

An Approach to Measure the Quality of Architectural Space

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ABSTRACT

The main concern in this paper is to measure the design quality of ten different coffee shop windows on a historical avenue in İstanbul, Turkey which serves human functions of habitation, circulation and many related functions. This is a pilot study which evaluates and analyzes quantitative and qualitative factors in regard to the design quality by semantic differential scale.

1. INTRODUCTION

An important aspect of “architectural space” is the involvement of man in its generation and his partaking in it [1]. “Architectural space” has also a historical aspect which is indicated by the term life cycle of it. A number of different methods have been introduced to understand “architectural space”, “design quality” and “its life cycle”. These methods aim to develop post occupancy evaluation (POE) tools and visual quality indicators. Although it is difficult to quantify the “quality” of architectural space, visual evaluation of architectural space (indoors and outdoors) has proven useful in various domains. These visual evaluation methods aim to provide a toolkit for improving the design of buildings as well. It seeks to complement methods for measuring performance in construction and during the life cycle. It also unifies issues related to perception of design quality embodied in architectural space [2]. The main concern in this paper is to measure the design quality of a historical avenue in İstanbul, Turkey which serves human functions of habitation, circulation and many related functions.

İstiklal Avenue is one of the most famous and elegant ones in İstanbul. Nearly being three kilometers in length, the avenue houses many activities, it is surrounded by late Ottoman Buildings which carry reflections from Neo-Classical, Neo-Gothic, Art Nouveau facades, and First Turkish National Architecture style. Shop windows on the avenue act as the new image of the old district. For this reason, shop window design is important as they shall catch the attention of the passerby. Shop window design shall be analyzed considering quantitative and qualitative factors which are related to the design quality. Quantitative factors are related to the elements of the physical environment such as lighting design, material property (texture, colour, durability et cetera), window type and orientation, facade style, size and shape. Qualitative factors on the other hand, refer to interaction of the physical environment on user psychology. For instance, when a person is exposed to the colour red, dramatic physiologic effect’s may be observed including the release of adrenalin, an increase in heart rate, and an increase in gastric activity, which leads us to offer red in dining facilities.

Facilities on the avenue are clustered and it was decided to investigate shop window design of cafes. A matrix is developed according to the purpose of the study; which covers quantitative and qualitative design parameters.

Environmental psychology is broken into several elements, some of which are perception and cognitive mapping. Perception is the instant response to the immediate environment, whereas cognition refers to process of semantic and verbal classification of perception [3].

Environmental psychology studies people’s motivations illustrating that people naturally seek out places where they feel competent, confident, comfortable or enjoyment. Further, research demonstrates that people have preference for coherence and legibility. Therefore, the creation and preservation of a preferred environment is believed to increase the sense of well-being and behavioural effectiveness in people [3].

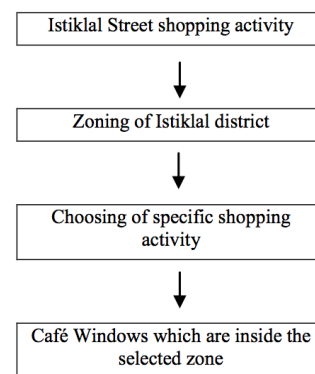


Figure 1. Conceptual Framework of the Study

2.METHOD OF THE STUDY

The study is a field study where photographic images are analyzed, categorized and investigated through a questionnaire.

The study aims to analyze the shop window design on Istiklal Avenue with a special emphasis on cafes’ design (Figure 1 illustrates the breakdown of the conceptual framework). Therefore, the research is designed in the following steps; firstly the photographic panorama of the walkway on the avenue is completed and a map is developed as seen in Figure 2.



Figure 2. Mapping of the activity zones on the Istiklal Avenue

It is paid attention to take photographs of each shop window and to cluster shopping activity zones on the map. The research problem is focused on the cafes, therefore only cafes are emphasized on another map in order to see their dispersion on the avenue (Figure 3).

A list of bipolar adjectives are selected in regard to the related reference [4-5]. This adjective covers frequently used quantitative and qualitative design parameters in regard to the shop window design of cafes. Quantitative parameters are related to the form, size, shape, material property, whereas qualitative parameters are related to the aesthetical properties.



Figure 3. Cafes on the Istiklal Avenue

3. DATA ANALYSIS

Data is collected by questionnaire and analyzed by semantic differential scale.

3.1 The participant group

20 undergraduate students (10 male, 10 female), who has never attended design courses, participated in the study. They are all Turkish people who have visited İstiklal Avenue many times. They are asked to fill in a questionnaire without visiting the Avenue. Each participant evaluated the questionnaire on their own under the observation of the pollster.

3.2 Semantic differential scale

In the study, Osgood's **semantic differential** was designed to measure the connotative meaning of concepts[4]. The respondent is asked to choose where his or her position lies, on a rating scale between two bipolar adjectives. The bipolar adjectives are selected in regard to the qualitative and quantitative design parameters; they are as follows;

- Remarkable – ordinary
- Vivid color- pale color
- Restful- restless
- Unclutter-clutter
- Luxuriant-simple
- Old (historical) – new (modern)
- Spacious – unspacious
- Orderly- chaotic
- Open display-closed display
- Pleasant-Unpleasant

Subjects evaluated façade pictures of ten cafes on the Avenue according to the given adjective list. Logos are closed in order to prevent bias.

4. RESULTS AND DISCUSSION

In the study, average rating of the participant group is reported. Table 1 gives mean of the responses for the given adjective list in regard to the shop window design of ten cafes (represented by capital letters).

Figure 4 remarks this point graphically and illustrates how much the standard deviation from the medium is. 0 is the average value, the greater the deviation, the greater the significance for a particular adjective. Regarding this evaluation, the most positive impressions are stated for Starbucks Coffee, (indicated by letter H), followed by İstanbul Cafe (indicated by letter I) and Saray Dairy Lunch/Cafe (indicated by letter J). On the contrary, Porta Cafe (indicated by letter G) is the least preferred one.

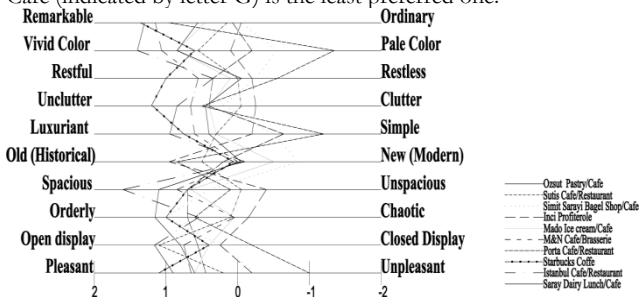


Figure 4. Semantic differential chart

The attributes of the most preferred environment, that is Starbucks, appeared to be an open display space, being orderly, spacious, its historical view (compatible with the historical Avenue), lighting scheme and design concept (defined by the participant group). Secondly is the İstanbul Café with vivid color scheme, spacious view and window detail. Finally, the descriptive pattern for Saray Café is associated with words such as material property; timber use, its color, display units, spacious view and simplicity (defined by the participant group).

The less preferred environments are described by the attributes of darkness, material property, simplicity for Simit Sarayı (defined by the participant group). The responses for İnci Profiterole appeared to be common, being old and unairy with its dark color scheme (defined by the participant group). Finally for the Porta Café, the attributes are being ordinary, old and common, pale and having multi separators that destroy visual order and unity.

5. CONCLUSION

Design quality is difficult to quantify as it consists both objective and subjective components. Whilst some indicators of design can be measured objectively, depending in part on the subjective views, experiences and preferences of the people asked. In approaching issues of design quality, a number of research methods are applied, one of which is semantic differential scale. In the present study, user preferences on shop window design are analyzed and evaluated by semantic differential scale.

An analysis on the adjective pairs that described differences between photographs revealed cluster patterns associated with settings that are liked and disliked. Results clearly indicate that Starbucks Coffee Shop is the most preferred one, followed by İstanbul Cafe and Saray Dairy Lunch/Cafe. On the other hand, the least preferred ones are Simit Sarayı, İnci Profiterole and Porta Café. The study is conducted with a small group which makes it a case study. Depending on the findings, the research is intended to be enlarged with professionals (designers) as well.

Table 1. Mean of the responses for shop window design

Feature of the shop window design	Mean of the responses									
	A	B	C	D	E	F	G	H	I	J
Remarkable	0.05	0.15	-0.05	-0.05	0.45	1.15	0.95	1.35	1.3	0.55
Vivid color	-0.2	0.55	-0.55	0.1	0.85	1.05	-1.35	0.6	1.4	0.85
Restful	0.35	0	-0.25	-0.2	0.1	0.55	-0.55	1	0.35	-0.05
Unclutter	0.4	-0.05	0.2	-0.25	0.4	0.65	0.5	1.2	0.85	0.45
Luxuriant	-0.65	0.3	-0.5	-0.2	0.3	0.6	-1.2	0.75	0.95	0.4
Old/ Historical	0.2	0.5	-0.85	0.95	-0.5	0	0.85	0.05	-0.1	-0.05
Spacious	0.7	-0.05	0.4	-0.4	0.65	0.85	0.1	0.7	1.6	1.1
Orderly	0.7	0.1	1	-0.15	0.05	0.05	0.6	1	0.55	1.15
Open display	0.55	1.1	0.25	0.25	0.4	0.75	-0.2	0.4	1.15	0.8
Pleasant	0.45	0.2	-0.25	-0.2	0.6	0.65	-1	1.1	0.9	0.6

6. REFERENCES

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