



The Effects of Innovative Demountable Furniture on User Preferences

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Abstract

In this study, as an innovative approach, it is aimed to determine effects of demountable furniture on the preferences of residential users in Ankara. Demographic information and opinions of users regarding to demountable furniture were carried out with the help of a detailed questionnaire. 243 household users participated in the questionnaire. The obtained findings were evaluated with SPSS program. As a result, 66.7% of the participants prefer demountable furniture due to “easy transportation”, 67.1% stated because of “dismantling and assembly” and 48.1% “assembling in place”. On the other hand, 28.4% of the participants had problems due to the “need for a technician in assembling” of demountable furniture in their houses, 29.2% of them had “wear and tear of furniture pieces during dismantling” and 14% of them had “not being strong and durable” were determined. As a result, the diversification and strengthening of the fasteners used in demountable furniture with an innovative approach will contribute positively to the process.

1. INTRODUCTION

People spend a significant part of their lives, and need a variety of furniture to meet their action needs in indoor environments. Furniture has a very important place for creating homes and work places and meeting aesthetic and functional needs of users. In parallel with technological developments, new materials, tools and assembling techniques which are used in furniture production, are presented to consumers as an alternative design. Nowadays, demountable furniture; these features are preferred by manufacturers because of cost factors such as saving for labor gain, ease of transportation and transportation compared to the products produced in one piece.

In addition to traditional methods such as dowel and mortise jointing of furniture elements, a wide variety of fasteners made of materials such as metal and plastic are used in the construction of innovative demountable furniture assembled at the place of use and becoming widespread day by day [1,2]. Innovative approaches to the development of different new ideas shed light on the development of many alternative designs that enable the disassembling of furniture parts. If these furniture are stored in dismantled condition, they take up less space than fixed furniture. This situation is very important for manufacturers and sellers [3].

Innovative demountable furniture is a kind of furniture manufactured with new fasteners which are designed to be re-dismantled and assembled in pieces. All kinds of screws, hinges, handle and so on must be available. In addition, the installation guide is very important. Thanks to the innovations in the production brought about by the industrial revolution, furniture design and production that meets expectations of users, can be dismantled and installed, easily transported, can be easily adapted to new spaces with different solutions such as adding and decreasing has been started and the furniture concept that has been assembled by the user has entered the human life. Mostly modular demountable furniture is important in terms of time and energy loss and the fastest possible access to desired comfort conditions.

The furniture can offer different variations by increasing or decreasing in different colors and sizes within the framework of needs and expectations [4]. Modular furniture is defined as a system that fully meets the needs by creating proportional divisions in order to meet the needs arising in the space in different proportions, bringing the modules formed side by side and / or on top of each other [5]. Today, there are many institutional companies like IKEA that produce and market innovative modular furniture [6]. It is reported in the literature that furniture using disassembled joining elements has positive effects on tensile and compression resistance compared to glued (fixed) furniture [3,7-11].

In the light of these findings in the literature, the research hypotheses developed in accordance with the purpose of this research are given below.

H1: Participants will want the furniture they want to buy to be dismantled.

H2: Participants will find the demountable furniture durable, reliable, easy to assemble and carry, and price suitability.

In order to test the hypotheses given above, the research method and findings developed according to the purpose of the research are explained below.

2. METHODS AND MATERIALS

This study aims to determine effects of innovative demountable furniture assembled at the place of use on user preferences. The demographic characteristics, questionnaire and statistical analysis are discussed as follows:

2.1. Participants

This study consisted of 243, residential users, randomly selected in Ankara. 60.1% of the participants were male, 39.9% were female, 80.7% were in the 18-25 age range, 19.3% were in the 26-45 age range, 15.6% were secondary graduates, 84.4% of them are high school graduates, 47.3% have 0-1500 TL income, 30.5% have 1501-3000 TL income and 22.2% have 3001-6000 TL income. Since the number of groups showing the distribution of demographic characteristics of the participants was not close to each other, it was not evaluated.

2.2. Questionnaire Design

The research hypotheses were measured with a questionnaire. The design of this questionnaire was valid and reliable in previous studies [12-15].

The questionnaire consists of two parts. These:

- General information for participants (gender, age, education level, income level, district and neighborhood of residence).
- Questions on demountable furniture (preference, features, durability, reliability, ease of installation, transportation and price-effectiveness of demountable furniture).

The survey was conducted in May 2019 by interviewing the participants face to face during the working hours of the day on weekdays and weekends.

2.3. Statistical Evaluation

The opinions of participants were evaluated in terms of properties of assembled demountable furniture as a dependent variable. In order to understand the obtained data from the research and to compare with the data obtained in the same way, frequency numbers and percentage values of the research data were calculated and Cronbach Alpha reliability tests of the data were performed. The research data obtained

from this study were tested with appropriate statistical methods and the findings obtained are given in a systematic order below.

3. RESULTS AND DISCUSSION

The Cronbach alpha reliability analysis of the data obtained from this study was conducted and as a result, the reliability value of the research scale, which included the evaluations of the participants about the disassembly of the furniture they wanted to purchase, was found to be 0.70. Previously, Cronbach [16], Kaplan and Saccuzzo [17] and Panayides [18] reported that alpha reliability coefficients for all elements can be considered reliable when the reliability coefficients are above 0.60. The Cronbach alpha value obtained in this study is above the indicated value. Accordingly, the data obtained can be considered reliable.

Firstly, the requests of the participants for the demountable features of the furniture that they intend to purchase were determined. As a result, the majority of the participants (88.5%) can buy demountable furniture. This result shows that the H1 hypothesis is generally supported (the participants will want to disassemble the furniture they intend to purchase). In relation to this result, the reasons why the participants want / prefer demountable furniture are given in Table 1 and graphical expression is given in Figure 1.

Table 1. Reasons of participants to request demountable furniture

Benefits of Demountable Furniture	F	%
Easy to carry home	162	66.7
During transport of the house can be demounted	163	67.1
Possibility to assemble furniture at the place of use	117	48.1

F: Number of frequencies, %: Percentage value

In Table 1, 66.7% of the participants preferred demountable furniture because it was easy to move home, 67.1% because they could be dismantled and installed during the transportation of the house and 48.1% due to the possibility of assembly at the place of use.

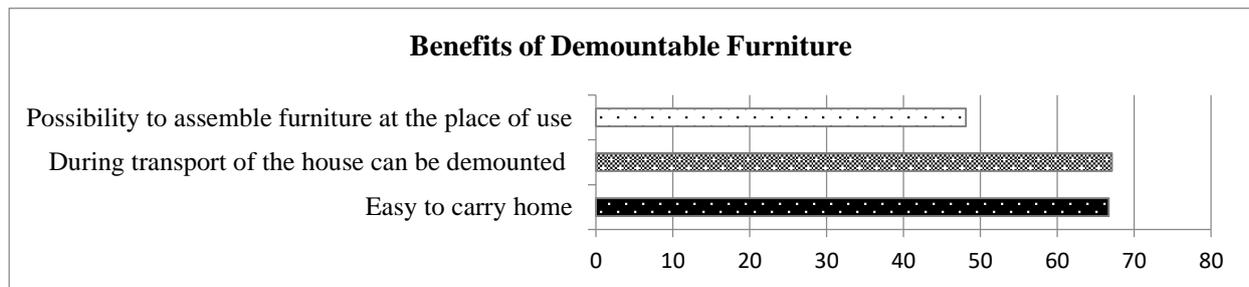


Figure 1. Reasons of participants to request demountable furniture

As a result, in questioning the furniture used by the participants in their houses was disassembled or not. A significant portion of the participants (59.7%) reported that the furniture was disassembled in their houses. In connection with this result, the reasons of the problems experienced by the participants regarding the demountable furniture in their houses are given in Table 2 and graphical expression is given in Figure 2.

Table 2. Problems in the disassembled furniture in the houses

Problems in Demountable Furniture	F	%
Need a technician for installation	69	28.4
Attrition of the components during disassembly and reassembly	71	29.2
The lack of robust and durable	34	14

F: Number of frequencies, %: Percentage value

Table 1 shows that 28.4% of the participants had problems due to the need of a technician in the assembly of demountable furniture, 29.2% due to the wear / tear of dismantled and assembled furniture parts and 14% due to the fact that they were not strong and durable.

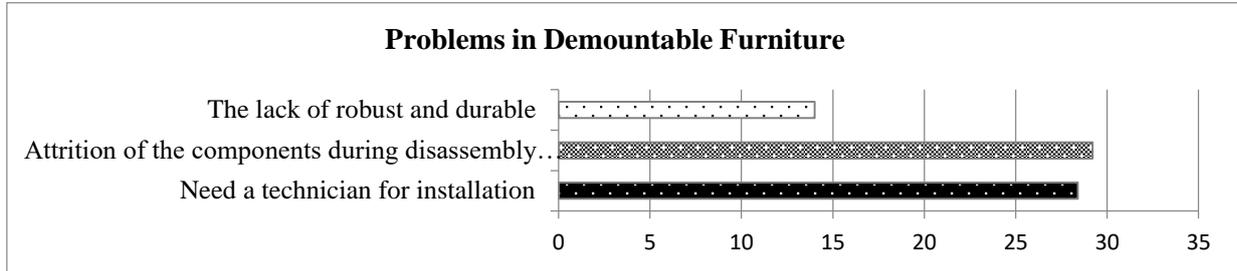


Figure 2. Problems in the disassembled furniture in the houses

As a consequence, the evaluations of the participants regarding the properties of the demountable furniture such as durability, reliability, ease of installation and transportation and price suitability are given in Table 3.

Table 3. Features of demountable furniture

Features of Demountable Furniture	Very Agree		Less Agree		Undecided		I do not agree		Never Agree	
	F	%	F	%	F	%	F	%	F	%
Durable	48	19.8	91	37.4	61	25.1	28	11.5	15	6.2
Reliable	50	20.6	107	44.0	57	23.5	16	6.6	13	5.3
Easy to install	154	63.4	42	17.3	25	10.3	10	4.1	12	4.9
Easy to carry	178	73.3	29	11.9	13	5.3	9	3.7	14	5.8
Price suitable	50	20.6	67	27.6	91	37.4	22	9.1	13	5.3

F: Number of frequencies, %: Percentage value

Table 3 indicates that 17.7% of the participants did not find demountable furniture durable, 64.6% found reliable, 80.7% found easy to assemble, 85.2% found easy to carry and 48.2% found the price to be appropriate. These results are consistent with those given in Table 1 and Table 2. These results show that the H2 hypothesis is generally supported (participants will find the demountable furniture durable, reliable, easy to assemble and carry, price suitable). However, it is noteworthy that a small proportion (17.7%) of the participants did not find the demountable furniture durable.

4. CONCLUSIONS

The general evaluation results of the research participants regarding the features of the assembled demountable furniture at the place of use are given below in a systematic order. The majority of the participants (88.5%) reported that the furniture they intend to purchase may be disassembled. This result shows that the general acceptance of innovative demountable furniture by consumers.

Furthermore, 66.7% of the participants preferred demountable furniture because it was easy to move home, 67.1% because they could be dismantled and installed during the transportation of the house and 48.1% due to the possibility of assembly at the place of use. This result shows that the favorable features of the demountable furniture such as ease of transportation and assembly have an important place in the preferences of consumers compared to the furniture produced in one piece.

Besides, 28.4% of the participants had problems due to the need of a technician in the assembly of demountable furniture, 29.2% due to the wear / tear of dismantled and assembled furniture parts and 14% due to the fact that they were not strong and durable. This result shows that a significant number of consumers experience problems with demountable furniture. According to these results, it may be suggested that furniture designers develop solutions to easily assemble the demountable furniture purchased by consumers without the need of a specialist, and manufacturers may use robust and durable

materials to prevent the wearing of demountable furniture parts. As a result, the diversification, strengthening and making it more economical of fasteners used in disassembled furniture with an innovative approach will make a positive contribution to the design and production and assembly process. The positive contribution of disassembled furniture such as ease of transportation, low transportation cost and assembly at the place of use should not be ignored. This innovative process for disassembled furniture can be made more effective through joint cooperation between universities and industry.

CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

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