

Improving Design Performance of Students in Interior Architecture Undergraduate Education

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Abstract Considering the developing conditions in interior architecture undergraduate education and inevitability of performing restructuring works to this end is a reality expressed also in the literature. "Performance-based design" is one of the key concepts in this approach. When the works as to interior design project performance are examined it can be observed that conducting assessments of user recognition correctly and fully at the preliminary stage of project is an important component affecting the design performance. This is because the success of interior space design is measured by considering to what extent the requirements of the users are met. In this context, the purpose of this study has been designated as the creation of documents the students will benefit from while determining user requirements at the preliminary stage of the project within the purview of "Interior Architecture Design Studio" courses within the interior design undergraduate education. The scope of the study is limited to only residential interior design projects with an eye to reach a more elaborate result. Literature and practical application resources were researched to determine the documents utilized for recognizing the users in residential interior design as methodology at the first stage in line with the scope and purpose defined. Subsequently, all the documents obtained were examined by making comparisons in a systematic manner and the shortcomings of the cited documents were revealed. And in the final stage, suggestions were made with a view to overcome these shortcomings. It will be possible to determine user requirements more accurately through utilization of documents created in line with suggestions to be made within the purview of the study at the preliminary stage of residential interior design projects by interior architecture undergraduate students and this will increase the students' success as to designing significantly.

Keywords: *performance based design, interior architecture education, user requirements, client questionnaire, home interior architecture*

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1. Introduction

Considering the developing conditions in interior architecture undergraduate education and inevitability of performing restructuring works to this end is a reality expressed also in the literature. "performance-based design" is one of the key concepts in this approach and it is inevitable to reconsider the entire design process with an integrated point of view to this end [1,2,3].

When the studies as to interior design project performance are examined it can be observed that conducting assessments of user recognition correctly and fully at the preliminary stage of project is an important component affecting the design performance. This is mainly because the success of interior space design is measured by considering to what extent the requirements of the users are met. Addi and Lytle assert that priority of users in design of interior spaces is "designing functional spaces which serve their needs". Hence, they emphasize the need for establishing collaboration with the user in the

design process with an eye to understand the user [4]. Ching [5] underlines the importance of taking into account the users and their action requirements to understand the functionality of interior space in the best and most accurate way and to meet the requirements related thereto. Arcan and Evci [6] express that the user is the criteria for everything in the design process and that the combination of single-actions which takes place due to requirements of the user and which is the most important element to be considered during this process constitute the action area while the combination of action areas constitute the usage areas. In this context, they stress the fact that design of the interior space is realized by arrangement of the action areas and required equipments with appropriate circulation areas. In other words, the inner space is formed according to the user thereof. Stephenson and Stephenson [7] indicate in a way to support all these thoughts that the designer may have valuable ideas at the starting point however they are of no importance if any of these ideas are incoherent with the user's requirements [3].

Furthermore, usage of "client questionnaire" to understand the user requirements at the preliminary stage

of interior design provides the following additional benefits which help the progression of the design process [8,9]:

1. It translates the research objectives into specific questions that are asked of the respondents.
2. It standardizes those questions and the response categories so every participant responds to identical stimuli.
3. By its wording, question flow, and appearance, it fosters cooperation and keeps respondents motivated throughout the interview.
4. Questionnaires serve as permanent records of the research.
5. They speed up the process of data analysis.
6. They contain the information upon which reliability assessments such as test-retest or equivalent-form questions may be made, and they are used in follow-up validation of respondents' participation in the survey.

The requirements of the user are determined in consultation therewith at the beginning of the design process due to all these reasons. Various "Client Questionnaires" are available to help the designer to make the right determinations at this stage. Personal meetings are very important to design process. First meeting with client usually runs one-and-a-half to two hours, during which time they discuss and take detailed notes on client's needs, wants, ideas and ideals [10]. If the data obtained by the "Client Questionnaire" is complete and accurate, it will significantly improve the designer's performance in the design process [3]. Because client questionnaire translates the research objectives into specific questions that are asked of the respondents. It standardizes those questions and the response categories so every participant responds to identical stimuli. By its wording, question flow, and appearance, it fosters cooperation and keeps respondents motivated throughout the interview. Questionnaires serve as permanent records of the research. They speed up the process of data analysis [8].

In this context, determination of user requirements correctly and acquiring skills for developing their projects is of utmost importance within the scope of the "Interior Architecture Design Studio" courses during the undergraduate education of interior architecture students. This is because the skill they gain will contribute to increase their design performance significantly in their professional life.

2. Purpose and Methodology

In this context, the purpose of this study has been designated as the creation of documents the students will benefit from while determining user requirements at the preliminary stage of the project within the purview of "Interior Architecture Design Studio" courses within the interior design undergraduate education. The scope of the study is limited to only residential interior design projects with an eye to reach a more elaborate result. Literature and practical application resources will be researched to determine the documents utilized for recognizing the users in residential interior design as methodology at the first stage in line with the scope and purpose defined. Subsequently, all the documents obtained will be

examined by making comparisons in a systematic manner and the shortcomings of the cited documents will be revealed. And in the final stage, the kind of documents the interior architecture undergraduate students will benefit within the scope of "Interior Architecture Design Studio" courses will be described in order that they can determine user requirements fully and correctly by taking into account these shortcomings.

3. Documents Used for Determination of User Requirements in Residential Interior Design

Literature and practical application resources were researched to determine the documents utilized for user requirements in residential interior design at the first stage. A total of 172 questions in 19 different resources were reached basing on the results of these researches. [11-29]. Subsequently, the mentioned 172 questions were reduced to a total of 95 questions in a comparative manner as seen in Table 1, by eliminating the similar questions.

Table 1. Questions for determining user requirements in residential interior design

No	Questions
01	What is the scope of project?
02	What is the size/volume of home?
03	Number of rooms of home?
04	What is the location of project?
05	Which rooms will be included in the project?
06	Is this your own place or rented?
07	How long have you lived in your home and how long do you plan to live in your home?
08	Do you enjoy specific rooms for specific functions?
09	Do you have plans for the future use of your residence?
10	Household members (name, work space, special needs, birthday)
11	Do you anticipate changes for any household members?
12	Will your rooms need to serve different functions in the future?
13	Do you have pets in household? List type, age, special needs
14	Special considerations (disabled, elderly or children)?
15	What is your lifestyle?
16	How is your home entrance and entrance door?
17	What size of entrance closet do you envision?
18	What is your entertaining style?
19	What is the frequency of your entertaining?
20	What is the average number of guests?
21	What is the average guests ages (adults/teenagers/children)?
22	How important is TV to you, in which rooms?
23	Should the living room be open to other areas? Which rooms?
24	What are the primary activities will take place in living room?
25	Will living room need more than one seating area?
26	What furnishings do you envision in living room?
27	What cooking facilities are required?
28	Does more than one person cook at a time?
29	What is your eating habits?
30	Where do you eat your meals?
31	Do you like to look out the window while working in kitchen?
32	How many feet of countertop do you need in your kitchen?
33	How much cupboard/drawer space do you need in your kitchen?
34	Is an island important in your kitchen?
35	Would you use timbers to hang pots and pans in your kitchen?
36	What non-food items do you store in your kitchen?

37	What else do you want in your kitchen? (TV, fireplace, comp?)
38	Will you have a separate pantry?
39	Should the kitchen be linked to other areas of the home?
40	Is the dining area to be multipurpose in nature?
41	Do you like to be able to look outside while lying in bed?
42	Describe your privacy requirements you have for the bedroom?
43	Is a separate dressing area required in bedroom?
44	Will the bedroom be also used as a study or sitting room?
45	What special qualities do you like in a bathroom?
46	How private should the bathroom be from the rest of the home?
47	Do you like to be able to see out of a window in bathroom?
48	How long of a countertop would you like in bathroom?
49	Do you need a separate makeup area in bathroom?
50	Should the toilet be in a separate space?
51	Do the household members share common time around home?
52	Do you have any collections? If yes, please list
53	Are you looking to create a children's play area?
54	Does any household member work from home?
55	What type of lighting requirements will be necessary in rooms?
56	Is there natural light in the room(s)?
57	Do you need special storage area?
58	How many fireplaces would you like? Where?
59	How do you spend your vacation time?
60	Do you have hobbies? If yes what kind of hobbies?
61	What is the budget for your project?
62	What kind of enhancements are you considering?
63	What do you like/dislike most about your current home? Why?
64	What is your favorite room in the home? Why?
65	Are there any pieces of furniture, window, wall or floor coverings that must stay or go, and be worked into the new plan?
66	What is your personal design goals for your home?
67	Would you like to include "green products" when possible?
68	What mood do you want to create overall?
69	Would you like an open concept, semiopen or mostly closed?
70	What is the existing style of your home?
71	What style do you like and dislike?
72	What are your favorite/unfavorite color?
73	What are your favorite/unfavorite pattern?
74	What colors do you currently have in your home?
75	Do you have a color theme in mind?
76	Do you like false ceilings?
77	What kind of materials do you prefer?
78	Are there types of window treatment you prefer?
79	Are there types of door treatment you prefer?
80	Do you need sun control or privacy with window treatments?
81	What is the timeframe of the project?
82	What has prevented you from doing so?
83	What are some of the ideas you have considered so far?
84	Who will be making the financial decisions on the project?
85	Who are the decision makers?
86	What are the description of rooms (Size/Ceiling/Height)?
87	Do the household members share common time in the home?
88	What furniture store/catalog would you most likely buy from?
89	Why are you interested in doing this project at this time?
90	Who will be involved in this project? How?
91	What is most important to you-the budget or the result?
92	If you have a patio, terrace etc, what is your ideas for them?
93	Do you want to have an internal staircase?
94	Any extra space layout requirements that you might want?
95	Are you interested in purchasing at retail or customizing interior?

listed in Table 1 were examined by resources they were found to be as provided in Table 2.

Table 2. Distribution of questions used to determine the user requirements by resources

Quest.No	References																		
	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
01		X			X	X	X	X	X	X				X			X		X
02	X	X		X	X					X	X		X	X		X	X	X	
03																X			
04												X	X						
05	X			X			X	X	X	X	X			X	X	X		X	X
06																		X	
07	X									X	X			X		X			
08												X	X			X			
09	X									X	X		X						
10	X		X	X	X					X	X	X		X		X		X	
11	X									X				X		X		X	
12														X				X	
13	X			X	X					X	X	X		X		X			
14	X			X	X						X		X	X					
15										X			X			X			
16			X																
17			X																
18	X			X	X					X	X	X	X						
19	X			X	X					X	X	X	X			X			
20	X			X						X	X	X	X						
21	X			X	X					X	X	X	X						
22												X							
23			X																
24			X																
25			X																
26			X																
27	X		X		X					X				X					X
28	X		X											X					
29			X																X
30	X				X					X									
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45			X																
46			X																
47			X																
48			X																
49			X																
50			X																
51	X				X						X				X				
52	X			X	X					X	X			X					
53	X																		

When the distribution of questions used to determine the user requirements as to residential interior design

In the qualitative assessment phase of the questions utilized for determining the user requirements in [Table 1](#), firstly a literature research was conducted to determine what the criteria to be based on should be when making this assessment. As a result of this research, it was observed that the following 21 different criteria should be considered [8,30]:

1. The question should be focused on a single issue or topic.
2. The question should be brief.
3. The question should be interpreted the same way by all respondents.
4. The question should include all necessary information.
5. The question should include response categories clear and logical.
6. The question should use the respondent's core vocabulary.
7. The question should be a grammatically simple sentence if possible.
8. The question should not assume criteria that are not obvious.
9. The question should not be beyond the respondent's ability or experience.
10. The question should not use a specific example to represent a general case.
11. The question should not ask the user to recall specifics when only generalities will be remembered.
12. The question should not require the user to guess a generalization.
13. The question should not ask for details that cannot be related.
14. The question should not use words that overstate the condition.
15. The question should not use words that abbreviations, jargon or foreign phrases.
16. The question should not have ambiguous wording.
17. The question should not be "double-barreled."
18. The question should not lead the user to a particular answer.
19. The question should not have "loaded" wording or phrasing.
20. The question should not be too demanding and time consuming.
21. The question should not be biased.

When the questions to understand user requirements were evaluated on the basis of the 21 criteria mentioned hereinabove it was found that most of them made receipt of clear and correct answers difficult. For Example; the answer to the question of "What are your favorite / unfavorite colors?" to be given by the user will be probably light green, dark blue, orange and etc. However, the color tones which the user envisages by the concepts of light green or dark blue has very low probability to correspond with the color tones which the designer envisages. Any mistake to be made here may cause very adverse outcomes in terms of user satisfaction [3].

Similarly when the questions regarding the determination of style were evaluated, it was found that there are two questions which are "What style do you like and dislike?" and "What is the existing style of your home?" in order to understand it. Additionally, in some

sources [11,14,21,24] styles were tried to be described through a variety of visuals. However, these visuals do not have the quality to convey full and sufficient data related to these styles to the user. In other words, language unity between designers and users cannot be provided in the existing documents.

Furthermore, it was seen that none of these questions are intended for "cultural Implications". However, many behaviors including the way of eating recreation and fun vary considerably from culture to culture regarding the usage of houses [3].

There are only two questions to recognize the user's physical characteristics which are "Household members (name, work, space, special needs, birthday)" and "Special considerations (disabled, elderly or children)?" However, these questions are not intended to understand the anthropometric measurements of users such as height, weight and etc. which are very important in interior design. For example two users with the same age and gender but with different heights such as 187 cm. and 155 cm can reach completely different heights. This in particular will affect the design of storage spaces significantly.

It is not possible for the existing documents and questions in these documents to identify user requirements adequately and correctly due to all these determined deficiencies. Therefore, suggestions will be made for the elimination of these deficiencies in the next phase of the study.

4. Suggestions for Creation of Documents to Ensure Identification of User Requirements in Residential Interior Design Correctly and at an Adequate Level

The use of all of the 95 different questions listed in [Table 1](#) is suggested in creation of documents to ensure identification of user requirements in residential interior design correctly and at an adequate level.

Identification of questions for learning anthropometric measurements of users is also suggested in the newly created documents. These questions should be identified by taking into consideration actions to be performed in the space and action groups and in an answerable way. In other words, which anthropometric measures should be taken for which actions should be included in the documents.

It is suggested to create the new questions in a way to ensure the receipt of clear and accurate answers. As in the color example provided hereinabove, the user should be enabled to choose from a color chart instead of saying the name of color and tone.

It is suggested to create questions identifying the cultural characteristic of users in the new documents. These questions should be created basing on actions that differ from culture to culture in terms of residential interior design.

5. Results

It will be possible to create the documents to be utilized to determine the user requirements in residential interior

design correctly and completely in line with the suggestions to be made within the scope of the study. The use of these documents to be created anew will improve the students' performance success significantly within the purview of "Interior Architecture Design Studio" courses within the interior design undergraduate education.

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