plays a role in green purchase behavior.

According to the results of the structural equation modeling test, green purchase intention plays a role in green purchase behavior and this hypothesis is confirmed at the 99 percent *confidence level*. The relationship direction is positive and the intensity of the relationship is 0.48.

Hypothesis 3: Consumer attitude plays a role in green purchase intention.

According to the results of the structural equation modeling test, green purchase intention doesn't play a role in green purchase intention, therefore this hypothesis is rejected and there is no statistical relationship between these two variables ( $P < 0.05$ ).

Hypothesis 4: Social tendencies play a role in green purchase intention.

According to the results of the structural equation modeling test, social tendencies play a role in green purchase intention and this hypothesis is confirmed at the 99 percent *confidence level*. The relationship direction is positive and the intensity of the relationship is 0.27.

Hypothesis 5: Self-efficacy plays a role in green purchase intention.

According to the results of the structural equation modeling test, self-efficacy plays a role in green purchase intention and this hypothesis is confirmed at the 99 percent *confidence level*. The relationship direction is positive and the intensity of the relationship is 0.32.

**Table 10.** Test results of hypotheses and relationships of variables

Type of relationship	Standardized factor	T-value	P-value	Result
The Role of Environmental Knowledge on the consumer attitude	0.48	8.62	<0.01	Confirmed
The role of green purchase intention on the green purchase behavior	0.48	8.71	<0.01	Confirmed
The Role of consumer attitude on the green purchase intention	0.09	1.81	<0.05	Rejected
The Role of social tendencies on the green purchase intention	0.27	4.59	<0.01	Confirmed
The role of self-efficacy on the green purchase intention	0.32	5.30	<0.01	Confirmed

## Discussion and conclusion

Due to media coverage, further knowledge on

environmental problems, the effects of major industrial disasters and increasing active

environmental groups, concerns for the environment are rising over the past decade (Young et al., 2010).

Nowadays, in addition to customers who have enough knowledge of the environmental conditions, many customers have understood the need to pay attention to the eco-compatibility criteria in their choices. They prefer to buy the eco-friendly products. Also, our country faces serious environmental problems. Given that the awareness level of people about these potential damages is increasing, it can be predicted that the number of the green consumers increases gradually. In Iran, companies will also be more successful which pay attention to the needs of this large sector of the market, and develop their marketing plans according to the needs in this section (Khoddami et al., 2017).

The results of 5 hypotheses raised in the present study based on the statistical analysis are as follows. According to the results, environmental knowledge plays a role in consumer attitudes. Environmental knowledge refers to the sum *total* of the *individual's knowledge* of environmental issues and, in fact, it means understanding the importance of the environment, and it is necessary to pay special attention to environmental knowledge, ie, indicators such as consumer knowledge to reduce pollution, reducing useless consumptions, protecting the natural resources of the environment and improving the well-being level.

Therefore, marketing managers need to pay attention to these issues by considering the role of this type of knowledge in consumer behavior and take necessary measures to improve environmental knowledge and consumers with higher level of awareness about the environment are more motivated to buy environmentally friendly products.

The results of this hypothesis are consistent with the studies conducted by (Begum et al., 2009; Diekmann & Preisendörfer, 2003), but they are inconsistent with the research carried out by (Hassan et al., 2010).

Also, according to the results of hypothesis 2, green purchase intention plays a role in green purchase behavior and green purchase intention refers to the probability and tendency of an individual to achieve environmentally friendly products and it is considered as an appropriate concept to predict the actual purchase behavior. It is necessary to pay attention to green purchase intention, that is, indicators such as consumer intention to use organic products, search for organic products, and recommendations to use organic products. Therefore, marketing managers need to recommend marketers and companies pay more attention to this issue, because this group of consumers has the potential to be considered as good customers for companies and producers of environmental products and services, and the target market of the marketers and companies can focus on customers who intend to purchase more organic products. The results of this hypothesis are consistent with the results of studies conducted by (Sheppard et al., 1998), but the results of this study are inconsistent with the results provided by (Grunert & Juhl, 1995).

Also, according to the results of hypothesis 3, consumer attitude doesn't play any roles in green purchase, and consumer attitude refers to a set of individual's beliefs, emotions, and practices that focuses on environment related issues and measures, therefore specific attention should be paid to indicators such as consumer attitude toward improving environment, the use of natural resources and *conservation* of natural resources. As a result, marketing managers should control their purchase behavior due to their effect on how to think and process information, managers by trying to change the attitudes of consumers of green products. Although it is a complex time-consuming process making any changes in the attitude, a positive attitude about the environment can play an important in the purchase of green products. The results of this hypothesis are consistent with the results

reported by (Verbeke & Viaene, 1999; Kim & Hunter, 1993).

Also, according to the results of hypothesis 4, social tendencies play a role in green purchase intention, and social tendencies refer to the degree to which a person is perceived as a real person in intermediary communications, It is necessary to pay attention to social tendencies, it means the indicators such as consumer's social tendencies towards human contact and social sense. Thus, the customers should be encouraged by marketing managers to purchase organic products instead of the purchase of the ordinary products and evidences of physical health after consuming organic products should be provided by them in order to achieve the customers' satisfaction. The results of this hypothesis are consistent with the results provided by (Gefen & Straub, 2004; Hassanein & Head, 2007), but the results of the present study are inconsistent with (Animesh et al., 2011).

Also, according to the results of the hypothesis 5, self-efficacy plays a role in green purchase and self-efficacy refers to a very convincing belief in people's abilities that can play a role in the lives of individuals. It is necessary to pay attention to self-efficacy, that is, indicators such as consumer's self-efficacy, feeling comfortable in using organic products, working in organic products stores and feeling

comfortable despite the lack information on how to use organic products. Therefore, marketing managers need to increase the sense of pleasure in the purchase of organic products among individuals and improve the motivation and efficiency of the customers. The results of this hypothesis are consistent with the results reported by (Mäntymäki & Salo, 2013).

As a result, it is suggested that these issues to be addressed in future studies:

1. In this study, only green products purchase intention and behavior has been investigated, while the effect of these factors on other aspects of consumer behavior can be measured.

2. This study has investigated the green products purchase intention and behavior, while it is possible to limit the purchase intention and behavior to a particular type of green product and to examine it in more detail.

3. Also, the role of other factors such as cultural factors, environmental concerns, etc. can be measured in the consumer's green purchase intention and behavior.

4. The present study hasn't addressed how to increase consumer awareness about green products or how to make and develop marketing communications, which this issue could be a good topic for future studies.

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