

The Effect of Environment-Friendly Attitude on Consumer Perception of Usability of Product Packaging

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ABSTRACT

Today, consumers are more concerned about environmental changes and their purchasing behavior has changed in this regard. Concern for the environment in buying patterns of consumers who prefer products that support the environment with a growing trend are visible. The aim of the current study is to evaluate the impact of Environment-friendly attitude on consumer perception of reusability of product packaging. The present research is applied regarding the aim, and in terms method of data collection is a descriptive survey and correlation. Using Simple random sampling, a sample of 385 customers of big stores in Bushehr were selected and studied. Then the required information was gathered using a questionnaire. AMOS software was used to test the conceptual model and the research hypotheses. The results show that the consumer's environment-friendly attitude has a positive and significant effect on his sensitivity to recyclability of product packaging. The findings also indicate that consumer sensitivity have positive and significant effect on consumer perception of reusability of product packaging. Finally, the results show that the proportionality of the form, color and the material of the packaging have positive and significant effect on consumer perception of reusability of product packaging. So the Companies should consider the form, color and the material of the packaging in their products.

Key Words:

Environment-friendly attitude, packaging material, reusability of packaging, sensitivity to recyclability of packaging.

INTRODUCTION

In recent years, most consumers have concluded that their buying behaviors directly affect environmental issues and this is one of the criteria that consumers consider when shopping. Environmental behavior includes efforts for saving energy and refusing to buy products with inappropriate packaging [1]. In fact, consumers feel a sense of responsibility towards the environmental issues and try to participate in it by buying products that are not harmful to the environment. Moreover, in recent decades, the world has witnessed a growing number of marketing programs that aim to prevent the destruction of the environment by environment-friendly groups, has been [2]. In general, such programs are related to conservation of the environment and are looking to influence consumer attitudes and behavior [3]. Each year, environment-friendly goods producing companies spend a lot on marketing their products. Also, international studies have shown that consumers are more concerned about environmental changes and have changed their behavior in this regard. Concern for the environment in shopping patterns of consumers who prefer environment-friendly products with a growing trend is visible [3]. In addition, knowing what stimulates consumers to buy environment-friendly products is very important [4].

Packaging is one of the most important factors in the purchase decision [5]. An increase in purchase decision making at the moment of shopping, have increased communication potential of food products packaging [6]. Packaging products, particularly in relation to green consumers should be such that to communicate with costumers and to be considered among other similar products and even attract attention. Packaging is a combination of various elements, each of which can be effective in creating the image in the minds of consumer. There is competition between food products sales, forcing firms to pay more attention to packaging as a tool to

attract the attention of their customers. In the design process, marketers and packaging designers need to consider consumers' needs, demands and the experiences, and to consider how to use each element of product packaging so as to attract the customer's attention. According to the conducted researches, 73% of purchase decisions are made at the point-of-purchase [7]. Then the packaging design plays an important role at the point-of-purchase. Considering that the importance of packaging as communication tool for food products is increasing in competitive markets and that most of the consumers purchase these products not only to use them but also to reuse their packaging, a study seems to be essential in this area. Also with respect to the fact that the environmental problems which people face with, are increasing every day and no study have been conducted on the relationship between environmental friendly attitudes and reuse of products packaging, researcher aims to study the relationship between these variables in terms of scientific review. Considering this point, the question is-whether the attention and care of the consumer to the environment will lead to his different approach to the product packaging? And whether the form, material and color of the products packaging could suggest consumers that packaging is not a waste and can be recycled after usage? So what we have to answer is consumers' attitudes and sensitivity to environmental issues. The solution that is made in this research is product packaging that as one of the green marketing tools can play an important role in reducing the destructive effects towards the environment.

LITERATURE REVIEW

Environmental friendly attitude

According to the research conducted over the past two decades, the result has shown that the attitudes have a dramatic effect on marketing and

recognizing the behavior of consumers. A person wants to do something when they have a positive attitude towards it. Environmental attitudes are defined as a set of beliefs, desires, feelings, and behaviors related to the environment [8]. Consumers concerned with the environment purchase those products and services that have more positive (or less negative) impacts on environment. Such people consciously seek to restrict the use of products made of scarce resources, try for saving energy and refuse to purchase products with additional and inadequate packaging [9]. Even governments seek to inform the public about the benefits of ecological products [10], although they have been focused more on the production, so as to take care of the use and waste [11].

Paco and Raposo [3] categorized consumers to three groups of non-aligned group (36%), green activists (35%) and uncertain (29%) using population variables, environmental variables (anxiety, influence, knowledge, environment-friendly behaviors, search for information, activities, green product purchase behavior, sensitivity to price, recycling, perception efficacy and cynicism) in a research on green consumer recognition. Amirshahi et al. [9] defined advertising, labeling and the environmental brand as effective tools on behavior of different groups of consumer with an emphasis on importance of a research in order to choose the appropriate environmental green marketing tool regarding the environment friendly attitudes of consumers. Results of the Borundh [12] research show that attitudes toward the use of environment friendly recyclable materials will lead to environment friendly behaviors. Athalye [13] states in his research that if lower price is set to recyclable drink bottles, not only a purchase impulse will be created, but also that will solve the problem of waste disposal.

Product packaging

According to Prendergast and Pitt [14] packaging is one of the most important factors in

purchasing decisions at the moment of purchase, because it is connected with the consumer [15] & [5]. Many marketing literature have assessed the packaging as a main section and an inseparable element in the Four P marketing [16]. Packaging means the container and a coordinate system which not only guarantees the safety of goods during the production process to usage, but also tries to create strong, fast and low-cost relation between the producer and consumer and through this way creates more added values for supply chain in the process of transportation, distribution, warehousing and sales [17]. When an interesting packaging is presented in showcases of a shop or a supermarket under curious consumer's visibility, inspection, investigation and judgment, in fact, it has done its notification task and has made the sales possible if it becomes popular and could motivate him to buy it [12]. That is why in packaging design designers must be clear about its consumer orientation [10].

Nowadays, the conservation of the environment is one of the most important issues that increasingly attract world attention. Packaging design in a manner that it can be used again is one of ways that could be a step towards protecting the environment. In recent years, by awareness of environmental benefits, moving from disposable packaging to recyclable and reusable packaging has increased. Review of previous research shows that there are three original packaging elements, which affect the buying decision. These elements include the form, material and color of the packaging [18]. We describe the three main elements of packaging below.

Packaging form: the form is all two-dimensional or three-dimensional space that is enclosed with a few lines. The form can be a combination of rectangular, square, circle and oval designs. Regarding the creation of large department stores which have wider and broader shelves than small and local shops, it can be said that the viewer at first can see the form and then other variables such as color of

the packaging [19]. The product packaging can show it more attractive. This is especially true in the case of children. Some parents state that their children prefer the products with various packaging, especially products which their involvement with consumer is low [20]. In many cases, the form of packaging is the first and most memorable thing that a customer sees and remembers when faced with all kinds of products. Consumers immediately respond to packaging forms and are affected by them when making decisions about purchasing products. Different forms of goods facilitate identification for buyers. One of the forms that has recently seen a lot for different products, are the form of animals, fantasy characters in cartoon programs, and those tools that people consume on a daily basis. This form can be very effective in attracting buyers, especially if the consumer feels that the packaging can be re-used for other purposes. If the packaging design is in accordance with the type of product and its subsequent use, it will make the product more attractive. For instance, baby shampoo designed in a doll form d packaging can be used as a children's toy [6]. So one of the important things about packaging design is to know that the consumer is at what age group [21].

Packaging material: Regarding the packaging of products by companies, we usually encounter several packages that include:

Cardboard packaging: Cardboard packaging can be used for food, edibles, dairy, pharmaceutical and healthcare products. The advantage of cardboard packaging is that they are renewable and recyclable resources. Since they break-up in environment, they have less damage to the environment. They are economical. Use of print methods and graphics on these packaging materials is easier than other types. They are lightweight and easy to open and close. Besides these advantages, their disadvantage is that they do not have good resistance to moisture [22].

Metal packaging: This packaging material has high strength. They are recyclable and reusable.

They are resistant against impact, pressure, temperature, and impenetrable against moisture, light, air and contaminations. The life in metal materials is much more than others. But besides these advantages, the metal corrosion phenomenon occurs faster in comparison with other packaging materials. Metal packaging corrosion can cause discoloration, loss in Vitamins or corruption of food [22].

Glass packaging: Being transparent and that the content is understood are the benefits of this packaging. Other benefits include: these dishes retain taste of good product, prevent the penetration of the moisture and air as well as pollution, they're easily opened and closed and can be recycled and reused, they are showy and many other benefits. But breakability due to thermal and physical shocks, raise the possibility of food spoilage due to light penetration, while high weight and high transport cost are their disadvantages [22].

Plastic packaging: Lightweight and relatively affordable price, configurability, scalability and format flexibility, recyclability, reusability are its benefits. But these types of packaging are easily flammable, hardly decompose in the environment, when in contact with food in certain circumstances, chemicals may be transferred to food products inside them [22].

Wooden packaging: Wood has unparalleled and unique benefits and advantages. Air ventilation, sealing, easy transport, reusability, inexpensive price, having color, texture and beautiful designs, fire-proof, free of defects such as rust-proof are all its advantages. But it also has disadvantages such as loosening, decay, mildew and color change, loss of strength against wind, rain and insects [23].

However, what material should be used in the design of packaging, depends on the product type and also possible after use applications. For example, in the case of dairy products less glass material is used while in other foodstuffs, such as jams, glass packaging is mostly used. Babalis et al. [24] carried

out a research in Greece looking for a new design for crops such as olives, fruit and vegetables and etc. They suggested that glass packaging is more proper for liquid products like olive oil. They further stated that according to some consumers' reuse of packaging, packaging are better to be made of plant material (e.g. wood). In export cases, it is also possible to batch glass packaging inside wooden boxes to avoid breakage. Buelow et al. [25] conducted a research to investigate the extent of which consumers notice the information labels on recyclability of packaging thus addressing environment-friendly behavior. The results show that despite the good intentions of consumers, their awareness of the packaging material and labeling on it, and therefore a proper behavior towards it are poor. Chung and Holton [7], taking into account the impact of packaging waste for the environment, reviewed the various materials constituting the packaging and studied the life cycle of each one. They concluded from their investigations that lifetime of aluminum, glass, metal and cardboard packaging is from highest to lowest, respectively. That is why they stated that the packaging with high life expectancy and less environmental damages must be designed to be recycled or reused. According to Arvanitoyannis [26], consumers like to change plastic packaging with a variety of recyclable glass and cardboard ones as much as possible; perhaps the reusability of packaging will attract their satisfaction.

Packaging color: color is the most important element of the package. Human senses are very sensitive to color and quickly respond to it. Color remains in the mind better than any other element and makes the package much easier to be noticed. In packaging design, color choice not only have should make positive feelings; it must create added value and encourage the consumer to buy the product [27]. Choosing a color for packaging design is an unavoidable issue [28] and is of the factors that attract a lot of attention. In the marketing literature,

product packaging is among product's constituents and part of it. Bolourian Tehrani [29] states that if the packaging is popular and motivates customer to purchase, the sale will be possible. Background research on increasing importance of packaging focuses on packaging and its role as a means of communication. Previous studies have shown that visual product packaging is a basic tool in marketing that influences on how consumers perceive the quality of product. Moreover, most previous researches focus on elements such as color, labels, form, design, material and size of packaging.

Ting Wei et al. [27] examined the relationship between packaging design color harmony and it slinking with the product through the psychological responses of respondents using semantic differential method. The results showed that color harmony of juice product packaging makes the consumer evaluate the product with high quality. Nilsson et al. [18] in an article entitled "Globally standardized versus locally adapted packaging", sought a find a balance between standard packaging and its acceptance strategies in different markets. They offered two models that with market segmentation in terms of product and packaging could help companies at Portfolio of packaging for more sales and efficient distribution. In their study, Wang [6] has created a conceptual framework for explaining how the visual packaging influences the consumer perception and brand evaluations of a product by complement of consumer attitudes towards visual packaging. Kauppinen and Luomala [28] sought to increase the understanding of marketers on the role of packaging colors in the product consumption experiences by the consumer via studying the relationship between the colors meanings and products. They presented a model that showed the relationship between Product type and color. The color package has three functions, namely: attracting attention, communication and aesthetic experience. In their point of view, the color of the packaging influences

consumer voluntary or involuntary attention. Arefi and Nekouei [30] conducted a research on the effect of two packaging visual elements, the color and form on two symbolic (character identity) and functional (Belief about identity) evokes. They acknowledge that the color and form of packaging are as a tool to distinguish products and an introduction for formation of character and beliefs identifier. One of these beliefs is reuse of packaging. In a study to investigate the attitudes of consumers towards green marketing mixture and its impact on green purchasing decisions, Ra'naei Kordshouli and Alahyaari Bouzanjani [31] introduced green product design, green products pricing, distribution in accordance with green standards and green advertisement as four green marketing mixtures. Then they defined green product so that it is not harmful to the environment and have the ability to be recycled and reused, as well as if the product packaging is eco-friendly, it will be included in green advertisement region.

Hypotheses and conceptual model

This study aims to evaluate the effect of environmental friendly consumer attitudes on his perception of the reuse of product packaging. By studying the theoretical and empirical literature subject, and with considering the research results of Paço and Raposo [3], Borundh [12], Chung and Hong [32], Arefi and Nekouei [30], Buelow et al. [25], Ting Wei et al. [27], the following hypotheses were developed for this study so that they would be tested through primary data collection using data collection tools.

- H1: The consumer environment friendly attitude impacts his sensitivity about recyclability of product packaging.
- H2: The consumer sensitivity about recyclability of product packaging impacts his perception of the reusability product packaging.
- H3: The proportion of the product packaging form impacts the consumer perception

about its reusability.

- H4: The proportion of the product packaging color impacts the consumer perception about its reusability.
- H5: The proportion of the product packaging material impacts the consumer perception about its reusability.

Based on the hypothesis established and mentioned above, through the relationship between the research variables, the conceptual model has been developed as follows:

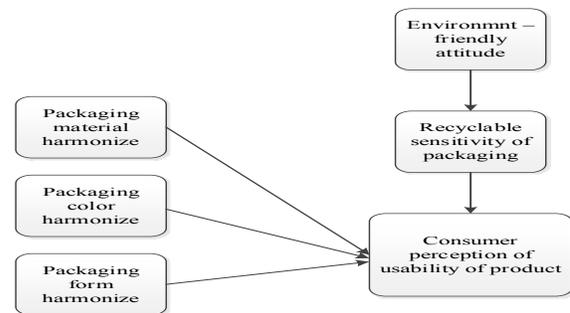


Figure 1: Research Conceptual Model

RESEARCH METHODOLOGY

The present research is applied regarding the aim, and in terms method of data collection is a descriptive survey and correlation. The study population consists of costumers of retail shops in Bushehr, Iran. Since in the retail shops, consumers are faced with products with various packaging. Due to the large population and lack of development of the population framework, this research used non-random and available or convenience sampling. Therefore, using the sampling volume of Cochran unlimited community formula and considering the error index of 5%, reliability of 95% and changeability in features or characteristics under study of 50%, sample size of 385 retailers was calculated.

Data collection tool in this research was researcher made questionnaire. With respect to the integration of theoretical and empirical research

Table 1: Reliability of variables

variable	Resources of questionnaire	Cronbach's Alpha
Packaging form harmonize	Wang [6]; Silayoi & Speece [20]; & Penning [21]	0.94
Packaging color harmonize	Wang [6]; Ting Wei et al. [27]; Arefi & Nekouei [30]; Ra'naei Kordshouli, & Alahyaari Bouzanjani [31]	0.95
Packaging material harmonize	Babalís et al. [24]; Buelow et al. [25]; Arvanitoyannis [26]	0.75
Consumer perception of Usability of product packaging	Paço & Raposo [3]; Amirshahi et al. [9]; Borundh [12]; & Athlete [13]	0.81
Environment-friendly attitude	Paço & Raposo [3]; Amirshahi et al. [9]; Borundh [12]; & Athlete [13]	0.82
Recyclable sensitivity of packaging	Paço & Raposo [3]; Amirshahi et al. [9]; Borundh [12]; & Athlete [13]	0.87
Total questionnaire		0.93

literature, questionnaire is designed in the form of package-answer and based on the 5-point Likert-scale (strongly agree to strongly disagree). This questionnaire consists of 22 items (questions). To determine the validity (reliability) research, content validation method was used. For this purpose, the questionnaire was given to 10 university professors and they were asked to express their opinion on the validity of the questionnaire. After collecting feedback from these faculties, their comments were considered in developing the final questionnaire. To assess the stability of this study, the most common way to assess the stability which is internal consistency or Cronbach's alpha was used. Cronbach's alpha for the total scale of this study was to 0.93 which is a high index and indicates that the stability of this research is at an appropriate level. Cronbach's alpha indices were calculated for all variables individually as well as the results shown in Table 1 above.

As can be seen in Table 1, Cronbach's alpha indices are calculated for all variables whose value for all variables is above 0.7. This reflects acceptability of the metrics for variables and that the questions have measured the studied variable well. In the present

study, in order to analyze the data structural equations model through AMOS software was utilized.

4. DATA ANALYSIS AND RESULTS

For data analysis, descriptive statistics were used to analyze demographic variables. Table 2 corresponds to demographic variables of the research which were analyzed through the collection of 385 questionnaires. As the data show, most of the respondents were male, married, aged between 30 to 40 years, and with bachelors' education.

In this study, after collecting data completely by questionnaire, collected data were transferred to SPSS software and to study the conceptual model test and hypotheses, AMOS software was used. Before the hypothesis test, the overall fitting of the conceptual model is conducted. They are done to address the question of whether the collected experimental data, support the conceptual model or not? Running confirmatory factor analysis test in structural equation modeling, show that there is a significant positive relationship between the elements of various layers of

Table 2: Demographic information of respondents

Demographic variable	Level	Frequency percent
Gender	Male	52.2
	Female	47.8
Marital Status	Single	23.8
	Married	76.2
Education status	Diploma and lower	30.4
	Associate	19.4
	Bachelor	44.4
	Master and higher	5.8
Age	20 to 29	9.6
	30 to 39	38.2
	40 to 50	34.6
	More than 50	17.6

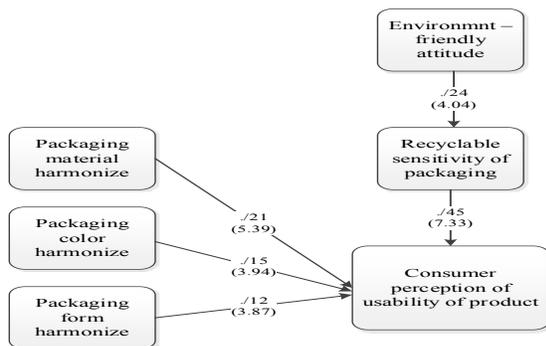


Figure 2: The implementation of structural equation modeling with standardized coefficients (path coefficients) and significant coefficients (t-value)

the conceptual model. Figure 2 shows the results of structural equation modeling software using AMOS software.

Model fit indicators are one of the most important

parts in the analysis of structural equation modeling. These indices are calculated by the AMOS software. These indices answer the question that whether the model represented by the data, confirms the measurement model of the study? The results of model adequacy indices (harmonize) and assessing the relationships between the various elements of the model is shown in Table 3.

Based on data derived from the implementation of confirmatory factor analysis in structural equation model, the conceptual model was confirmed. The results of model adequacy indices (harmonization) and assessment of the relationships between various factors approve this fact. After extraction of confirmatory factor analysis data in structural equation model, we can test the research hypothesis. At this stage, the effectiveness of each variable and the significance of this index are evaluated. The results of

Table 3: Indicators conceptual model fit in the implementation of structural equation modeling

Index model fitting		Acceptable fit	Obtained Value
	Dividing the Chi-square to freedom degrees	≤ 3	1.715
RMSEA	Root mean square error of approximation	≤ 0.09	0.043
AGFI	Goodness index of adjusted fit	≥ 0.8	0.907
NFI	Soft fit index	≥ 0.9	0.931
CFI	Comparative fit index	≥ 0.9	0.97
IFI	Incremental fit index	≥ 0.9	0.97
GFI	Goodness fit index	≥ 0.9	0.926

research hypothesis test are in the table 4.

Approve or rejection basis of the research hypothesis is calculated to be the critical value (t-value). When the t value calculated in model is greater than 1.96, this means that the research hypothesis is accepted at a significance level of 95% and as the t value calculated in the model is greater than 2.5, it means that the research hypothesis is accepted at a significance level of 99%. As the data

presented in Table 4 shows, the collected experimental data all approved research hypotheses.

CONCLUSION AND RECOMMENDATIONS

The aim of this study was to evaluate the effect of consumer environmental friendly attitude on their sensitive about the recyclability of products

Table 4: The results of research hypothesis test

Hypotheses		Calculated	Path coefficient	P-value	Result
Environment-friendly attitude	Recyclable sensitivity of packaging	4.034	0.236	0.000	Supported
Recyclable sensitivity of packaging	Consumer perception of Usability of product packaging	7.326	0.442	0.000	Supported
Packaging form harmonize	Consumer perception of Usability of product packaging	3.870	0.117	0.000	Supported
Packaging color harmonize	Consumer perception of Usability of product packaging	3.944	0.153	0.000	Supported
Packaging material harmonize	Consumer perception of Usability of product packaging	5.389	0.209	0.000	Supported

packaging. The results show that the environment friendly attitude of consumers impacts positively and significantly on his sensitivity towards recyclability of the product packaging. Paço and Raposo [3] and Borundh [12] are among the researchers in this study who found the same results. Accordingly, marketers are recommended that for green consumer, provide reusable packaging. Buyers also can be aware of this type of green packaging through advertising. In this study, significant and positive impact of sensitivity of consumer to recyclability of product packaging on consumer's perception in reusability of product packaging is approved. Marketers and packaging designers can design reusable packaging for green buyers so that they would be environment-friendly.

The results of the present study showed that the harmonization of packaging has significant and positive impact on consumer perception on reusability of product packaging. These findings are consistent with results of Arefi and Nekouei [30], Chung and Hong [32]. Accordingly, it is recommended to marketers that in order to create the understanding in consumer that the product packaging is not a waste, use the harmonization of packaging. For instance, this method can be used in packaging of food products so that consumers would use it as one of their suites due to their packaging design.

The results also show that the harmonization of the (material) product packaging material has direct and positive impact on consumer perception of reusability of product packaging. Buelow et al. [25] found results similar to this study. Packaging designers must pay attention to this important point that if they want their packaging design to be attractive for those at early ages, they should make less use of glass packaging, because of the dangers involved in the next uses, for the consumer to take (i.e. breakage), they will be less likely to buy it. Also, because there is a possibility of rustiness in metal packaging, they are better to be utilized in those packaging which they would be washed less by the consumer in the

future, Otherwise they will be quickly discarded by the consumers. Cardboard packaging are used less by consumer for second time because of their low resistance and life, however, this type decompose easier on the environment. However, it is recommended that companies package their products so that the consumers do not treat them as waste. In many cases it is seen that the cardboard packaging of chocolates are used as a gift box. Since plastic packaging decompose later in the environment and when disposed by consumers as waste are along with many environmental hazards, packaging designers should work more so that the plastic packaging design to be reused by the consumer as much as possible.

In this research, the effects of color fit on consumer perception of reusability of product packaging have been approved. This finding of the study is in accordance with the findings of the research of Ting Wei et al. [27], Arefi and Nekouei [30] on the impact of the color harmonization of packaging. This means that the type of packaging color influences the attractiveness of packaging and reusing it by consumers. Therefore, it is suggested that companies to package their products with color designs that is attractive to the consumer. Essentially, consumers look to bright colors, so companies should notice the color choice for packaging products that enhance its attractiveness. Accordingly, marketers and packaging designers are recommended to follow their promotional programs on the color packaging so that it would be more appropriate with the form.

Research activities carried out always face limitations that can affect the results and reduce the ability to generalize and reliance on it. This study is not an exception. For instance, to data collection tool in this study was a questionnaire. Questionnaire as a data collection tool has some disadvantages that can affect the results. Also in environmental friendly approaches, social norms are components which have large influence on consumer decision and have not been considered in this study.

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