

The effect of Carbody Visual Elements on the customer behavior of differences age groups (Case study: Iran)

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Abstract

The prediction of customer behavior and purchasing decision are important issues for both designers and marketers when they want to distribute their products. This study is an attempt to identify the trend and aesthetic factors related to the carbody design among customers and during the process of purchasing to help designers and marketers for having feedback from target groups. The Interview and standard questionnaire methods were used to collect the required data. The representation samples of customers were divided into five groups of 250 adults in five categories of ages (50 persons in each group). And they responded to the questions about 15 characters of carbody features. The evaluation and comparison of subjects were based on some dependent variables as the influential factors in carbody attractiveness and purchasing decision respectively (context of Tehran- Capital city of Iran). The results of the analysis showed that there is a considerable difference among the five focus groups regarded to all aesthetic variables. It is concluded that the carbody attractiveness criteria are different among the range of adult groups and it can be considered by designers and marketers for adopting new policies and also practical recommendations are presented based on customers' age preferences.

Keywords: Carbody Design, Consumers behavior, Visual factors, age difference, Visual Analysis

Introduction

Customers' behavior towards the selection and purchase of goods and services is considered as an important factor for large companies [1] because it is used as an incentive to change either the marketing strategies or advertisements to market and place products' character. It's very important and also competitive for the car industries to find and contributes their products in suitable and most favorable target groups and location. According to Iran's clearance statistics of foreign trade, in the first five months of 2018, a total of 12,512 motor vehicles from 20 countries came to Iran, with the worth about \$ 345000000. Imports of automobiles to Iran is done from 20 countries; South Korea with 5237 vehicles, has the largest section of imports, in the second rank, the United Arab Emirates with 3838 vehicles and Germany with 1509 vehicles are the largest car exporters to Iran during this period [2]. Thus, it's very important to find the Iranian taste which is significantly influential in the process of purchasing and also, it's very important for designer and managers to export the specific character of cars based on the frequency of each age ranges in the target country.

Thus, this study attempts to investigate it in more detail and has been done to investigate the differences or indifferences between their (Five groups of adults) preferences and choices towards Carbody design. The importance of the aesthetic and visual standards of carbody design has a strong effect on the focus groups for purchasing. This study seeks to compare and find the priorities in aesthetic standards of car design among these five groups mainly in order to help the designers and marketers in identifying these two groups of customers. With regard to the role of customers' behavior towards the car design, and based on the theoretical framework as well as following the internal and external studies conducted this research tried to test the hypothesis. In addition, each of visual and aesthetic factors could be applied differently on a special carbody intended to serve a particular age. For this purpose, the research hypothesis has been formulated as the following in order to be examined in more detail. There is a significant difference between the important aesthetic and visual cognitive codes of carbody design among the five groups of customer's age. These results could be of many contributions to direct the improvements provided to the designing of the carbody towards attracting the target groups' attraction and also help the marketers to understand target age groups.

Literature review

Customers usually take a three phases process to purchase particular goods or services which includes the decision-making process before, while and after the purchase. In another methodology, Cutler and Armstrong express the process of consumers' decision making for purchase in three phases and five steps in which there are some steps for each of these three phases. The pre-purchase phase includes three steps of problem finding, information search, and options' evaluation. In the while-purchase phase, there is one step called purchase decision and in the pro-purchase phase, there are two steps for consumption and evaluation and decision making for future purchases [3]. The basic question of professional marketers is that what is the reaction of consumers to the marketing efforts of a company? One of the difficulties with

customers' behavior investigation is impulse buying behavior which is often based on an impulsive stimulus or strong motivation for the purchase [4].

Thus, impulsive buying could be influenced by several factors which the most important of them are: the spread of large and chain stores, hedonistic gratification purposes, mental model control, following the fashion and low prices. In this regard, the results of various researchers are significantly noticeable and it was estimated that 72% of buying decisions are made at the purchase place [5]. According to the Henley Research Center, 73% of buying decisions are made at the purchase place [6]. Phillips and Bradsha showed that unplanned purchases from markets include over 51% of total purchases, [7], [8] and also, the international institutions of advertisements showed that at the time of purchase, several factors could encourage impulsive purchase which among these factors are: psychological and marketing stimuli, seeing a product with different color schemes and beautifully designed pictures, or other promoter stimuli [7]. Therefore, the body design of a product as a factor which can potentially attract consumers has an important role to play in buying behavior [9]. One of the crucial factors discussed in this study is the role of age in customers' behavior which creates different reactions towards the carbody.

Important features such as the visual and functional factors could provide numerous merits to the carbody. Therefore, marketers and design companies have well understood that by minor alterations it could be possible to gain more profitability in the products' selling process [10]. The results of previous studies confirm that the visual features have a more significant and influential role to play than functional features. These factors by themselves are comprised of visual factors that mostly refer to color, size, and information presented on the product, the font style and written materials (letter writing) [11]. The visual elements play a significant role in the shopping process due to the role-playing in their first direct interaction with consumers and its effect mentality on their choosing [12]. Regarding the influence of visual codes, and previous research the methodology designed in two parts of conceptual model of study and

methods of data gathering for interview and questionnaire.

Methodology

The conceptual model of the study

Depending on the nature of the subject matter and its objectives, the methodology applied here is to investigate the difference among five groups. Adults who have the purchasing authority are the subjects of this study. Using the product analysis method based on the methods developed, the product was visually analyzed and read [13]. Then, the main aesthetic and visual cognition codes were

explained in terms of their visual effect on the users. After reviewing and discussing the criticism part, four aesthetic factors of Template color¹, Size & Dimension, Format of Car Class and form² were selected to investigate their comparison and priority among the target groups (table 1). These factors have been considered as independent variables. Finally, based on the analysis and evaluation of factors, the new questionnaire has been designed for following the research model.

Table 1. Introduction of visual variables and main factors to assess attractiveness and purchasing behavior on the carbody.

	Variables	Definition
Visual Analysis	Size & Dimensions	Mini Size, Medium, Large, extraordinary Size
	Form	Product's basic form or the Basic geometric lines (Stream lining Character, Constructivism Lines, Classic Lines, Sport Lines
	Template color	Background and main color used for visual features
	Format of Car Class	Mini, SUV, Sedan, Sport, Coupe, Van, Stations, Hatchback, Fastback, Lift back,

Implementation of Focus Group Interview

The interview with the focus group was conducted in a closed, quiet meeting room to keep free from interruptions. During the interview, the Carbody design images samples were shown, with the four Car's views as goods as are commonly displayed. Fluorescent lamps were used in the room, where the lighting level was set at 350lx, bright enough for participants to see the samples on the screen. In this paper, the researcher served as the moderator and

guided the members of the focus group to discuss the attractiveness of the carbody that help them know about the main visual features. The interview lasted nearly 90 minutes for each group, and to prevent fatigue-caused by long hours, and to avoid affecting the quality of the interview- we took a 5-minute break every 30 minutes. The outlines and procedure of interviews with the focus group are shown in Figure 1 and Table 2.

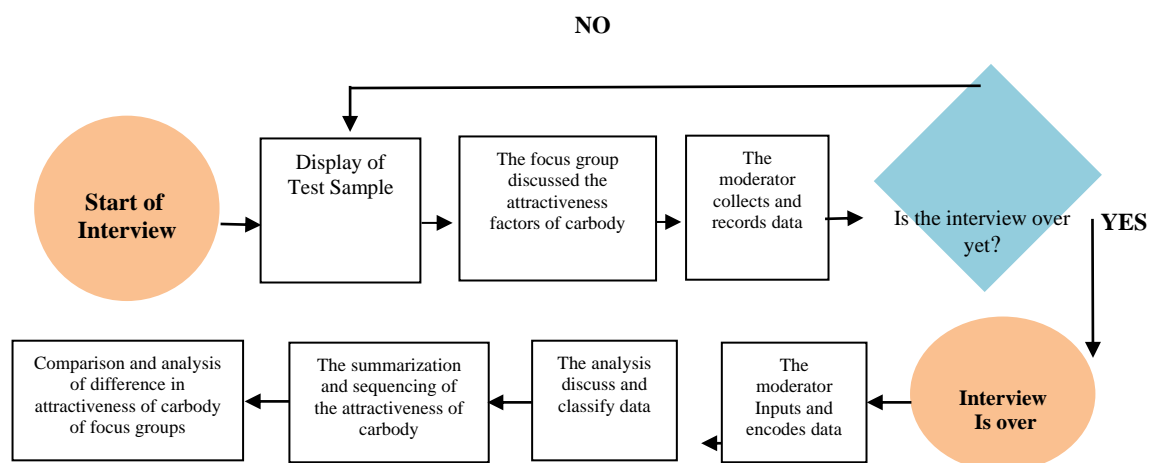


Figure 1. Procedure of the Focus Group Interview.

¹ The overall color is seen

² The overall beauty of the form seen

Table 2. Interview Outlines on Comprehension Modes of Visual Elements

(i) What visual elements will affect your comprehension and attractiveness of carbody design when you see a car? (If the group fails to engage in a discussion, ask about the importance of each of the following elements): (a) Size and Dimension (b) Form (c) Template Color (d) Format of Car class
(ii) Let's discuss with pictures about how you comprehend car visual features? (Focus group Members had a discussion to summarize the main of visual elements attractiveness of carbody.)
(iii) Do you need to add any other personal visual elements attractiveness of carbody?

Selection of Focus Group Members

The selected samples were selected among people who can afford a car and they divided into five groups of 250 (50 individuals in each group) adults in five categories of ages (G1= 18-30, G2= 30-40, G3= 40-50, G4= 50-60 and G5= 60-70 years old). This study pursues to identify the effect and difference of the five customer groups' behavior towards the visual cognition codes of the carbody based on the proposed model derived from previous studies and scientific theory.

Conducting a Focus Group Interview

This research adopts the "focus group interview" method to gather personal experiences and perceptions of group members on the types of attractiveness for the carbody. Focus group members discussed among themselves on what types of visual elements would influence their purchasing. Through categorizing and analyzing research data, the relationship between visual elements of the Carbody and their selection was thus identified. And also to complete the process of required data and infer the results, a questionnaire was used in parallel o interview. In the designed questioner, focus groups responded to the questions about 15 characters of carbody design. The measurement scale is the Ordinal Scale. The relative strength and weakness of the degree of an adjective or its preferences are also measured. The validity of the mentioned questionnaire was assessed by the assistant professor, the experts, marketing managers, and designers. Finally, their comments were included in the final version of the questionnaire. After all amendments concerned to questions, the questionnaire was approved. This questionnaire was filled out by

the five groups of adults who do their shopping in the Auto Expo in the context of Tehran (Capital of Iran).

Results

1. The results of the interview

The proceedings of this interview documented by all authors. After identifying the focus group, the group members' attractiveness mode were coded and entered into the computer. The focus group started their discussion from factors that affect their purchasing behavior and tendencies toward carbody. If group members did not voluntarily share other design element factors, the moderator had to name a few elements accordingly and prompted for discussion, to provide a more complete selection of choices. Group members all had a chance to voluntarily discuss the most important factors which influence them based on car attractiveness criteria. Focus group members provided their perception of the 30 carbody samples with regard to which visual elements will grab viewer's attention, and then all answers categorized in different branches. The research results and analysis are based on the most majority of opinions gathered from the focus group interview and certainly several contradiction views also mentioned during the interview.

In the process of assessing the visual elements, the majority of group members would rely on the visual message formed by four visual elements of the carbody in order to preceive every single factors of carbody attractiveness. Group members were unable to judge visual elements sufficiently based on any single visual element. We found that "Form+ Color" of carbody are the best mode of criteria for all

group members to appeal them provided that designers and marketers consider the form and color as the major visual element and Size as minor factors.

The factor of Color is regarded as the first choice by focus group members in reaction to carbody elements. We should also note that among the attractiveness modes of visual elements, group members are used to seeing the image of other car bodies' appearance to be ensure of the effect of car attractiveness. Among the different modes of comprehension,

focus group members found visual elements such as Form, Color and Class of car, all contributed to the attractiveness and purchasing of the car and they play as an interconnected factors. The findings above can be used as a reference for related industries when formulating marketing plans and designing a policy for carbody based on consumers feedbacks.

2. The results of the Questionnaire

The result of the questionnaire has been presented as the following figures 2, 3,4 and 5:

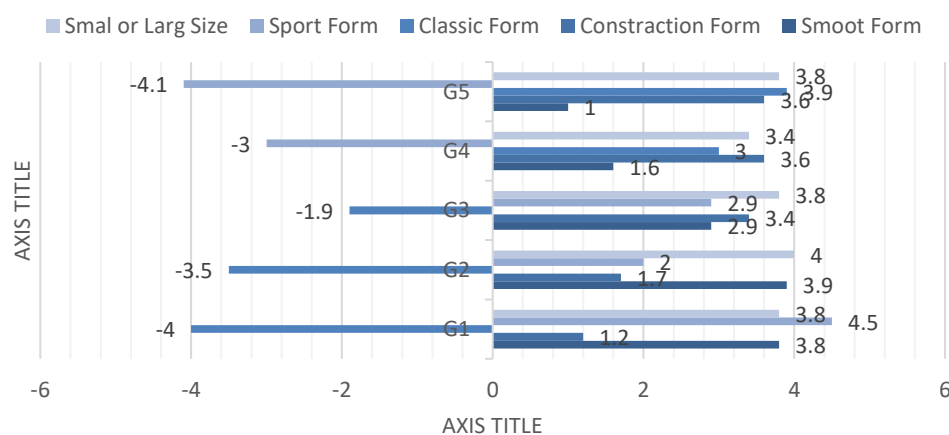


Figure 2. The scores of Size and form factors between five groups.

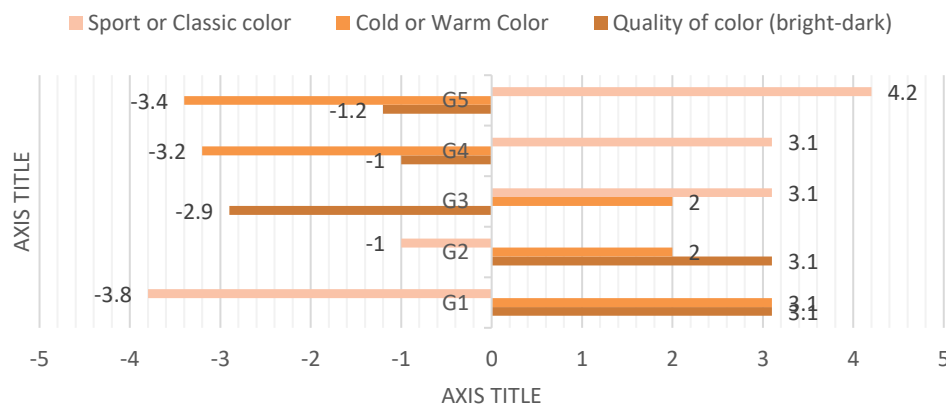


Figure 3. The scores of color factors between five groups.

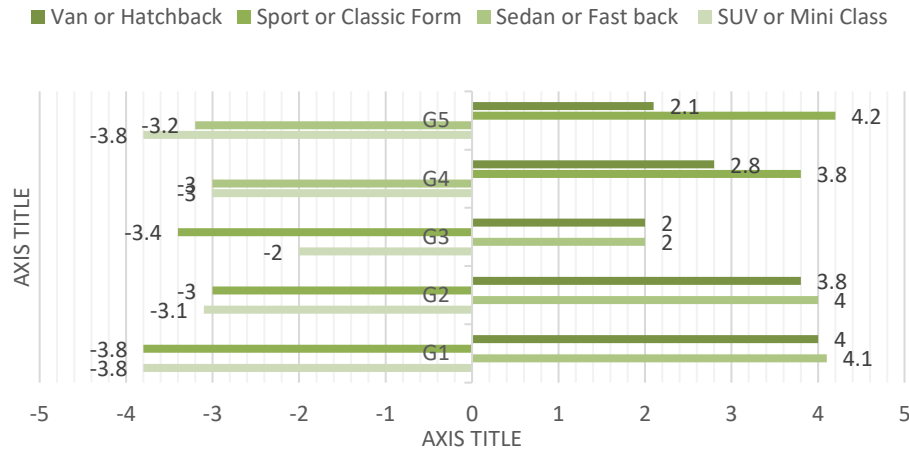


Figure 4. The scores of Class of car factors between five groups.

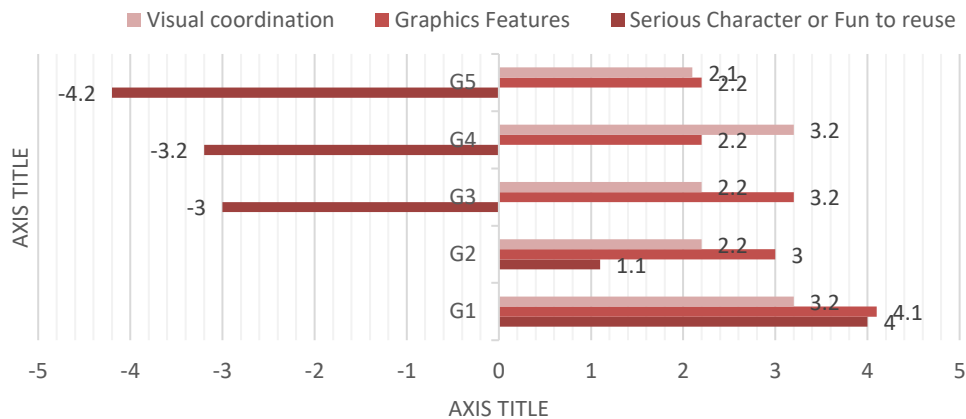


Figure 5. The scores of Graphics features and character of car factors between five

Discussion

To point out some reasons why the differences appear, they could be classified in any of the variables and analyzed either separately or linked together.

Through conducting the interview and questioner, it is learned that the messages formed by a combination of design elements will influence the purchasing behavior of focus group members. The tendency to the smooth forms is more popular at the younger ages than older. These scores of this item have shown that as age increases by this factor would be decrease, (Smooth form, G1=3.8 VS. G5=1). This item will be confirmed when we see the score of the constructivism style (Constructivism Style, G1=1.2 VS. G5=3.6). It showed that the taste of older people has tended into the classic and conservation form. The visual elements of the form style are

different among target groups. It can be a guideline for designers to use creative style line quality in their design. And also at the part of form variables, the tendencies into the sporty form are more than classic in the younger ages (Sport Style, G1=4.5 VS. G5= -4.1), (Classic Form, G1= -4 VS. G5=3.9). When we consider the scores respectively, it was also observed that the conservative line style on the Car's body (classic coordination and simple visual elements) have increased in case of the age increased. This point has shown, while the distributions of the sports cars are much lower than classic in Iranian markets. In the period of interview, lots of younger people complained about the lack of a variety of sports car style in Iran markets. At the part of Size and dimensions it's observed that, there is no clear difference between all target groups and all of the groups have scored

normally with almost close equal score (Size and dimension, G1= 3.8, G2= 4, G3= 3.8, G4=3.4 and G5=3.8).

Colors have messages and special attractiveness which are used separately or in combination with each other. In modern psychology, color is one of the criteria for measuring personality, because every color has a different mental and physical effect on persons and a color may be a sign of mental and physical status [14]. It is clear that colors had an effect on ancient humans and in recent 100 years when the color industry is in the highest position, these effects have been doubled and penetrate in all aspects of our lives [15]. It has shown at the part of color items, which most customers with the younger ages, tend to use a bright color. And also by increasing the age the propensity to the classic and dignity form will be increased. On the other side of the color, it has shown that the attitude to cold color is higher between the groups of 1, 2 and 3, in comparison to G4 and G5. Probably, it's because of the brightness of cold color in contrast to warm colors. The items of classic or sports colors, confirm this point that the sport colors like red, blue and yellow and also the secondary combined colors (orange, green and purple) are more favorable at the young ages. Probably this is because of age conditions. Typically, teenagers approach to say that some bright colors will present more our taste and inner young character. The outputs and results have also shown that young ages reacted to the vital visual qualities of a carbody more than older. And the importance of luxury and other active visual criteria (muscular features in form and shiny colors) play a more significant role in their behavior purchasing. They prefer the sport and bright color to classic features. In contrast, the classic features and gentle visual criteria will be more favorable by the increasing age. Through this fact we can use proper color based on the target group distribution to attract customers and increase the sale and it can be a guarantee for customers.

As the age gone older by, forms and the class of road characters have selected more, however, the same items at the younger ages are different. Younger customers prefer to select a creative form in some classes which

produced less than other class. For instance, at the part of Sedan and Fastback, it has shown that the tendency to some forms and visual elements are more popular at the G1 and G2 in comparison with G4 and G5.

As the research approved, Presentation of a car could be treated as one of the most valuable tools in today's marketing communications, necessitating more detail analysis of its elements and the impact of those elements on costumers' buying behavior [16]. Thus assessment of graphic features is not as easy as other factors due to the fact that, it is combined by several intervention variables. Graphical character concerned to main perception of an image that can be understood subconsciously. As it has shown in diagram, young people prefer to have a strong and vivid image in their memory and they wish to have high tech and advanced type of graphical images and also fun visual elements, while the age went upward their taste of having funny and vital graphical images. For instance, the group of and G5 and G4 as the older people are significantly prefer to have a serious graphical lines and elements which should be compatible with the overall classic forms. In the other parts the differences was slightly in similar scale.

All the visual elements contributed to each important effort to catch consumers' attention and interest. Besides each element's single function, we think that a good combination of those elements may let the carbody more eye-catching and attractive. Also, it was revealed that the visual elements of the carbody are the most important for the consumer's purchase decision. For a major of consumers' groups, form and color are the main visual elements, while size factor is also the minor hidden elements that indirectly affect purchasing a car. Car attractiveness can extend a car into new target markets or help to overcome cost barriers. Research into visual elements of the carbody has found that different carbody's aesthetics cues impact how a car is attracted. Based on those facts, we cannot say there is a 100% equal relationship between the high quality of the carbody's aesthetic and quality of the car, but there is a positive trend to a mindset that a well-designed carbody shows high product quality. As a matter of fact, visual elements of the carbody have been gradually

shown their important role in providing information and delivering functions. Regarding the point of communicate with consumers, there is no doubt there is an increasingly important role of controlling the visual elements of the carbody as a strategic tool to attract each group of costumers' attention and their perception of the quality of the car. When marketing personnel and designers are using the carbody as a marketing tool to arouse customers' buying desire, it will be advisable to take into consideration how design elements were to be combined in order to attract customers' attention and to enhance their attractiveness. Even though some modes and factors of attractiveness have been identified through focus group discussions, it

is possible that when taking into account more samples, other modes of attractiveness will also emerge. This should be further thought out in future studies. This research identified carbody design elements such as Form, Color, Size and dimension and a class of cars as helpful to the attractiveness of the carbody by focus group members.

Applied research recommendations

Based on the results obtained from the provided answers to the questionnaire and also the comments and emphasis of the participants in this study, practical recommendations are presented in Table 2 in order of importance based on children's and parents' preferences.

administrators	proposed actions	proposed structures	Groups	Approaches
Designers and Marketing managers	-Using sharp line on the carbody's surface-	more aesthetics and innovation in creating new form	G1	Emphasis on improving the aesthetic quality of Form
	-Intensifying the character line on car body's surface		G2	
	-Emphasize on the bionic and organic forms			
	-	-	G3	
	-Using classic line on the carbody's surface	more aesthetics and innovation in classic and serious forms	G4	
Designers and Marketing managers	-Intensifying the classic style		G5	Emphasis on improving the aesthetic quality of color
	-Emphasizing on the constructivism trend			
	-Using the first category of colors like Red, yellow and blue	more aesthetics and using the bright and sport color	G1	
	-Using two type of color on surface		G2	
	-Using the graphic text as a compliment color			
Designers and Marketing managers	-	-	G3	
	-Using the classic and old characters color like black, gray	more aesthetics and using the dark and classic color	G4	
			G5	

	-Using the classic font on the surface as a compliment classic color				
Designers and Marketing managers	-Using the combination of large size of car with the speed character	using the large size and some class that has sign of speed	G1		Emphasis on improving the aesthetic quality of Format of Car Class
			G2		
	Using the sport character on surface design		G3		
	Emphasizing on the constructivism or classic style	using the small size and some classes that have a sign of dignity	G4		
	Using the classic style of line quality		G5		
Designers and Marketing managers	-	This section is followed the brand and innovation policy for each company	-		Emphasis on improving the aesthetic quality

References

- [1] Moschis, G. P., Moore, R. L., 1999. Purchasing patterns of consumers. *Journal of retailing*, 53, PP.19-26.
- [2] <http://www.pardiskhodro.com/news/details/>
- [3] Kotler, p. and Armstrong, G., 2010. *Principles of Marketing*, Pearson publisher. Tasswell ar Harold, D. [4] (1948). *Power and personality* (pp. 255-257). New York W. W. Norton and company.
- [4] Feyz, D., Salahshur, A., 2010. impact of Application of golden packaging products on consumers' purchasing behavior. *Business Management of Tehran University Journal*, 6, 113-134.
- [5] Laura, B. and Nora, R. (2004), "The packaging matrix: linking package design criteria to the marketing mix industry IDS Inc.", *Packaging 2004 Conference*, January 19-February 5, available at: www.idspackaging.com/indexload.asp
- [6] Hill, H. and Tilley, J. (2002), "Packaging of children's breakfast cereal", *British Food Journal*, Vol. 104 No. 9, pp. 766-777.
- [7] Ampuero, O., Vila, N. (2006). Consumer perceptions of product. *Packaging journal of consumer management*, pp. 100-102.
- [8] Nancarrow, C., Wright, L. and Brace, I., 1998. Gaining competitive advantage from packaging and labelling in marketing communications. *British Food Journal*, 100 (2), pp. 110-118.
- [9] Esmailpoor, H., 2004. *Business Management*, (PP. 50-65). Tehran, Iran, NegaheDanesh Publisher.
- [10] Yang, S. (2004), "Can bottles speak volumes? The effect of package shape on how much to buy", *Journal of Retailing*, Vol. 81 No. 4, pp. 269-281.
- [11] Rahimnia, F., Alavi, S., & NajafiSiah Rudi, M., 2012. Effects of visual and functional properties of packaging on food purchases by adjusting the variable ecological. *Business Management of Tehran university Journal*, 4 (3), 65-82.
- [12] Deng, X., 2009. Consumer response to visual aspects of packaging and product design, a dissertation, University of Pennsylvania. <http://repository.upenn.edu/dissertations.AAI3363279>.
- [13] Bardzell, J. (2009). *Interaction Criticism and Aesthetics*. *Proceedings of the 27th*

international conference on Human factors in computing systems - CHI 09.

[14] Ellis, A.W. and Miller, D., 1981. "Left and wrong in adverts: neuropsychological correlates of aesthetic preferences", *British Journal of Psychology*, Vol. 72 pp. 225-9.

[15] Levy, J., 1978. "Lateral differences in the human brain in cognition and behavioral control", in Buser, P.A. and Rougeul-Buser, A.

(Eds), *Cerebral Correlates of Conscious Experience*, North-Holland, Amsterdam, pp . 225-98

[16] Philips, H. and Bradshaw, R., 1993. "How customers actually shop: customer interaction with the point of sale", *Journal of the Market Research Society*, Vol. 35 No. 1 pp. 51-62.