Attitudes of Families with Children towards Eco-friendly Designed Furniture: Kayseri Sample

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Eco-friendly products have played an important role across all aspects of human life. A wide range of eco-friendly furniture is in use. One of the purposes of this study is to investigate the general perspectives of parents from different demographic origins in terms of eco-friendly design and their tendency towards eco-friendly furniture. Another purpose is to examine the source of consciousness that has led to purchase and use of eco-friendly furniture in terms of parental influence. The data collected in this study were obtained through a questionnaire conducted at an independent furniture store in Kayseri. The hypotheses employed during the research were subjected to ANOVA testing and evaluated graphically with descriptive statistical methods. As a result of the questionnaire, it was detected that parents have an awareness of ecology. They are inclined to prefer furniture that is not harmful for health and environment. Especially, parents with a higher level of income tend to have a higher level of inclination. According to the analyses, despite the existence of eco-friendly furniture in the market, they are not widely preferred by parents due to high prices.

Keywords: Furniture; Eco-friendly; Parents; Behavior; Attitudes

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INTRODUCTION

According to Turkish Standard 4521, wooden furniture is either a stationary or mobile good, made from wooden materials, such as solid wood, particleboard, fiberboard, and plywood, that make it easy for people to sit, dine, study, rest, and other functions (TS 1985). Furniture is primarily used in homes. According to Postell (2012), a home can be considered an organized closet, shaped by personal possessions and members of a family (Postell 2012). It is the place where children are nurtured. Many families with small children may find a playroom well suited to their needs. Tiny children can use the space for toys and for play (Nielson and Taylor 2011). Therefore, children's rooms and furniture should be designed to fit these needs and dimensions. Specialized furniture for children both indicates the intended user of the space and accommodates small people. Durability is very important, as is safety and stability. Pieces that avoid tripping and sharp corners, while remaining moveable work best. Pieces should be designed so that children cannot get their heads stuck, and have non-toxic finishes that do not chip (Binggeli 2007).

One of the most significant aspects about the furniture for children is that such furniture and some other objects used along with furniture are produced in a way to prevent any harm to children's health. According to Nayar (2009), with increasing public demand for environmentally conscious products, most builders and building product and furniture

manufacturers are now cultivating and promoting various green design, production or recycling practices and programs for their goods and services (Nayar 2009).

According to O'Dell (2002), "green" design, "environmental" design, and "sustainable" design all refer to the same topic, which is often discussed today within the design community: how can one think of design as environmentally responsible? (O'Dell 2002). However, there can be a subtle difference (Jones 2008). Green design is an element of sustainable design (Williams 2007). Green design often implies a micro perspective, with protection of people's health, safety, and well-being as the foundation for design decisions (*e.g.*, safer environments for people with allergies, asthma, emphysema, or multiple chemical sensitivity) (Jones 2008). Sustainable design often implies a macro perspective, with enhancement of the global environment and protection of the world's ecosystems as the underpinning for design decisions (*e.g.*, concern for natural resource depletion) (Jones 2008).

Environmentally responsible design implies an interest in both green and sustainable design (Jones 2008). The combination of environment and design has been termed eco-design (Vezzoli and Manzini 2008). Ecological design or eco-design can simply defined as a way of designing in a manner to combine, in harmony and perfectly, our built environment and lifestyles with the natural environment of biosphere that hosts all living forms on earth, in accordance with the ecological design principles and strategies. (Yeang 2012). The criteria of "Environmentally Friendly" are presented in Table 1. Sustainable design, green design, and environmental design will be common practice in the future. Soon, the central practical issue for designers will change from one of education to one of ethics. In the near future, a design will be considered good only if it is healthy for its users and for the earth's environment (O'Dell 2002).

Table 1. Eco-design Principles (Özçuhadar 2015; Yüksel and Kiliç 2015)

Use of Sustainable Sources	Use of Recycled Materials	Standardizing the Items
		Integration of function
To minimize the energy	Using materials that have low energy	Environment-friendly surface design
They have reusable package	Using renewed items	Increasing the performance easily
Weight and volume package optimization	Variety of materials and decreasing the number of items	To eliminate the users, adding instructions and statements
Waste recycling-reusing	Decreasing the material input	Easy dissembling -Easy disintegrating
To minimize waste and e-releasing to the environment	To minimize the process of materials that are being used	Labeling the product- to eliminate the users, adding instructions and statements

The concept and subjects explained above can be a guide for an ecological appriоach in the buying of furniture (as well as some other side products such as beds, textiles etc.). The ecological awareness has brought to discussion and to reorientation social behavior, *i.e.* the demand for the products and services that ultimately motivate the existence of those processes and products (Vezzoli and Manzini 2008).

This study, in the light of the aforementioned subjects, has been carried out in order to study the attitude of parents towards ecological products. One of the aims of this study was to measure the knowledge of parents about the concept of eco-friendly design and to

detect their attitudes relative to that concept. Another aim was to learn about their knowledge of furniture produced with an eco-friendly design perspective, the reasons why they might buy such furniture, and their experience and attitude after they use that furniture. The core aim of this study was to draw public attention to the subject of eco-friendly furniture from the perspective offered by the buying preferences of parents. The core problem that this research intends to resolve is the detection of whether the parents are consciously buying the furniture produced with eco-friendly principles. It is also to detect whether there is any awareness about eco-friendly furniture, and if there is, the reasons for and the level of such awareness. Accordingly, the existing level of awareness among parents about eco-design will also be influential on the ecological awareness of younger generations.

Literature Review

Wan *et al.* (2014), carried out research in two urban areas of China, Shanghai and Shenzhen, with 299 individuals. They found that parents think that eco-friendliness and health is important in choosing furniture and other products. Additionally, parents with a higher level of income tend to have an eco-friendly lifestyle and awareness, whereas the parents with lower level of income have less of that awareness and it was noted that they are more sensitive about the price. Wan *et al*. (2014) reported that 83% of parents were detected to prefer solid wood furniture. Fisher *et al.* (2012) analyzed the way various demographic factors affect eco-friendly buying behavior. For example, women have been found to be more willing to have eco-friendly buying behavior. The individuals with higher level of income and individuals that are married and have children were detected to be more inclined to use eco-friendly products (Fisher *et al.* 2012).

Torres-Antonini and Vatralova (2012), examined the impact of the pro-environmental values, beliefs, behaviors, and knowledge among 66 parents on their preferences about child care. Consequently, it was learned that parents are aware of green design features and they prefer green design features in child care environments (Torres-Antonini and Vatralova 2012). Shen (2012) investigated the willingness of consumers in paying more for eco-friendly labelled products. Consequently, it was detected that socio-demographic factors affect the behavior of buying. For example, young people were found to prefer more eco-friendly products compared to older people. Additionally, the increasing consciousness about environment was detected to be directing consumers into buying more of eco-friendly labelled products (Shen 2012).

Bednarık and Pakaıne Kovats (2010) carried out research concerning the influence of family structure and environmental factors on furniture buying behavior. In one part of their study, they underline that price is the primary factor in buying furniture; however, social responsibility, environmental protection and human health are two subjects that may direct people towards eco-friendly products (Bednarık and Pakaıne Kovats 2010). Papadopoulos *et al*. (2013) found in a reserarch that in economic crisis environments, despite the costs of eco-friendly products increase, the awareness and interest of consumers towards such furniture may increase. It was also detected that due to the rising interest, consumers generally are willing to pay 7 to 11% more for eco-friendly furniture than they are willing to pay for other types of furniture (Papadopoulos *et al.* 2013).

EXPERIMENTAL

Materials

Data collection

This investigation studied the attitudes of parents in Kayseri, Turkey towards eco-friendly designed furniture (and some important furnishings). In addition, this study also revealed some of the reasons behind the above-mentioned parents purchase decisions relative to eco-friendly furniture and their experiences with such decision-making. Kayseri is one of the cities with the largest furniture industries in Turkey. Central Anatolia Development Agency (2016) is an official institution (abbr. "ORAN") bound to the Ministry Of Development of the Republic of Turkey. According to ORAN, in Turkey, which has 2% of share in the global furniture production, more than half of the production takes place in the province of Kayseri. Eleven of the twenty largest furniture factories of Turkey are located in Kayseri (ORAN 2016). Because of such potential of Kayseri, the consumers that live here have many options both in terms of design and quality and in terms of price comparison. Due to such diversity, compared to other cities in Turkey, the consumers in Kayseri have a broader perspective and a higher experience and consciousness of buying. Therefore, Kayseri has been preferred as the base for this questionnaire. In further studies, the big cities in Turkey that create major demand in furniture industry (Istanbul, Ankara, *etc*.) will be selected and a new study is being planned in the light of the data collected in this research.

This study was conducted using the face-to-face interview method. According to Hague *et al.* (2004), the face-to-face interview method has such advantages as being able to observe the body language of the participant and to draw clues from that, to ask complicated questions, to give examples on the subject and to obtain the contact information from the interviewee. However, this method requires more time and expense, as well as interviewers compared to other methods, and it also entails personnel costs such as lunch and transport (Hague *et. al* 2004). Due to the disadvantages of this method, the purposive sampling method was used and the number of samples was also limited.

According to Özçelik (1981), spending a particular period of time, a particular amount of money, or a particular amount of labor is the best and most demanding research. While the redundant collection of information will economically be wasteful, on the other hand, any lack of information will result in failure. The data were not able to cover the whole state. However, due to security issues, transportation problems, limited time, and economic problems, and due to the fact that parents' lack of will to participate in the study, the research limit was narrowed into a homogenous structure along with utilizing purposive sampling. According to Sencer (1989), purposive sampling takes a sub-space or purposive part of the space instead of a whole space for sampling. In other words, purposive sampling is to investigate the most appropriate part of the space in accordance with the question (Sencer 1989). Due to the above-mentioned reasons, purposive sampling was used in the study on 100 members of those nuclear families.

Methods

Analysis procedures

In this study, a questionnaire was implemented in order to obtain empirical data about the attitude of parents living in Kayseri towards eco-friendly furniture, their buying preferences, and their values of judgment during usage. The data of this questionnaire were analyzed in the Weka 3.8 (Waikato Environment for Knowledge Analysis) statistical

software. Weka has general public license, and was developed at the University of Waikato, New Zealand (Weka 2017).

As a result of the comprehensive literature research, various question patterns were created, and the patterns were used in the questionnaire form. In order to obtain comprehensive, qualified and impartial data, a face-to-face interview method was implemented. Considering the risk that individuals may have the wrong or inadequate knowledge about the concepts and subjects used in the questionnaire or that they may find the questions too complex, this questionnaire method was employed. With this method, individuals were interviewed and in some cases, explanatory information was provided to the individuals about some of the concepts and questions. Thus, it was ensured that the individuals perceived the questionnaire correctly and clearly, and coherent and correct information was thus obtained.

The number of parents that were interviewed was chosen through the purposive sampling method. The research was carried out at a furniture store in Kayseri. The questionnaire was implemented with 110 parents who agreed to participate in the questionnaire among the 135 individuals that visited the store in order to look for children's furniture. Ten of the questionnaire forms were misprinted and they were cancelled. One hundred questionnaire forms were taken into consideration. In the research (according to confidence interval of 95%) a one-way ANOVA and descriptive statistics tests were implemented. The number of samples was calculated according to the following formula (Bluman 2012; Lehmann 2011; Ministry of National Education 2011),

$$n = \frac{N(t_1 - \alpha)^2 (p \,.\, q)}{d^2 (N - 1) + (t_1 - \alpha)^2 (p \,.\, q)} \quad (1)$$

where n is the optimum size of sampling, N is the number of people in the Universe, $(t1-\alpha)^2$ is the value in the t-table at a defined confidence level, with infinite degree of freedom. (t-table value for 95% = 1.96), (d = Acceptable error level 0.05), p is the frequency, consistent with previous research, and $q = (1-p)$ is the anti-occurrence of the case

The questionnaire was comprised of four different parts. The first part was for the personal data of participants, while the second part was to investigate eco-friendly design perception of parents through the quinary Likert Scale. According to Jupp (2006), a Likert scale is a summated rating scale used for measuring attitudes. The method was first developed by Rensis Likert in 1932. A Likert scale consists of usually five statements: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly Disagree (DA). Each statement is then scored according to the meaning of each statement. Where a statement is in favor of the attitude in question, the score will be 5(SA), 4 (A), 3(U), 2 (D) and 1(SD) (Jupp 2006). In the third part, the investigation was on what kind of furniture, furnishings, and accessories parents prefer for their kids. In the fourth part of the study, with the help of the quinary Likert questions, expressions about eco-friendly furniture were stated to evaluate their perception of the concept of eco-friendly furniture.

Hypothesis

In this study, the following hypothesis was established in order to examine the knowledge of parents from various demographic backgrounds and some of their inclinations of preferring eco-friendly furniture and the following questions were asked.

- $H_{(0)}$: Level of income is a significant factor in the buying of eco-friendly furniture.

RESULTS AND DISCUSSION

Demographic Findings

When the demographic features of the individuals subject to the study were evaluated, the results could be presented as follows: 45% of participants were mothers and 55% were fathers. The most frequent age range was 30 to 39 (55%); there were mostly married individuals (95%); a majority of the participants had a bachelor's degree (42%); and 81% of participants had a permanent job. Considering their monthly incomes, 28% of the participants were in the range of 3501 to 4000 Turkish Lira (it is the official currency of Turkey, and is symbolized as TL), 7% of participants were in the range of 1001 to 1500 TL, 18% 4001 TL and above, and 1% below 1000 TL. Most of the parents that participated in the questionnaire were married with at least one child and a certain level of education and adults. Among these individuals, 60% have a single child, 29% have two children, and 11% have three children.

Parent's Attitudes towards Eco-friendly Principles

Parents' attitudes towards eco-friendly design principles were investigated. By offering opinions, participants were requested to respond to them in a quinary Likert scale. In accordance with obtained responses, it was concluded that the production of furniture without affecting health and the environment adversely was the most important factor for parents (71%). The second most important factor (59%) was products being recyclable. Other factors were less hazardous waste and less energy consumption during use (52%), environmentally friendly packaging (50%), production by using recyclable materials (47%), and less energy consumption during production (41%). The data obtained with the analysis of this section reveals that the parents want the contents of the product to be harmless and they care about this subject. They prefer to buy products that are harmless for health and also that their packages also should be harmless for their children's and their health. Similarly, such individuals also care for the environment they are living in. They do not tolerate the dumping of garbage and hazardous waste to the environment and they support the recycling of used products. They demand the recycling and reuse of waste as much as possible and express that they can use recycled products.

Parent's Knowledge About Eco-friendly Design and Furniture

The parents were exposed to questions to obtain their level of knowledge about eco-friendly product design. Half of the participants stated that they had heard about this issue while the other half have not heard of the issue. In addition, these individuals were questioned to gauge their knowledge on the concept of eco-friendly furniture. Of the participants, 66% stated no knowledge, while 34% of them were aware of the concept. The individuals who were aware of the concept stated that they have reached this information through the internet (51.2%) and mass media (26.8%). According to these results, the parents that participated in the questionnaire are individuals that care for their children's and their own health and that are sensitive towards environmental problems. However, it was also discovered that they have limited knowledge about the concept of eco-friendly product design and especially eco-friendly furniture. From such data, in fact, it was understood that individuals know, although little, about some of the details of the subject

but they are not very familiar about the main subject. These parents are determined and conscious about furniture that does not harm their children, whereas they are not much knowledgeable about the related topic of science. Those who have knowledge about the subject have obtained their knowledge especially from the internet and the news media

The concept of eco-friendly furniture was explained to the parents, and afterwards the individuals were asked a variety of questions about the subject. The response to the question about which eco-friendly furniture was mostly preferred by individuals in rooms of their children was the bed (61%). The other items were desk (12%), armchair and sofa (10%), wardrobe and bookshelf (8%), and chair (1%). These parents mostly (29%) prefer the mattress to be eco-friendly furnishings for their children's rooms. The most trusted material that was used in production of eco-friendly furniture was wood (70%) for these parents. Again, these individuals paid attention to paint (41%) and plastic elements (24%) used in furniture production to be less harmful for the environment. Considering the responses to those questions, it was understood that the individuals are most sensitive about the bed and the mattress. The parents tend to prefer high quality and eco-friendly products in order to protect their children while they are asleep. Similarly, they most generally rely on solid wood material as an eco-friendly material used in furniture; however, they have questions about the painting material used for the furniture. Another material that the parents have doubts about and want to know the contents of is plastic.

Attitudes towards Furniture Purchase and Use

In this part, expressions were used to reveal parents' attitudes towards use and purchase preferences for eco-friendly furniture. The responses of parents were analyzed through the quinary Likert scale, and remarkable responses are presented in Table 2. The most remarkable of these results was that parents pay a lot of attention to the raw material of their furniture and if it is harmful for the environment while they purchase and use them (63%). Parents mostly prefer eco-friendly products and especially the products made of natural materials (53%) in order to prevent any harm to their children during use. This is because the parents think that these products are credible and of high quality (37%). However, the parents thought that eco-friendly furniture was expensive (29%) for them. Additionally, at the phase of purchasing, they are hesitant about the durability and strength of such furniture (36%). In addition, these parents defended the idea that it was fundamental to do research on the effects of this furniture on health and environment before purchase (46%). They especially have a positive attitude towards furniture produced with an ecological consciousness (47%) and that carry such labels (46%).

As specified in the previous analyses, it is important for the consumers that the amount of waste that occurs during the production of the furniture is as low as possible. Parents think that it is important for furniture being produced out of recycled material (41%) and creates low amount of hazardous waste (37%) because of environmental sensitivity. The parents support the production of furniture from recycled material. However, during the phase of purchasing, they sometimes may find it difficult to choose between furniture made out of material that is processed for the first time and furniture made of recycled material (28%). Deductive data obtained from the questionnaire is shown in Table 2.

Table 2. Analysis Results of Parents' Responses about Purchase and Use of Eco-friendly Furniture

Expressions	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Total
	(%)	(%)	(%)	(%)	(%)	(%)
It is essential to search before purchase for effects of furniture on environment and health.	45	46	9	-	-	100
"Environmental Consciousness" is essential in furniture design and production.	45	47	7	1	-	100
The label "Eco-friendly furniture" is a triggering factor for purchase.	31	46	19	3	1	100
Production through using recyclable materials is fundamental for "Environmental Consciousness".	46	46	6	2	-	100
Furniture that are made from recyclable material creates a better image for purchase.	34	41	18	5	2	100
The furniture must be made from materials that have never been used.	22	26	28	20	4	100
It is essential for purchase and use that the furniture was made from natural materials.	53	37	6	4	-	100
It is essential for purchase and use that the furniture was made from healthy materials.	63	30	6	1	-	100
Production of furniture by using environmentally friendly materials is vital for consumers.	45	46	5	4	-	100
It is an essential factor on purchase tendency of consumers that less harmful wastes were produced during the manufacturing of these products.	25	37	24	13	1	100
Eco-friendly furniture is "expensive".	29	29	22	18	2	100
Eco-friendly furniture is a "quality" product.	20	37	31	11	1	100
Eco-friendly designed furniture is not durable compared to non-eco-friendly designed furniture.	8	19	36	33	4	100

One-way Anova Test's Findings

In this section, the tendencies of parents from various demographic backgrounds about choosing or not choosing eco-friendly furniture and their familiarity about the concept of eco-friendly have been examined. For this examination, the one-way ANOVA test was used. The judgments on Table 2 were applied in one-way ANOVA; however, meaningful results could only be obtained in one judgment (Table 3). This judgment is the expression that reads as: *The label Eco-friendly furniture is a triggering factor for purchase*. In order to determine whether the arithmetic means put forth a meaningful difference according to the income variable, a one-way variance analysis (Anova) of this scale was implemented. In the results, the difference between the arithmetic means of the income groups was found to be meaningful in statistical terms (P value is 0.007 and this value is lower than 0.05). According to this result, the Hypothesis$_{(0)}$ was accepted. The parents with a high level of income, which is 4001 TL and above show sensitivity towards "Eco-friendly furniture" labeled furniture and they prefer such labeled furniture for their children during the purchase.

Table 3. One-way Anova Test Results of Expression on Eco-friendly Furniture

İncome Level	N	X	SD		F	P	Anlamlı Fark
1000 TL and under	1	2,00	-		2.857	0.007	4001 TL and upper
1001 to 1500 TL	7	1.43	0.535				
1501 to 2000 TL	3	1.33	0.577				
2001 to 2500 TL	11	2.09	1.044				
2501 to 3000 TL	11	1.82	0.874				
3001 to 3500 TL	10	1.90	0.738				
3501 to 4000 TL	28	2.07	0.813				
4001 TL and upper	18	2.56	0.784				
No Income	11	1.36	0.505				
* p > 0.05 means there was no bond between data; p < 0.05 means there was a bond between data							

CONCLUSIONS

1. As a result of the survey, it was detected that the individuals generally have low awareness about the subject of eco-design in scientific terms, whereas they essentially have consciousness about environment. These individuals care about their health and their children's health and think that it is important to protect their environment and their resources and support recycling. They especially have a positive attitude towards furniture made with an eco-friendly consciousness that carry such label.
2. The internet, followed by mass media, had a great effect on creating environmental consciousness and preference of purchasing eco-friendly products. This showed that it would be profitable for governments to develop policies and use the internet to publicize these policies to channel people to use eco-friendly products, along with establishing environmental consciousness today and tomorrow.
3. The participant parents' preference on eco-friendly furniture for their children mostly depended on direct contact of children with the furniture. Therefore, when parents purchased furniture and some important furnishings directly in contact with their children, such as bed, mattress, and desks, they paid attention to eco-friendly features. These individuals also have much reliance on solid wood material whereas they are hesitant towards plastic materials.
4. Various demographic factors have been subject to ANOVA test. According to the test results, there is a meaningful relation between the level of income and the purchasing of furniture with the label of "Eco-friendly furniture" and the $Hypothesis_{(0)}$ was accepted. No meaningful relation could be detected with the other demographic factors.
5. According to the results of the survey, the parents generally have a positive approach towards purchasing eco-friendly material for their children as they also think that the eco-friendly furniture is of high quality. However, despite such furniture is available in the market, it was found that they are not widely preferred

by parents. It was determined that monetary issues are prevalent in this situation and that the parents especially think that eco-friendly furniture is too expensive. For this reason, although these individuals are aware that it is harmful, they do tend to purchase furniture that is non-eco-friendly due to the price factor. However, as specified above, for individuals with higher levels of income, the features of the eco-friendly furniture rather than its price are more important. They prefer more of the furniture bearing the eco-friendly label in comparison with the other types of furniture.

6. In the future studies, it is aimed that a country-wide examination will be made about the attitude of parents towards eco-friendly furniture. Such examination may also detect the general perspective about eco-friendly furniture among the individuals with children from a larger scale and thus provide the furniture market with a new horizon. However, private enterprises are of the opinion that such research can be an infringement of trade secrets. For this reason, for the next phase of the research, serious infrastructural preparations are required.

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