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FORMAL AND ASSOCIATIONAL VARIETY IN  
URBAN SPACE:  
AN APPROACH TO UNDERSTAND  
MAN-ENVIRONMENT RELATIONS

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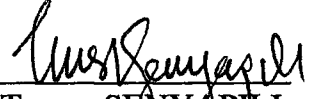
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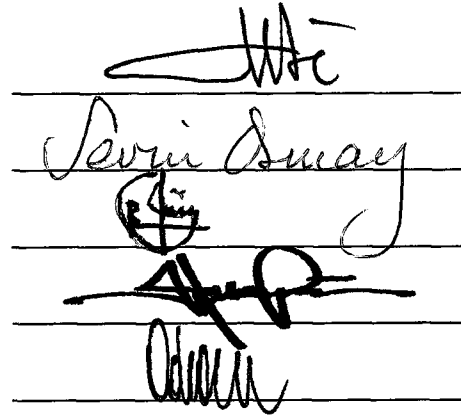
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# ABSTRACT

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The quality of urban environment is directly related to how that environment meets the needs of man. The physical/spatial and psychological/associational characteristics of the environment determine the quality of urban space. In order to evaluate the quality of urban environment, it is necessary to analyze the variety in urban space. 'Variety' emerges as one of the most important properties of the urban fabric which helps us to

understand the quality of urban space and user satisfaction. The two components of variety, that are formal and associational characteristics, renders possible the evaluation of the quality of urban space as regards human needs. Variety in urban space is taken as not only the visual characteristics of the environment such as urban dualities, complexity, and diversity, but also as the symbolic characteristics such as the hierarchical formation of the urban space.

Keywords: variety, user satisfaction, spatial behavior, hierarchy of spaces, components of visual quality related with variety.



# ÖZ

## İNSAN-ÇEVRE İLİŞKİLERİNİN DEĞERLENDİRİLMESİNDE BİR YAKLAŞIM: KENTSEL MEKANLARDA BİÇİMSEL VE ANLAMSAL ÇEŞİTLİLİK

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Anahtar Kelimeler: Çeşitlilik, kullanıcı tatmini, mekansal davranış, kullanıcı davranışı, mekanların kademelenmesi, çeşitliliğe bağlı olarak görsel çevre kalitesinin özellikleri.



**To my Family**

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# CHAPTER I

## INTRODUCTION

### I.1. General Framework

It is a popular belief that most of the contemporary urban areas lead to user dissatisfaction because they are either chaotic or monotonous as regards perception. This is a major conflict between man and his environment. Whether an urban space creates pleasure or fear, interest or boredom depends on the characteristics of that space and how it is perceived by the users. Properties of urban space have an influence upon how people understand and evaluate the quality of urban space.

The quality of an urban space is highly correlated with *how that space meets human needs*. As Sanoff (1974) and other scholars (Lozano, 1974, 1992, Rapoport, 1977, Lang, 1994) discussed, our vernacular past is rich with visually satisfying environments, because it offers to help a wide variety of settings and of activities and behavior that meet human needs. Today, urban development is so rapid that cities alter their visual character within a few years. The population and the speed of moving about the city outweighs the consideration of

quality, resulting in environments created with very little forethought. With increasing urban development and lack of visual quality, the environment becomes monotonous, impersonal, and standardized.

This thesis tries to investigate;

- the attributes of visual quality shaping the urban space via an analysis of the relationship between human needs
- the way the built environment is formed; where the city is taken as a man-environment system.

**Variety** exists as an important property of the quality of urban space. This thesis analyzes this aspect of people's interaction with the built environment because variety also exists as an important component in man-environment interaction/relationship.

## **I.2. The Scope of the Study**

This thesis tries to investigate the issue of variety in urban space from another point of view. The analysis of variety covers a wide spectrum of topics. In this thesis, variety is analyzed through the associational/symbolical characteristics of urban space and through the behavioral analysis of the man-environment interaction. The main emphasis here is on "*associational variety*". Moreover, formal variety is analyzed in relation with associational variety/spatial hierarchy features of urban space.

This thesis mainly tries to understand the whys and hows of the features of associational variety in urban space, in conjunction with pre-known planning approaches which deals with man-environment relations. The purpose is to make a contribution to the design of urban space related to the necessity and relevancy of the associational variety characteristics. Associational variety cannot be taken into consideration without considering of the features of formal variety. Urban spaces are full of variety; formal, functional, symbolical, and so on. In this thesis, associational and formal variety are taken into consideration and variety is dealt with through an analysis of man-environment relationship.

This thesis deals with user satisfaction/dissatisfaction via an analysis of variety and is interested with:

- how people experience cities,
- how they assign meaning to the environment,
- how they classify and conceptualize the urban space,
- how behavior takes place,
- how designed/planned environments affect behavior,
- how choices and preferences are made and on what basis.

The goal is to provide a framework for understanding the city, in terms of man-environment interaction/relationship through an analysis of the variety component which affects the quality of the urban space.

It is generally accepted that *man's behavior is influenced by the environment* in which he lives. The environment includes both a social and physical component. The spatial attributes of

the environment contribute to the shaping of an individual's life style. The current analysis of man-environment relationship is concerned with the systematic study of the mutual interaction of people and their built environment. Also, it is concerned with what to design and why, thus arriving at human criteria for design based on an understanding of man-environment interaction (Rapoport, 1977). The present view is that man-made environment can be seen as a setting for human activities. The primary concern is the individuals' sensory capabilities which enable them to be active users and explorers of the environment. How they perceive it through senses and how they give meaning to it? Since the ways in which the environment is used, the ways in which it is perceived and explained all influence human behavior.

Man does everything to survive both physiologically and psychologically. The environment in which he lives or he is surrounded by gives some opportunities and constraints when the satisfaction of needs is considered. The environment affects the lives of people and the nature of their attitudes. Another question related to man-environment studies is the effect of the built environment/urban space on human behavior, mood or well-being.

“The quality of the environment (or surroundings) may affect immediate experience -sense of well-being- in those surroundings; it may influence subsequent reactions to both the setting and its inhabitants; and it may influence spatial behavior in that individuals are attracted to an appealing environment and are likely to avoid an unpleasant one. With knowledge of the relationship between properties of the visual environment and human

effect, design professionals can better plan, design, and manage settings to fit the preferences and activities of the users. This, in turn, may contribute to enhancing the quality of life” (Nasar, 1992, xxi).

In analyzing the variety in urban space, *preference* is seen as an important concept in evaluating people’s responses to the urban spaces. In determining the quality of urban space, people’s responses to the urban space, that is the activities and spatial behavior, become important. People prefer environments where they are effective and successful, likewise not prefer the environments in which they are not effective. Preference is also closely linked with human needs. In other words, preferred environments are those in which people feel themselves to be effective and where needs are easily satisfied.

There are many approaches which try to understand the nature of preference and visual quality. Sanoff (1974) criticized the results of some visual quality regulations:

- “Look-alike” regulations, seeking to enforce uniformity in a neighborhood, seem to foster monotony,
- “No-look-alike” regulations, intended to compel complexity, produce chaos.

This thesis tries to make an analysis of the urban space in order to maintain the optimum conditions for well designed, preferred and satisfactory environments/visual quality according to human needs. What spatial properties of the urban space generate the optimum satisfaction of the users give clues in



understanding man-environment relations and preferences about urban space.

Some contents and processes (such as water, green areas or natural areas) of the environment enhance people's preference of urban spaces. These are the qualities of the environment that permit involvement and making sense. *Involvement* is determined by complexity or diversity. *Making sense* is the feeling that 'belong' there, such as ground textures, repetition of elements. Involvement and making sense are the crucial properties of the urban space in shaping spatial behavior and activities.

"If peoples reactions to things and spaces depend on people's purposes, then understanding preference requires that we first understand what these purposes are... 'making sense' and 'involvement'. Making sense refers to the concern to comprehend, to keep one's bearings... Involvement refers to the concern to figure out, to learn, to be stimulated. If making sense and involvement are indeed pervasive purposes for humans, then environments that support these purposes should be preferred" (Kaplan, 1973, 47-48).

*An important involvement component is variety.* It is referred to as diversity or richness. Variety shows how much is going on in a particular scene, how much there is to look at. If there is very little going on then preference is likely to be low.

*Variety, also is the making sense component.* A change in the texture or pattern of urban space is associated with something important going on in the scene. Easily identifiable components

in urban space aid to perceive and conceptualize that space clearly.

Preferred environments can be considered as a function of the spatial configuration. In order to explain man-environment relations and find how people choose the environment that fits best, this thesis tries to explain the factors behind people's behavior.

The main questions being searched in this thesis are as follows:

- What kinds of environments do humans prefer?
- How people shape their environment?
- What are the mechanisms which link the relations between people, between people and environment?
- What properties must environments have to maintain people's well-being and effectiveness?
- How and which spatial configurations fit physiological, psychological, and social needs of people?

Another question here is whether design factors might positively or negatively affect user attitudes and environmental activities, causing some housing schemes to be perceived as more or less successful than others or not.

In order to measure the effect of the built environment on spatial behavior and the impact of spatial behavior on the built environment, this thesis covers a survey analysis of physical and symbolic environmental characteristics influencing user

attitudes. It attempts to identify some patterns and symbols that might be perceived as fulfilling user's preferences or not, affecting their satisfaction with the urban space and their responses to it through higher or lower frequency of use. Variety emerges as an important factor in the preference of urban environments. It affects the user satisfaction/dissatisfaction from the environment.

This thesis covers mainly two distinct but interrelated approaches to variety in urban spaces; *formal* and *symbolic or associational*. Symbolic analysis contributes to an understanding of urban space through experience, produce meanings, hierarchies etc. It focuses on such things as context, meaning. Symbolic variety can be considered as the appreciation of the associational meanings of the urban environment.

Formal analysis, on the other hand, covers the physical attributes of the environment and their properties such as size, shape, complexity, diversity. Formal variety can be considered as the appreciation of the shapes, rhythms, complexities, and sequences of the visual world. It also covers the colors, odors, sounds, and textures of the environment. That means, it is related with senses.

Formal and symbolic variety qualities of the built environment can be used as tools to control the visual character of the urban space and interaction among people.

### **I.3. The Method**

This thesis focuses on variety in urban space as an important attribute in understanding the quality of the environment via a survey of the literature about urban design, environmental psychology, and man-environment relations.

The method used here is a kind of *descriptive analysis* based on various publications, results of planning experiences, field surveys, many observations and impressions especially for site survey. Survey analysis is conducted as a kind of nonreactive observational study, called as *unobtrusive method* in the literature. The method of this survey analysis is widely explained in Chapter V.

For this kind of study, first of all, various publications are examined in order to establish a theoretical background. Then, the motives, context and important issues are determined. There are a lot of dynamic relationships and mechanisms which affect issues about spatial variety. These mean that this study is based on multi-dimensional perspectives: symbolic/associational, psychological, physical/formal, and spatial aspects. In survey analysis several mechanisms and tools of formation of urban space are analyzed in order to understand and clarify the underlying forces of spatial behavior, user satisfaction, preference and accordingly the need of variety in urban space.

#### **I.4. The Contents of the Study**

In this study, there are six chapters discussing both formal and associational varieties in urban space. The first two chapters investigate human behavior in the urban environment; in order to understand the factors behind his/her behavior and the psychological and social processes that occur in the urban environment.

The **Second Chapter**, *Basic Tools in Understanding the Relation Between Behavior and Environment*, clarifies the nature and underlying forces of human behavior as motivations and needs which are, in turn, affected by the environment. The specific concepts, as the peculiar characteristics of the environment, such as affordance, communication, and meaning are explored in terms of their influence on human behavior and activity. This analysis, also considers the forces underlying spatial behavior, such as environmental perception and spatial cognition, which finally act as important contributors to spatial formation. "The urban spatial system is an expression of a behavioral system and the purpose of all spatial divisions, clustering, and the like is to improve communication, understanding, predictability and the legibility of and obedience to cues" (Rapoport, 1977, 288). Here, it is aimed to find those environments that can respond to human needs the best; and attributes of the environments, the nature, patterns, and basic processes of behavior.

The **Third Chapter**, *Man-Urban Space Interphase*, mainly argues about the physical and social environments within which people evolved and regulating mechanisms in the interaction between people and the built environment. This investigation might be useful in understanding how people use, share, and divide urban space. These also have an important effect on the spatial configuration of the urban environment. In this chapter, psychological mechanisms, privacy, personal space, and territoriality, are examined as complementary mechanisms in the formation of urban space. Studying symbolic -associational-variety is crucial in improving the ability of designers to create environments and environmental design policies that meet the psychological needs of the users better. The last parts of this chapter cover the concept of hierarchy of spaces that appears to be an important feature of associational variety in urban space.

After analyzing the psychological factors influencing the visual quality of the urban space, the **Fourth Chapter**, *Variety in Physical Formation of Urban Space*, focuses on the various aspects of formal variety within urban space. This chapter firstly examines formal variety in different urban scales. In macro scale, distinct dualities are analyzed in order to see the variety in city scale, then the need and importance of formal variety are discussed in micro scale. In accordance with these attributes, the components of formal variety are analyzed. Finally, the consequences of lack and abundance of formal variety are clarified.

The **Fifth Chapter**, *The Analysis of Formal and Associational Variety in Selected Sites*, covers a comparative field work analysis. This survey includes selected residential areas in Ankara. In order to understand the ways in which the effects of components of the built environment on perception of visual quality and what the symbolic meaning components are, the social and symbolic significance of certain physical components are examined in terms of;

- the environmental messages they convey,
- whether physical components satisfied residents' needs (user satisfaction) or not.

The effects of user attitudes (psychological manifestations) on spatial behavior (physical manifestations) are investigated through observations made on the sites. Spatial behavior is analyzed through the nature of attitudes that residents held toward their environment. Moreover, attitudes are analyzed through motivations on differentiated spatial behavior, affecting people's reactions and user motivations.

The **Sixth Chapter**, *Conclusion*, presents the evaluations and the critiques of the variety analysis in order to evaluate the role of variety in urban areas with giving some principals and procedural suggestions.

## CHAPTER II

### BASIC TOOLS IN UNDERSTANDING THE RELATIONS BETWEEN HUMAN BEHAVIOR AND ENVIRONMENT

The spatial and associational characteristics of the urban space/environment determine its quality. Variety emerges as one of the most important properties of the urban fabric and components in man-environment relations.

To explain the nature of man-environment relationship, there are a number of theoretical approaches, such as, transactionalism, empiricism, behaviorism etc.. One of them, *Environmental Perception and Cognition Approach* analyzes the man's behavior in the environment, dealing with the factors underlying behavior at micro scale. "The basic point of this approach is that man's motivations, needs, and perceptual and cognitive abilities together with the stimuli he receives from the environment - referred as the affordances of the environment- are the major determining factors of his/her behavior" (Barlas, 1994; 4). Human needs and motivations are seen as the forces underlying behavior in an urban space. This chapter firstly deals with



human needs and motivations, which is directly influence spatial behavior. Afterwards, the special characteristics of an environment -affordance, communication, and meaning- are analyzed with respect to their role in the relationship between the built environment, spatial behavior, and needs. Environment influences human behavior. The following parts deal with the basic processes of human behavior, that are perception, spatial cognition, and finally spatial behavior, which is shaped by the environmental/spatial characteristics.

## **II.1. Motivations and Needs as Guiding Forces of Human Behavior in Environment**

Lang (1987) has stated that motivation is the guiding force behind behavior. Behavior is directed toward the satisfaction of needs. There is an explicitly known linkage between preference and human needs. "Preferred environments will in general be ones in which human abilities are more likely to be effective and needs are more likely to be met" (Kaplan and Kaplan, 1978: 147).

"Since behavior is directed toward satisfying needs, the motivational aspects of behavior must be understood as a fundamental concept in designing for human behavior. Motivation has many definitions. In essence, it is the process of arousing action, sustaining activity in progress, and regulating the pattern of that activity... A need has been described as a force in the mind that organizes perceptions, cognition, and behavior to transform an existing, unsatisfying situation. Needs have their basis in

both the physiological, psychological, and sociological aspects of behavior" (Lang, et.al. 1974, 84)

It is stated that needs constitute the motivation for behavior. A number of models have been developed to explain the relations between human needs and behavior. The most suitable ones are those which help us understand the behavior patterns, such as those developed by Leighton and Maslow. Leighton's model is based on the scale of *essential striving sentiments*, the other one, Maslow's model, is based on the *satisfaction of theoretical demands in a hierarchical order*. Leighton's model clarifies the following needs: physical security, sexual satisfaction, the expression of hostility, the expression of love, the securing of love, the receiving of recognition, the expression of spontaneity, orientation in terms of one's place in society and places of others, the securing and maintenance of membership in a definite group, and finally belonging to a moral order. "These needs have to do with what the environment affords, first, at an instrumental level (such as security, the expression of spontaneity), and secondly, at a symbolic level (such as, recognition by and membership in a group)" (Barlas, 1994; 27).

A number of such models of human needs co-exist as shown in Table 2.1, but the most widely used to organize our thinking about design goals is that of Abraham Maslow. Maslow proposed a hierarchy of basic needs from the need for survival to the cognitive and aesthetic needs. Many of the needs are fulfilled through daily activities, but needs for

affiliation, self-esteem, cognitive and aesthetic needs have a high symbolic component in them.

**Table 2.1.** Models of Human Needs.

<b>MASLOW (1987)</b> Human Motivations	<b>LEIGHTON (1959)</b> Essential Striving Sentiments	<b>CANTRILL (1965)</b> Patterns of Human Concerns	<b>GROSS (Lewis 1977)</b>	<b>STEELE (1973)</b>
<b>BASIC NEEDS</b>				
Survival	Physical Security Sexual Satisfaction	Survival		Shelter and Security
Safety and Security	Orientation in society	Security, Order		Social Contact
Belonging	Securing of Love	Identity	Belonging, Participation	Symbolic Identification
Esteem	Recognition		Affection Status Respect Power	Growth Pleasure
Self-Actualization		Capacity for choice and freedom	Self-fulfillment	
<b>COGNITIVE NEEDS</b>				
Cognitive	Expressions of love, hostility, spontaneity		Creativity	Growth
Aesthetic			Beauty	Pleasure

**Source:** Lang J., 1994, p: 155.

### II.1.1. Maslow's Motivation Theory

As stated above, Maslow's theory depends on the satisfaction of theoretical demands. These are universal needs. His main proposition is that "the individual is an integrated, organized whole" (Maslow, 1954; 19). Need is described as, all such

inferred innerstates that are capable of initiating or directing actions in ways and toward ends that will eventually satisfy the individual. Some motivations are immediate like hunger and thirst and have priority to other motivations such as desire for money or love.

Maslow classified human needs into seven categories, making a hierarchy of needs from the strongest to the weakest. "Basically, Maslow argued that needs are arranged in a hierarchical fashion ranging from low level to higher level needs, and that the lower level, or more basic needs have to be satisfied before the individual has the will or freedom to aspire to higher level wants." (Mercer, 1976; 129) Maslow's hierarchy of needs are as follows:

1. Physiological needs: These are the needs which once relatively well satisfied free the individual to address himself to the next set of needs (hunger, breathing, thirst, etc.).
2. Safety needs: These are the needs for security and physical safety for protection from natural and other external forces.
3. Belonging and love needs: These needs emerge after both the physiological and safety needs are fairly well satisfied. They include the need to love and be loved, the need for friendship, interpersonal relationships, and a sense of identity with a group.

4. Esteem needs: There are two sets of esteem needs, self-esteem and the esteem of others. The former refers to the need for achievement, adequacy, mastery, and competence; the latter refers to prestige, status, dominance, and appreciation.
5. Actualization needs: It is the need for self-fulfillment, desire to fulfill one's capacities, and become everything that one is capable of becoming.
6. Cognitive needs: It refers to the pursuit of knowledge and developing skills and the need to satisfy one's curiosity about places, people, and ideas.
7. Aesthetic needs: This refers to the desire for beauty. The visual characteristics of the environment plays a major part in people's evaluation on the quality of the environment and user satisfaction.

The Motivation theory is useful in understanding the role of environment in people's lives. Because the degree, to which each need is fulfilled, varies from person to person, people look at the environment partly in terms of their needs. Yet it has to noted that the environment is not the only factor in the fulfillment of human needs.

## **II.2. Important Characteristics of the Environment with Regards Human Behavior**

The word 'environment' is used in a variety of meanings in different fields of study. To geographers, it refers to the climate and terrestrial patterns, while, to architects, it means buildings, city forms, and structures. In addition, 'environment' has different connotations; physical, social, psychological or behavioral. "The environment is a series of relationships among elements and people and these relationships are orderly -they have pattern" (Rapoport, 1977; 9). Environment reflects and facilitates relations and transactions between people and physical elements of the world.

Any categorization of the environment depends on the purpose it serves. As Lang (1987) stated the main point of a classification system is the differentiation between the actual, real or objective world that surrounds an individual and the phenomenological world that is perceived. He distinguished between potential and effective environments. This corresponds to what architects create for human behavior and what a person uses and appreciates respectively.

On the other hand, Gibson and Ittelson (1974) have called the environment as "surroundings of people". The surroundings of people have geographical, animate, social and cultural components. The geographical environment is the nature of the earth and its processes at any point on it. The geographical environment is different from the physical environment. The

animate environment exists between species and depends on the control and degree of simulation mechanisms. Survival is assisted by the support which one animal of a species offers another. Social relationships depend on social stimulation and a response. The cultural environment consists of beliefs and attitudes toward other people, the role in a society and the way carrying out daily activities.

The categories of the environment can be classified in such a way, but an important contribution is to distinguish between different environments, because the differentiation between the actual, real world that surrounds an individual and the phenomenological world that is perceived affects people's behavior.

“The qualities of the natural and man-made environment which give satisfaction to people, its sensory quality in all modalities; the positive and negative effects on human feelings, behavior or performance and its meaning. These could be called the psychological and socio-cultural aspects of the environment” (Rapoport, 1977; 61).

Behavior occurs in an environment. As Ittelson stated that the term ‘environment’ embraces many aspects:

- how we perceive and experience it in the psychological sense
- how we modify and use it to serve our needs
- how we accommodate our behavior to a constantly changing ecosystem (Ittelson et.al., 1974).

It is also pointed out that the environment functions in three ways;

- "1. It maintains the physiological states necessary to sustain behavior
2. It provides the necessary behavior settings
3. It supports psychological states through the use of symbols" (Lang et.al., 1974, 85).

Environment engenders some opportunities and constraints. People are linked in a complex network of relationships, affected by internal and external forces, and try to adapt to a range of forces. The extent to which the layout of the environment and the materials of which it is composed of, affect the channels of communication between people and between people and environment. The built environment affects social processes.

There are different characteristics of the environment in evaluating the relationships between the built environment, human behavior, and values and needs fulfillment. One is the concept of **affordance**. "The affordance of anything is a specific combination of properties of its substance and its surface taken with reference to an animal" (Carello, 1993, cited from Gibson 1977, 67). Particularly, it refers to the behavioral possibilities of the environment.

Another important characteristic is that the spatial characteristics of the environment also influence and reflect the organization of **communication**. Thus, who communicates with whom, under what conditions, when, where, in which context, how, and so



on are important ways in which the built environment and social organization are linked and related (Rapoport, 1976). Communication is thus used in two different aspects; communication by the environment and among people in the environment. Communication among people is affected by the meanings which various parts of the environment have for them.

Another important characteristic of the environment is the concept of **meaning**. Environment expresses meaning and becomes an indicator of position or asserts identity. Meaning tends to be expressed more through signs, materials, forms, colors, and the like -through ikonic aspects of the built environment. Sack (1980) added that the environment can be analyzed in two related perspectives:

- the spatial differentiation and association of phenomena with an emphasis on the meaning of space and spatial relations
- the relationship between man and his environment.

The two are closely related because the meaning of space depends on the relationships among physical and human activities located in space and man's relationships to the environment occur in the context of space.

There are perceptual and associational aspects of the environment. As Rapoport (1977, 1982) stated, the perceptual and associational aspects are linked. The former is a necessary condition for the latter. The following sections deal with the

different characteristics of the environment in the context of man-environment relations.

### **II.2.1. Affordances of the Environment**

The concept of affordance becomes crucial in analyzing the man-environment interaction. Affordance can be defined as the properties of an environment that enable it to be used in a particular way.

The affordances of an environment are those opportunities for action -for example, walking, swimming, sitting, and so on- it offers. "Such 'offerings' or affordances require that we consider jointly the properties or contributors of the perceiving animal and the environment -for instance, the properties of surface and substance" (Baron, 1981; 66). Gifford (1987) stated that perceived affordances are what the place can do for us. Lang (1987) also added that the object offers what it does because of what it is. Whether or not an observer recognizes its affordances depends on the nature of the observer, his experience, his competencies and his needs. The term affordance is firstly used by Gibson.

"...Gibson believed certain arrangement of cues give the perceiver direct, immediate perceptions of the environment. Gibson felt that the world is composed of substances, such as clay, steel, glass, and surfaces. The arrangements of these surfaces, called layouts, provide affordances, or instantly detectable functions. For example, a solid horizontal surface is said to be offer or afford support and rest. The extend solid horizontal surface affords

locomotion, but a vertical solid surface affords mechanical contact and stops locomotion.” (Gifford, 1987; 29).

The built environment provides opportunities to satisfy physiological and psychological needs. Therefore, the affordances of the built environment can be divided into two categories; direct and indirect affordances or, in other words, physical and social affordances. The direct affordances are those which emerge from the spatial configuration of physical settings, whereas indirect affordances refer to the possibilities arising from the cognitive configuration of settings through which people satisfy their psychological needs via symbols, signs, and meanings.

The built environment can be considered as the sets of adaptations people have made to their geographical and cultural environment. It affords locomotion, shelter, getting together with other people, and associational meanings. Any change in the built environment is likely to change the affordances.

The affordances of a physical setting are what it offers for good or ill because of the characteristics of its configuration and the material of which it is fabricated. Different patterns of the built environment afford different behavior and aesthetic experiences. The affordances of the environment thus limit or extent the behavioral and aesthetic choices of an individual depending on how the environment is configured. People have changed and continue to change the natural and artificial environments to alter the set of affordances they possess” (Lang, 1987; 81).

Carello (1993) discusses three critical aspects of the term affordance. First, affordances are a way of describing the environment that is scaled to the perceiver, therefore, the information about affordances should include the information about activity. Second, they are not restricted to static surface layouts, that is, certain properties of objects and surfaces are only revealed through exploration -hefting, sniffing, scrutinizing-, certain properties are only revealed in the motions of the objects or when the observer moves about. Finally, affordances are a way of describing the environment that entails meaning. The behavioral possibilities of the environment are dependent really on what the environment means to the perceiver.

Affordance of the built environment becomes an important concept in the analysis of human preferences about the environment. How and what visual properties afford different kinds of behavior can influence user's likes or dislikes about their surroundings.

### **II.2.2. Environment as Communication**

Environment provides cues for behavior, then it can also be seen as a form of non-verbal communication. Rapoport (1977) stated that people act according to their reading of the environmental cues. Moreover, the language in the environment should be understandable. The design of the environment may be seen as a process of encoding information, then users can be seen as decoding it. Thus, the key question is, whether the

users can read or decode the cues. If the code is not shared, not understood, or inappropriate, the environment cannot convey any messages. The important point is the way people enable to understand the environment and make it meaningful. The built environment conveys a variety of messages/meanings. "Environments always represent, simultaneously, instance of redundant information, of inadequate and ambiguous information, and of conflicting and contradictory information ... the presence of meanings and motivational messages carried by the environment ..." (Canter, 1977, cited in Ittelson 1973, 13-15).

The quality of the interface between man and environment depends on the informational patterns that make up the environment (Kaplan, 1983). Hall (1974, cited in Lang et.al. 1974, 212) stated that the individual is not consciously aware of what he is communicating. Both his reactions to space and the way he uses space are largely taken for granted; that is they are 'out-of-awareness'.

The environment, especially the built environment, has an important characteristic which has to do with the organization of meaning, and in this respect, materials, forms, and details become important. The built environment is not only a form of communication, but also influence and reflect the organization of communication. The built environment and its configuration can act as means of controlling interaction and structuring communication among people. It can be facilitating, blocking, separating, and linking different individuals and groups.

According to Rapoport (1982) communication in the environment can be used in two different ways. The first is the sense of analogy or metaphor. Since environments apparently provide cues for behavior but do not do it verbally, it follows that they must represent a form of nonverbal behavior. The second is related to nonverbal behavior. Nonverbal cues not only themselves communicate, they have also been shown to be very important in helping other communication, that is, links between different forms of communication have been studied by observing cues and then making inferences.

“People typically act in accordance with their reading of environmental cues. This follows from the observation that the same people act quite differently in different settings. This suggests that these settings somehow communicate expected behavior if the cues can be understood. It follows that the ‘language’ used in these environmental cues must be understood: the code needs to be read. If the design of the environment is seen partly as a process of encoding information, then the users can be seen as decoding it. If the code is not shared or understood, the environment does not communicate” (Rapoport, 1982, 57).

Steinitz (1968) also added that environment should communicate the *type* of activity in a particular location so that a person can find, identify, and describe activity places. Relative activity *intensity* is also an important information, enabling one to identify the busiest places and direct someone else to them. Accurate evaluation of the comparative *significance* of places is necessary for location and description of the most important activities. With these three aspects of environmental knowledge

-type, intensity, and significance- individuals and groups should find it easier to satisfy their needs in urban space.

These aspects of the environment can be considered under indirect affordances. People behave differently in different environments. That is, the built environment contains different cues for behavior which the users may read and understand. If people read environmental cues, make judgments, and act accordingly, it means that the environment is sufficient in terms of communication.

Mehrabian (1976) has stated that there is an information rate of the environment. This is the amount of information contained or perceived in the environment per unit of time. The information rate of the environment can be called as 'loading'. An environment having a high information rate is high loaded, on the other hand, a low loaded environment is the one having a low information rate.

The built environment contains information and transmits many non-verbal messages, therefore, the environment becomes a basic tool for communication. In order to understand these processes it is necessary to know how environment gives information and to what extent, also what the processes behind the behavior patterns are. According to Lang (1974) behavioral patterns are established through the unity of motives, perceptions, and actions. Behavior can be considered to be a goal-directed attempt by an organism to satisfy needs. People select whatever

information is appropriate for their needs and then organize this information to achieve their goals.

### **II.2.3. Meaning in the Environment**

In analyzing how people feel about their environments, it is important to notice that people's reactions emerge in terms of the meanings embedded in their surroundings. Environmental meaning is about how people perceive, make sense of, feel about, and, in general, interpret their everyday environment. "... the comprehension of environmental meaning does entail a variety of interrelated perceptual, cognitive, and affective responses to the environment" (Groat, 1988, 216). Pearson and Richards (1994) added that the relationship between spatial form and people is mediated by meaning. People actively give their built environments' meanings, and then act upon those meanings.

Understanding the meaning attributed to environments is helpful in understanding environmental influences on behavior. In order to achieve meaningful environments, there is an obvious need for greater understanding of the interaction between urban form and activity and of the role of this interaction in the transmission of meaning (Steinitz, 1968). Moreover, the way in which a space is initially categorized helps guide the processing of further information about a space, helps create expectations about which behavior are appropriate and which types of people might be encountered there, and helps to guide the search for further information about that space (Ward and



Russell, 1981). People react to environments before they analyze them and evaluate them in more specific terms. Thus, the environmental quality is derived from people who prefer certain urban areas, or housing forms, because of what they mean.

Meaning and use are mutually exclusive. The meaning of a space defines the range of its acceptable uses, and these meanings are themselves shaped by the activities that take place in and around them. Therefore, *Activity meanings* are the most generally needed (Steinitz, 1968), to be derived from the built environment.

Different categorizations of meanings co-exist in literature (Gibson 1950, Hershberger 1974, Lang 1974; 1988), but they have a common point. They suggest that some meanings are related with the potential instrumental use of an object or an environment, and the others are related with the emotional qualities that an observer or a user reads into them.

Steinitz (1968) stated that meanings in the environment are as varied and complex as people and human purposes and mainly divided into three categories to include:

- the knowledge latent in environmental forms and activities to which people are exposed;
- the knowledge gained as people learn the characteristics of their environment;

- the knowledge upon which are based the plans of action used by people to satisfy their various individual and social purposes.

An important question is how meanings can be encoded in things in such a way that they can be decoded by the users. The physical elements of the environment encode information that people decode. (Rapoport, 1982). Before any meaning can be derived from the physical elements, cues must be read carefully, that is, noticeable differences are the important contributors in the derivation of meaning. These differences are needed and are useful for meanings to develop.

Another important point, in the study of meaning, emerges when the question 'meaning for whom?' is considered. "Designers tend to react the environments in perceptual terms (which are their meanings), whereas the lay public, the users, react to environments in associational terms" (Rapoport, 1982, 19). Meaning in the environment can derive a structure of surfaces of various materials, pigmentation, and illumination levels. This structure is the signifier of the meaning, and it may vary from individual to individual. Moreover, meanings that the built environment has for the inhabitants and the users are culture specific and culturally variable. The built environment conveys meaning in subtle ways. For instance, in the case of housing, giving meaning to the house becomes important because this meaning covers the emotional, personal and symbolic representation of the house. It also conveys the

primacy of those aspects in shaping its form as well as the important psycho-social consequences of the house.

Environment should cover a diversity in personal meanings.

“Yet this diversity must be encompassed within a framework which clearly transmits, and permits acquisition of, that public knowledge necessary for common social behavior. For while the amount and content of individual meanings derived from the environment may vary and may be internalized and used in different ways, obtaining a general sense of the pattern of shared activities is a highly common aim and result” (Steinitz, 1968, 233).

In deriving meaning from environment; the meaning the environment has for people, how these meanings are construed and what these meanings communicate exist as significant issues. People experience urban space through mediating variables, that occur according to the properties that relate to the building but not the building itself. These properties are considered as the individuals' mental image of the building and associations with that representation and building. These associations can take several forms. Judgments about what a building is or what style is represent denotative aspects of meaning. Beyond that, inferences about the evaluative and affective qualities of a building, its use and inhabitants represent connotative aspects of meaning (Nasar, 1993).

Nasar (1993), Lang (1987; 1994), and Rapoport (1982) define meaning as a result of the cognitive process whereby an environment acquires a connotation beyond its instrumental use. "The attributes of the built world are, however, important, so

it is necessary to recognize the variables that can carry symbolic meaning” (Lang, 1994, 15-16).

The built environment conveys meaning through its physical/spatial attributes such as building and spatial configuration.

**Building Configuration:** The shapes and patterns that an urban space comprises carry meaning. In some societies, specific shapes such as circle, or a particular patterns, such as symmetry has associational meanings, but in other societies or cultures these can be lost. Similarly, simple clear shapes, clarity, and purism represent the machine age and modernism, and the complex shapes with some fashionable illusions represent post-industrial society.

**Spatial Configuration:** The volume, degree of enclosure, spatial dualities, the degree of variety, complexity, the degree of orientation, proportions etc. are also carrying meaning. The consumption of space is an important signifier.

In sum, concepts such as affordance, communication, and meaning exist as important complementary tools in understanding man-environment relations and formation of behavior. It is important to construct form-space-content relations in order to achieve meaningful and satisfactory environments. In order to be of maximum utility and to achieve environment quality, awareness of the physical form of the environment and

knowledge of its activity characteristics should be analyzed (Steinitz, 1968).

### **II.3. Processes of Human Behavior**

Environment has an effective role on man's behavior. "It is essential to know what are the effects of the built environment on human behavior, mood or well-being" (Rapoport, 1977, 2). Several behavioral models have been proposed in order to explain the influence of environment upon behavior. Four basic theoretical approaches can be identified considering the relationship between man and environment.

**Free-will approach:** The free-will approach suggests that environment does not effect human behavior in any way. It means that humans can adapt to any kind of environment without considering the conditions of that environment.

**Environmental determinism:** "The physical attributes of places determined the human actions that occurred within them" (Porteous, 1977; 136). This approach accepts the environment as the major determinant of behavior. Determinists argued that there is a cause and effect relationship; a change in the environment will lead to a change in the social behavior and in the aesthetic values of the individuals.

**Environmental possibilism:** Possibilists saw the environment as the medium by which man is presented with

opportunities and the important factor is the choice and effort of man. These opportunities may realize or they may not; that is certain types of behavior may or may not take place. According to Lang (1987), however, people are not completely free to act on their own choices, because different terrestrial, social, and cultural environment's condition, albeit partially, an individuals' motivations and competences.

**Environmental probabilism:** Probabilists argued that there is a lawful relationship exist between environment and behavior. They have stated that there are number of opportunities and alternative possibilities for action, therefore, the behavior can behavior predicted in a probabilistic manner.

"This means that, an individual with known attributes and with the motivation for action will probably perform a specific behavior in a given setting which has specific characteristics. Accepting the probabilistic approach would mean to acknowledge to uncertainty concerning man's motivations, knowledge, and decision making modes" (Barlas, 1994; 47).

Unlike the previous approaches, probabilists argue that the physical environment provides possibilities for choice and not a determining factor, but some choices are more probable than others.

"... the built environment can be seen as a setting for human activities. Such settings may be inhibiting or facilitating and a particular setting may be facilitating to the extent of acting as a catalyst or releasing latent behavior but cannot, however, determine or generate activities" (Rapoport, 1977, 2-3).

In all these approaches the common (shared) notion is that environment has an important role in behaving. Using these approaches, it is possible to differentiate the direct and indirect effects of the environment. Therefore, it is possible to assess spatial behavior and in what ways people behave and act in different urban spaces. The built environment provides possibilities and constraints within which people make choices. The current view is that the physical environment affords different possibilities for choice determination, which is environmental probabilism.

Here it should also be noted that people act and behave differently in different settings. People act appropriately in different settings because they shape their behavior with the norms for behavior appropriate to the setting. This, also implies that the built environment provides cues for behavior. The encoded information from environment are decoded by the users. People perceive and cognize information. Therefore, environment can be seen as a system of symbols and perception and cognition become important issues.

The current approaches to the analysis of man-environment relations are essentially based on an understanding of the dynamic relation between motivations, needs, perception, cognition, and spatial behavior. "Environmental Perception and Cognition approach", on the other hand, argues that human needs and motivations are the major constituents of behavior which, in turn, results in the built environment (Barlas, 1994). As mentioned before, environment is not the only factor in

satisfying human needs. Some of physiological needs can be satisfied by means of a shelter, formal beauty may satisfy aesthetic needs, and many more. But man is an integral part of an environment, so that an individual influences and is influenced by his/her environment. Environment cannot be considered as merely a container for human activity.

Psychological processes play a functional role in enabling man to adapt the environment. Three processes, perception, cognition, and spatial behavior, are particularly important in understanding man's behavior in the environment. For this reason, it is necessary to deal with the basic processes of human behavior in order to correlate the properties of the built environment.

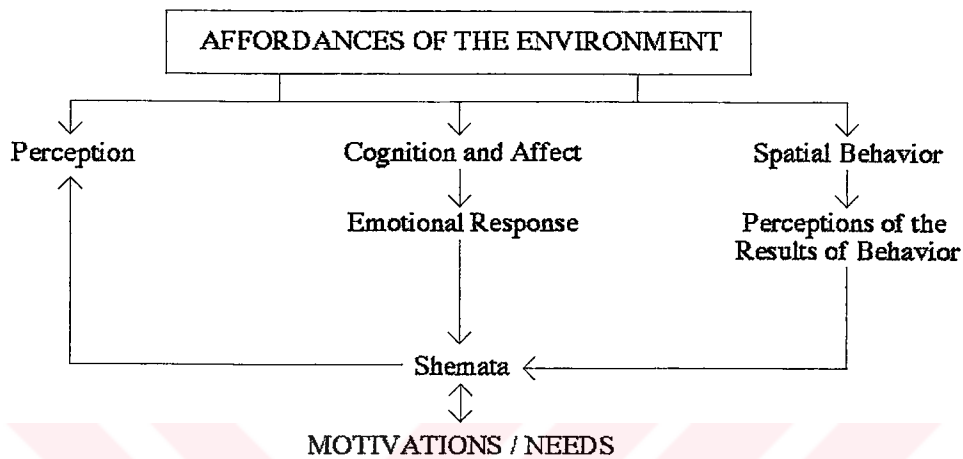
#### **II.4. Behavior Formation in Urban Environment**

Gibson has developed a model for the processes of human behavior in his Environmental Perception and Cognition Approach and argued that there is a complex relation between the built environment and human behavior. Gibson (cited in Lang, 1987) has stated that different environments afford different behavior and experiences.

As shown in Figure 2.1, these are recognized through perception and cognition, which influence spatial behavior. Cognition also affects emotional responses, schemata, and motivations and needs. Perception of the results of spatial



behavior also has a weight on schemata. Finally schemata change or reinforce perception.



**Figure 2.1.** Processes of Human Behavior

Source: Gibson 1966, cited in Lang, 1987, p: 84.

"Information about the environment is obtained through perceptual processes that are guided by schemata motivated by needs. These schemata are partially innate and partially learned. They form the linkage between perception and cognition. They guide not only the perceptual processes but also emotional responses (affect) and actions (spatial behavior) which in turn affect the schemata as the outcomes of behavior are discerned" (Lang, 1987; 84).

The main idea in this model is to discover the way people give meaning to the physical world, how they know it, the schemata they use to structure the environment in the mind, and how these affect behavior.

Human behavior is determined by the affordances of the natural and built environment, the cultural environment, and the psychology of people. Culture is also a determining factor, the degree of satisfaction may change when different individuals or culture groups use the same environment.

According to Lozano (1993), human beings relate to the physical world through the visual-psychological processes of perception and cognition. The built environment sends information to the observer, who then processes it. If the information is new, it may add to the knowledge of the observer. If, on the other hand, it is partly known, then it may reinforce (or alter) the observer's previous knowledge, or, the information is simply redundant. Whether an environment creates pleasure or fear, interest or boredom depends on how the information is perceived and cognized.

#### **II.4.1. Environmental Perception**

Perception is an important aspect of human behavior. Perception is defined as the active process of obtaining information from the environment and is guided by our motivations and needs.

Environment conveys and transmits meanings and messages. As Mehrabian (1976) argued, environments are loaded with meaning, with respect to the amount of information contained. Some environments are high loaded, having high information that means the observer is bombarded, on the other hand, some

environments are low loaded, having low information that means the observer feels monotony. Perception is affected by the loadings of the environment. People tend to perceive the environment as a whole, then the parts and details are perceived. The perception process starts with the perception of similarities. People, firstly tend to put connections and formal components according to their relationships, such as size, location, color, direction, and shape and start with the simplest organization.

"... the lower order visual messages corresponding to patterns are perceived more rapidly than the higher order visual messages of the changes in patterns. There is, then, a sort of priority of perception, in which the structural (nondimensional) characteristics are apprehended first as qualitative events, followed by increasingly specific formal (dimensional) characteristics that quantify events" (Lozano, 1993; 261)

There are different theoretical approaches that try to explain the nature of perception. These approaches can be classified in two basic categories. The first category of theories of perception, in general suggest that perception is dependent on sensory experiences. These theories try to explain the ways sense data are put together in the brain. For instance, Empiricism suggests that those sense data get together in the brain by association. Transactionalism, on the other hand, stresses the role of experience in perception and also suggests a dynamic relation between man and his environment; that is, perception is considered to be a kind of transaction in which environment, observer (perceiver), and perception is mutually dependent on each other. The others are Nativist and Rationalist theories

suggest that innate ideas and rational inferences from sensations control the process of perception. There is also the Gestalt theory of perception that argue that all our perceptions are organized into figures. Therefore, people respond to the built environment according to the way they have categorized it. A different theory of perception is the Ecological Theory of Perception, developed by Gibson. This theory suggests that perception is information based, and argues that senses act as perceptual systems. This theory rejects the view that senses are channels for sensation and the role of experience in perception.

People experience environments through the senses, but as Ittelson (1970, 1973: cited in Rapoport, 1977) pointed out environmental perception differs from object perception because of scale; there are greater effects of motion, texture changes and sequential and additive views. The perceived environment is a construct based on what is expected and known as well as what is experienced and what is perceived in environment.

#### **II.4.2. Spatial Cognition**

Cognition is the process of thinking that involves generalizing, learning and remembering, feeling and behavior formation. It refers to the acquisition, organization, and storage of information. Cognition is referred to as a mediating mechanism between the individual (man) and the environment. Psychologists tend to define cognition to stress the presence of knowledge flowing from the environment, whereas other social scientists

take the position that cognitive processes are concerned with the meaning of the built environment. Rapoport (1977) has defined cognition as a taxonomic process, through which the built environment is made meaningful by naming, classifying, and ordering via conceptual systems.

The cognitive processes, like learning, generalization, and conceptualization, play an important role explaining value and behavior formation in the environment. Lang (1987) asserted that how people respond to patterns of the environment depends on how they have categorized the environment and its elements.

“The ways in which we use the ... environments are very much affected by the way we are socialized to use them, but also by their very nature. Much of our behavior is culture-bound, but the way the physical environment, and the built environment, is structured can make fulfilling basic and cognitive needs easier or more difficult. It can provide educational opportunities. We can learn much vicariously simply from an exposure to other people and events. We can learn the meanings of patterns of the environment and of the objects it contains.” (Lang, 1994:27)

Moreover, there is a close relationship between perception and cognition. According to Downs and Stea (1973), perception is a broad term for the sum total of perceptions, memories, attitudes, preferences, and other psychological factors which contribute to the formation of environmental cognition.

The common aspect of both the processes of perception and cognition can be referred to as **schemata** (Lang, 1987). There

is also the image and meaning processes of the built environment. These two processes refer to the utility and symbolism of the environment and are interrelated with each other. Here, schemata is considered as the mechanism that regulates the ways how we perceive, categorize, and modify them. Schemata is a kind of algorithmic process for perceiving, cognizing, and finally behaving. "Every schemata is specific to what is perceived, that is, every thought or overt behavior is directed by a certain type of algorithm" (Barlas, 1994; 32-33). How we see the environment and how we remember can be explained by the image content of the environment. The images of the environment are considered as specific schemata. If the image of the environment is clear, this enables the perception of affordances. On the other hand, the built environment affords a vast range of meanings which are important constituents of likes and dislikes.

#### **II.4.3. Spatial Behavior**

Spatial Behavior is considered as the man's use of the environment. Lang et.al. (1974) defined spatial behavior as the output manifested in an organism's actions and responses. Barlas (1994), on the other hand, states that it is an overt type of behavior, that is guided by the needs and motivations of humans. Privacy, personal space, territoriality, personalization, and personalized space are terms corresponding to different types of

spatial behavior. These concepts will be analyzed in the next chapter.

Activities occur as purposive actions in the environment. "A person will scrutinize the environment for ... availabilities for achieving his goals... if a physical setting hinders or does not support a goal-directed activity, an individual will recognize the situation by changing the physical setting, changing his relationship to it, or by adapting his activity within the setting" (Lang et.al., 1974, 93). Spatial behavior is neither totally determined by the physical environment nor does it exist without reference to its spatial context. The physical setting can support some behavior and discourage others.

Spatial behavior is influenced by the affordances of the environment and the symbolic meanings conveyed through the patterns of the built environment. Evans and Eichelman (1976) suggested that social and physical expectations are important components of spatial behavior and the tension between needs for aggregation and maintenance of individual autonomy is related to spatial behavior.

Lang, (1987) tries to explain the correspondence between the human needs, functions of the built environment, and socio-spatial behavior mechanisms as shown in Figure 2.2. Here, human needs are identified by Maslow's model of human motivations (1954). The functions of the built environment are identified by Steele's approach (cited in Lang, 1987) which is the most useful one for it elaborates on the issues of

perceptual processes. Functions of the built environment are given as task instrumentality, shelter and security, social contact, symbolic identification, pleasure, and growth which are the six basic dimensions representing the various functions. Steele (1973) developed a system for categorizing the functions that immediate physical settings play for people. His aim was to define categories specific enough to capture major pieces of man's experience in the physical environment, yet broad enough to result in a manageable number of categories.

<u>Needs</u>	<u>Functions of the Built Environment</u>	<u>Socio-spatial Mechanisms</u>
Physiological	Shelter and Security Task Instrumentality	Shelter, access to services
Safety	Social Contact	Access to services, privacy, territoriality, orientation, defensible space
Belonging	Social Contact Symbolic identification	Access to services, communal settings, symbolic aesthetics
Esteem	Growth, pleasure	Personalization, symbolic aesthetics, control
Actualization	Growth, pleasure	Choice, control, access to developmental opportunities
Cognitive/Aesthetic	Growth, pleasure	Access to developmental opportunities, formal aesthetics

**Figure 2.2.** Human Needs and the Socio-spatial Mechanisms Required to Afford them.

**Source:** Lang, 1987, p: 110.



Evans and Stokols (1976) added that the reactions to the urban space are dependent not only on the physical configuration of the urban environment but also upon the social and personal variables. People do not respond directly to their environments. Spatial behavior is a dynamic process of response to the interpretations of different environments.

## **II.5. Summary and Conclusion: The Formation of Spatial Behavior Related to Man-Environment Relations**

Spatial behavior is influenced by the offerings of the environment. Such offerings and human needs, motivations, perceptual and cognitive abilities together shape the spatial behavior. Man needs to satisfy his basic needs in order to cope with survival both physiologically and psychologically. The motivations and basic human needs act as the guiding forces of human behavior in environment.

As far as psychological concepts are concerned, the physical qualities of the environment influence human behavior. Urban space covers variety of meanings, affordances, possibilities for communication. These are the peculiar characteristics of the environment in evaluating the relationships between the urban space, spatial behavior, and needs' fulfillment. Moreover, the extent to which the layout of the environment and the materials of which it is composed of influence the channels of communication between people and between people and

environment. With these peculiar characteristics, urban space influences human behavior, activities, and social processes.

In addition to these characteristics of the environment, another important influence on human behavior is the perceptual and cognitive abilities of people. The physical properties of the environment send information to the people, who then process it. The built environment provides cues for behavior. The encoded information from environment are decoded by the users. They perceive and cognize information. Whether an environment creates interest or boredom, monotony or chaos is highly related with how the information is perceived and cognized. In order to understand the way people give meaning to the physical environment, how they structure their likes/dislikes, and how behavior is shaped, these behavioral processes act as key elements.

The properties of the environment, which act as the *mechanisms of orientation*, and the processes of behavior together shape the spatial behavior.

There are also some behind processes which are acted as *complementary mechanisms* in the formation of urban space. Privacy, personal space, and territoriality are the important psychological processes for shaping human relations/activities in urban space and between them. They act not only as complementary mechanisms in the formation of urban space, but also the *regulative mechanisms* in the formation of social processes and activities among people. The following chapter

covers the analysis of this processes and spatial representation of this interphase as hierarchies.



## CHAPTER III

### MAN-URBAN SPACE INTERPHASE

Environment generates and shapes the activities among people. The urban space influences the activities of individuals. Environment affords cues for behavior, influences, and reflects communication, as discussed in the previous chapter, therefore it regulates the activities with its configurations which limit or permit relations. People try to manage the features of the urban space. They behave and shape their activities in relation with the specific characteristics of the environment. There are, on the other hand, some important psychological mechanisms of human activities. They are privacy, personal space, and territoriality. The relations/activities among people are regulated by these processes. They act as the regulative mechanisms in the formation of activities and social processes in urban space. They also act as the complementary mechanisms in formation of urban space. These psychological mechanisms serve so as to satisfy safety -control-, belonging -territorial space-, and esteem -identity- needs.

The spatial representations of these psychological mechanisms are seen as hierarchies in urban space. There are spatial levels, which have different attributes and features for different kinds of activities, in the fulfillment of human needs. Hierarchy in urban space, here taken as associational variety, helps to the satisfaction some of these human needs. Associational analysis of variety in urban space contributes to an understanding of urban space through spatial levels as hierarchies, that people try to manage their behaviors/activities through the specific characteristics of the environment.

### **III.1. Human Management of Urban Space**

Environment shapes the everyday activities of individuals and specific demands of them. Its high valued quality comes from the function and enjoyment provided by urban areas.

Environment, also generates activities. Built environment influences the activities to a varying degree and in many different ways. Gehl (1987) stated that outdoor/external space activities can be divided into three categories, each of which places very different demand on the physical environment: necessary activities, optional activities, and social activities.

**Necessary activities** can be defined as the activities in which people involved are to a greater degree required to participate. They are the everyday tasks and their existence is influenced

only slightly by the physical environment. These activities take place throughout the year, under all conditions, and more or less independent of the exterior environment.

**Optional activities** are those pursuits that are participated in if there is a wish to do so and if time and space make it possible. These activities occur only when the outdoor conditions are optimal, when weather and place invite them, therefore they are dependent on exterior physical conditions.

**Social activities** are those depend on the presence of others in public spaces. They are also be called as resultant activities, because they evolve from other activities linked to the other two activity categories. They develop in connection with other activities. This implies that social activities are indirectly supported whenever necessary and optional activities are given better conditions in urban space.

According to Gehl (1987), the quality of urban spaces affect the rate of occurrence of the activities as shown in Figure 3.1.

When the urban space is of poor quality, only necessary activities occur. When the urban space is of high quality, necessary activities take place with approximately the same frequency -because the physical conditions are better. If the quality of the physical environment is good, optional activities occur with increasing frequency. Besides, as levels of optional

activity rise, the number of social activities usually increases substantially. In a good environment, a broad range of human activities is possible.

	Quality of the physical environment	
	Poor	Good
Necessary activities	●	●
Optional activities	●	●●●
"Resultant" activities (Social activities)	●	●

**Figure 3.1.** Graphic Representation of the Relationship Between the Quality of Physical Environment and the Rate of Occurrence of Outdoor Activities

Source: Gehl J., 1987, p:13.

Life in urban space, or in Gehl's words, 'life between buildings', comprises the very wide spectrum of activities which are combined to make communal spaces meaningful and attractive.

### **III.2. Urban Space as a Form of Non-verbal Communication**

As stated above, the process of human behavior is linked with the satisfaction of needs. It may occur unconsciously (subconsciously), but purposefully. Moreover, the affordances of the built environment is linked with this purposefulness and needs, therefore it connected with the spatial behavior.

"The built environment affords what it does just because of the dictations of the unconscious which are rationalized through consciousness. This is so, because the conditions of the geographical/terrestrial environment impinge on this unconscious behavior. The result is the form and spatial configuration of the built environment"(Barlas, 1994; 62).

The built environment also affords cues for behavior, therefore, it is considered as a form of non-verbal communication with using some configurations which limit or permit relations.

In order to understand the spatial aspects of the man-environment interphase, it becomes crucial to explain privacy, territoriality, and personal space which are important contributors to social processes within the urban environment. These terms are strongly related with how people share and divide urban space.



### **III.3. Psychological/Associational Processes as Complementary Mechanisms in the Formation of Urban Space**

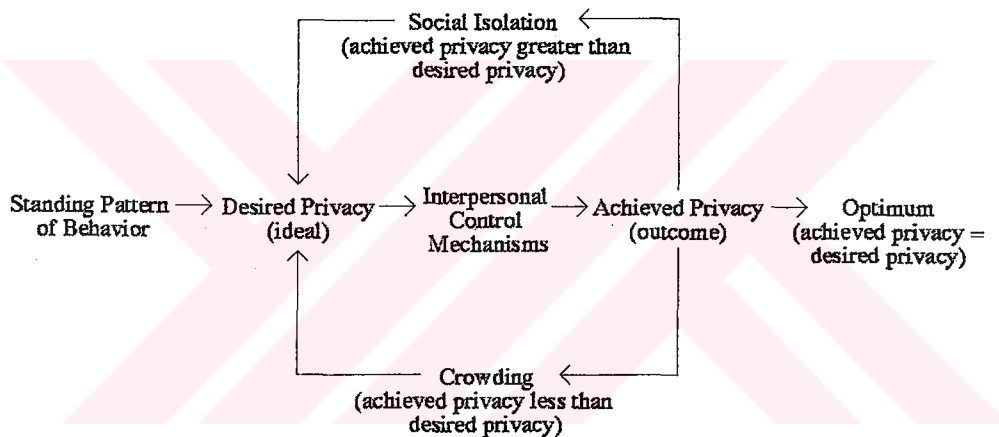
#### **III.3.1. Privacy**

Privacy can be defined as a mechanism which regulates interaction with other people, including the control of information flow from person to person.

Privacy is defined by the environmental psychologists, unlike the dictionary meaning, as a process that sometimes leads individual to seek more social interaction. "Privacy may be defined as the right of the individual to decide what information about himself should be communicated to others and under what conditions" (Pastalan, 1978; 325). Privacy is the ability to control the interaction with others. Westin (1976, cited in Lang, 1987) identifies privacy as the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others.

According to Gifford (1987) privacy is expressed in our behavior, beliefs, values, and expectations. It is facilitated and eroded by the physical design of our homes, workplaces, and institutions, everywhere. Altman (1976) conceptualizes privacy as an interpersonal boundary control process. This process functions as a mechanism to maintain an optimal level of desired interpersonal interaction levels. Thus, Rapoport (1976) defined

privacy as the control of unwanted information flow. Levels of privacy determine the use of space that means increasing or reducing the interaction level with others, in other words, sociability (Figure 3.2). Gifford (1987) also added that the goal of the designer must be to give everyone as much privacy as possible. This does not mean constructing spaces so that each person has a separate compartment. Privacy means openness to others and also being closed to others.



**Figure 3.2.** A Dynamic Model of Privacy

**Source:** Lang, 1987, p: 146.

Privacy is affected by the affordances of the environment, pattern of behavior, culture, and the physical and psychological state of the people. Control is an important mechanism in determining the type and the degree of privacy.

Westin (1970, cited in Lang, 1987) differentiated four types of privacy; *solitude*, which refers to the physical withdrawal from

other's observation; *intimacy*, refers to the physical withdrawal of the persons from others; *anonymity*, is the state of being unknown when being together with others; and finally *reserve*, refers to the employment of psychological barriers to control unwanted interaction.

Farbstein and Kontrowitz (1978) argued that degrees of privacy depend on many factors, some physical and some social. There is no optimal level of privacy. Physical factors are those that people can separate them from the others by distance or by barriers. Social factors can be seen as the activities, attitudes, rules, and conventions of the people involved. As a result, the purposes of privacy are defined as the provision of personal autonomy, release of emotions, self-evaluation, and limitation of communication.

Moore (1992) added that the unwanted loss of privacy results in stress, social tension, and certain types of social interaction. The opposite of privacy is community, common participation of group activities (Chermayeff and Alexander, 1963). "For proper human functioning, individuals need to be able to modulate their social and physical environment in order to regulate community and privacy -too much privacy can lead to isolation; too much community can lead to stress" (Moore, 1992, 88).

Understanding privacy would help to assist in the design of better built environments. Man needs privacy as well as interpersonal communication.

“Each individual needs to be able to withdraw from as well as to communicate with others. It is clear that the environment has a great part to play in supporting or hindering the fulfillment of those needs” (Porteous, 1977; 42).

The varying degrees of privacy can be achieved by two factors:

- interpersonal regulatory mechanisms (marking personal space boundaries and territoriality)
- provision in urban space of a hierarchy (Moore, 1992).

### **III.3.2. Personal Space/Distance**

Personal space is another component of interpersonal relations. Personal space is defined simply as an area that covers a person's body with invisible boundaries and supports a space into which intruders may not come. It is a kind of bubble that surrounds man and exists when communicating the others. Personal space is social because it exists when the other person intrudes into the personal space of another.

Personal space is a spatial zone around an individual. Personal distance is a kind of process, on the other hand, and is

concerned with the interpersonal relationships which define the use of space.

Personal space enables the achieving of an optimal spatial distribution of people in such a way that each member possesses a minimum free operating space. As Rapoport (1977) stated, the maintenance of personal space is an important and necessary tool in assigning self-identity. Personal space behavior can be considered as a mechanism for the maintenance of an optimum level of interaction between people. Porteous (1977) argued that people need privacy as well as interpersonal contact. Each individual needs to be able to withdraw from as well as to communicate with others. It is clear that the environment has a great part to play in supporting or blocking the fulfillment of these needs.

There are three complementary aspects of personal space:

- Personal space is a personal and portable type of territory. Territories are places where entry is controlled.
- Personal space is a kind of spacing mechanism which refers personal space as interpersonal distance when communicating with the others.
- Personal space is a distancing mechanism of man in his relationships. This concept is developed originally by Hall (1966) who called the relation between the interpersonal distance and communication as *proxemics*, the human management of space.

The desired interaction level determines the way that people position themselves in relationship to the others. Hall (1966) describes eight gradations and defines a number of social distances, which provide different sets of information and different relationships, of interpersonal distance. These eight distances are composed of the near and far phases of four main distance characteristics.

*Intimate distance* is a distance that people have a very close interaction with each other (0-45cm.). There is a maximum physical contact and distance at which intense feelings are expressed.

*Personal distance* is a distance of interacting people who are familiar with one another, and observed in family relations and between friends (45-120cm.).

*Social distance* may call as the business distance (1.2-3.5m.) and at this distance interacting individuals are not violating each other's personal space.

And finally the *Public distance* is a distance in public areas (3.5-7m.) and the distance used in more formal situations. The interaction at this distance is impersonal. It has been shown that there is a strong negative correlation between closeness and distance. At each distance, different types of communication exist.

In various contact situations, the relationship between distance and intensity, closeness and warmth, has a similarity in the general perception of urban spaces. The cities and built environments with narrow streets, and small spaces, small buildings, building details that are experienced at close range and with considerable intensity are considered as familiar, warm, and personal. On the other hand, built environments with large space, wide streets and tall buildings are felt to be cold and impersonal.

It can be added that the size of the personal space depends on the type of activity. Personal space is a mechanism for the communication of feelings and attitudes between individuals. "When the physical setting is less spacious, we seem to want more interpersonal distance" (Gifford, 1987; 133). Personal space concept is an important tool in explaining the interpersonal relations and social interactions.

### **III.3.3. Territoriality**

Another distance component of man-environment interaction is territoriality. Human territoriality, as Evans and Stokols (1976) argued, is defined as a mechanism which serves to communicate and maintain role ascriptions and established rights, thereby enhancing social organization. Likewise, Gifford (1987) explained territoriality as a pattern of behavior and attitudes held by an individual or group that is based on perceived,

attempted, or actual control of a definable physical space, and may involve habitual occupation, defense, personalization, and marking of it. Territory involves psychological identification of a space.

Territorial behavior can be defined as a self-other boundary regulation mechanism that involves personalization of or marking a place or object and communication that it is owned by a person or group (Lang, 1987).

"Territorial behavior is defined by most scientist as the behavior of an individual (or group) claiming control over a particular area. This behavior relates mainly to the area itself and includes the definitions and marking of the area and its defense from intruders of the individual's own kind ... human territorial behavior is similarly the product of a 'natural' need for survival" (Sebba and Churchman, 1983, 191).

Moreover, Rapoport (1977) defines territory as a particular area or areas which are owned and defended -whether physically or through rules and symbols- which identify an area as belonging to an individual or group. The main point behind territory is control in order to fulfill safety needs. As Sommer (1978) pointed out the most logical extension of the territory concept is to define it as an area controlled by an individual, family, or other face-to-face collectivity. The emphasis in this definition is on physical possession, actual or potential, as well as defense. In determining the boundaries of territory, some barriers (real or symbolic) are used such as name plates, fences and personal possessions. Barriers used include walls,



fences, changes in texture, color, planting or landscape treatment. These concepts are analyzed in detail in following sections.

It is common to all definitions in territory that no area can be called a territory unless it is characterized by its owners' personal means of identification and constitutes a component in the social behavior of the users. Unlike personal space, territory has a physical meaning of its own and can be recognized as by the presence of some objective event such as a marker. Territoriality implies a geographic or topographic reference to boundaries defined by one or several sense modalities (Hediger, 1950, cited in Becker and Mayo, 1971). One's territory is recognizable by marking its borders with vision, sound, smell, or a combination of these sense modalities.

There are some basic characteristics of territories, such as the ownership or rights to a place, personalization of an area, but the most important characteristic of the territory is serving the several functions ranging from the meeting of basic psychological needs to the satisfaction of cognitive and aesthetic needs. Edney (1976) stated that territoriality organizes human behavior on three levels; the community, the small group, and the individual. At each level the principal accomplishments are lowered randomness and added order. The resulting organization reduces the stresses of life and promotes efficiency in the individuals interaction with, and adaptation to, his environment.

Territories have functions. Lang (1987) has stated that they afford privacy and provide for satisfaction of some needs such as identity, stimulation, and security.

“Identity can be associated with Maslow’s needs for belonging, self-esteem, and self actualization. It is the need to understand one’s self and his/her role in society. Stimulation needs have to do with self-satisfaction and self-actualization. Security needs, on the other hand, would indicate freedom from the control of the others; freedom from the aggression of outsiders and maintenance of self-confidence. These needs can be explained in terms of a group’s or community’s identity, as well as its security. In short, territories can be perceived as self other boundary regulating mechanisms”(Barlas, 1994, 40).

There are thousands of territories in the world, large, small, some are nested within others, and some are shared. In order to understand how territoriality works, it is useful to find a system for classifying territories. As quoted from Gifford (1987), Altman's system of classifying territories is the best known.

Territoriality, as Altman (1976) defined it, is a broad concept containing elements from both the social cohesion and place attachment perspectives. "Territoriality enhances privacy regulation by allowing individuals to open or close themselves according to their changing needs for contact" (Brown and Werner, 1985, 543). People personalize or mark their territories with some symbols or barriers; and these serve to communicate ownership and to develop and maintain aspects of individual or group identity. An important aspect in this classification is the degree

of privacy, affiliation, or accessibility allowed by each type. These variations have different implications for psychological attachment and identity. The first type is the primary territory that is owned by individual or primary groups and controlled on a relatively permanent basis. Secondary territories are less important than primary territories, but they possess moderate significance to their occupants. Public territories are open to everyone. Therefore, the use and meaning of place, rather than its location, determine the type of territoriality present. A neighborhood block, for instance, could be a secondary or public territory, depending on its use and meaning to the residents (Brown and Werner, 1985). Moreover, the use and meaning of space changes for each individual, the conflicts occur in ill-defined spaces.

#### **III.3.4. Features of Territories**

Defining human territories in the built environment are as important as their functions, because dealing with the types of territoriality, people's desire to control and personalize the urban space and how they behave can be understood. There are some approaches which try to define the concept of territory.

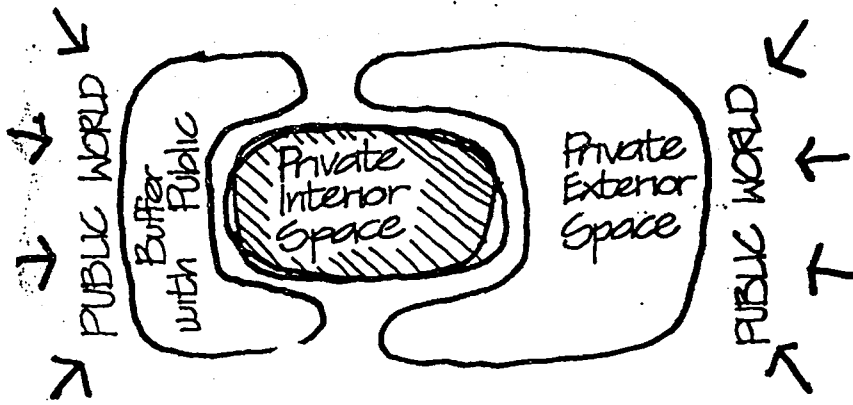
Porteous (1977) identifies three distinct spatial levels that are nested in each other: The first one is microspace (Personal space), that is the minimum space necessary for the organism to exist freely of physical or psychic pain. At the second

level, there is mesospace (home base), which refers to larger areas, usually semipermanent and defended by the occupants. They may be occupied by an individual or by a group of individuals. This type can be exemplified by a house or a yard. The important characteristic is that much of the individual's or group's time is spent here. Finally, there is the macrospace (home range) which refers to the area beyond home base where other drives of the individual are satisfied. It is different from the personal space and home base territories in terms of control and ownership. It is an undefended public area.

El-Sharkawy (1979, cited in Lang 1987), has identified four types of territory; attached, central, supporting, and peripheral. An attached territory is like the personal space, one's personal space bubble around his body. Central territories are highly personalized space like a home, one's own room and they may call as private space. Supporting territories are semipublic and/or semiprivate spaces like dormitories, frontyards of houses...etc and finally, peripheral territories are called as public space, open to everyone.

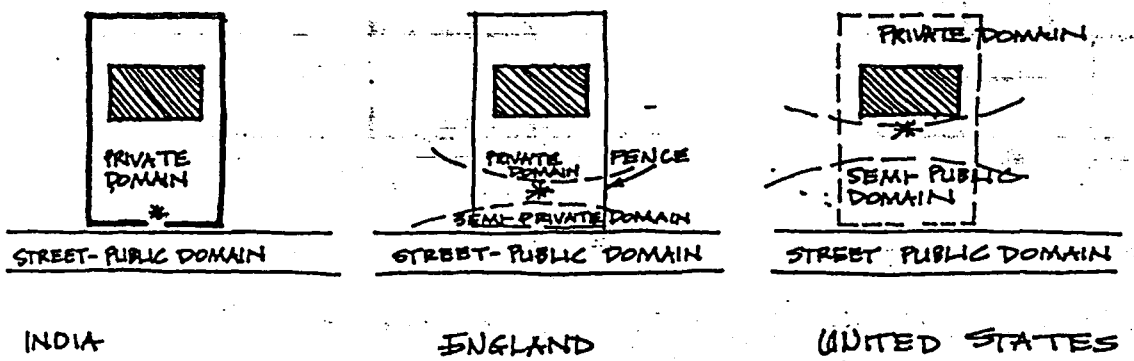
Another attempt in categorizing territories is by Newman (1972), and is referred to as the **hierarchy of territories** as shown in Figure 3.3. This hierarchy begins from the Private space and ends with Public space. Private space is defined as spaces representing an image of privacy, uniqueness, and protection. This corresponds to Porteous's home base. It is stated that the

most fundamental private space is the house. Public space, at the end of the hierarchy, refers to areas that may be used by the public, but cannot be possessed or personalized by the user. There are semiprivate and semipublic spaces in between private and public spaces. The difference between them can be explained in terms of ownership of the space. Semiprivate spaces tend to be owned individually or in association, but their control in terms of ownership may not prevent privacy. Frontyards of single-family housing units can be given as an example of semiprivate spaces. Semipublic spaces, on the other hand, are not owned by their users, however may create a feeling of ownership, such as classrooms, frontyards of multi-family housing units. As Barlas (1994) argued there are three important conclusions that can be drawn by using Newman's classification. First, it becomes possible to identify those urban artifacts which function as territorial markers in the micro urban scale. Second, and in relation with the first, an individual can define the types of behavior afforded by such artifacts. Third, it is easier to determine the kinds of needs which can be fulfilled in different territories. In addition, it becomes possible to identify urban artifacts and urban spaces with these needs. Newman (1972) has stated that the hierarchies of territories or gradients in privacy, are essential to people's well-being and provide people with a sense of security and that this is a fundamental need.



**Figure 3.3.** Newman's Hierarchy of Territories

Source: Newman O., 1980, p: 197-198.



**Figure 3.4.** Different Territorial Definitions of Different Cultures

Source: Rapoport A., 1979, p: 81.

Rapoport (1969) analyzed how culture affects territory and behavior as shown in Figure 3.4. and stated that the need for identity as constant and essential need. For example, the need for sensory stimulation and satisfaction, and hence for visual and social complexity in the environment, seem constant need, but the specific forms that provide for these needs may be different. The psychological need for security, expressed by shelter, may be constant, while its specific expression in building may vary greatly; the same applies to the religious and ceremonial impulse. The need for communication is constant, while the specific symbols vary.

"... whether the definition of territory, which seems basic to the house, makes life easier by giving cues for behavior (the house as a social mechanism), and whether people ... feel more secure and better able to defend themselves on their home ground. This need for security may be one of the reasons why man has to define place" (Rapoport, 1969, 80).

There is a need to define territory, but in which it is defined varies in different cultures and periods, and constitutes the element of change.

### **III.3.5. Control**

An important aspect in discussing the management of spaces is control which comes from the territoriality concept. Sebba and Churchman (1983) stated that there is a positive relationship between the degree of control over the area and the behavioral

components of territory; where an individual has control over an area, that individual will be more likely to act in a dominant manner. Control is closely linked with the privacy and territoriality concepts. Territoriality is taken not only in spatial terms, but it also means the other arrangements less clearly spatial. It is a mechanism that 'knowing' and 'caring' become important elements. A territory becomes meaningful when it facilitates making sense, provides control, and has positive associations (Kaplan and Kaplan, 1978). Lynch (1981) added that space and behavior associated with it must be regulated; man uses space to manage personal interchange and asserts rights over territory to conserve resources. Spatial controls have strong psychological consequences; feeling of anxiety, satisfaction, pride, or submission. Social status is also expressed by spatial dominance/control.

Control is a mechanism through which people maintain their privacy and territory. They want to know where their control starts and ends or increases and reduces. Control refers to the influence over the space, ideas, and other kinds in the territory. It is a mechanism that manages sometimes of the environment, sometimes of the behavior of others, and -most important- of the flow of information from the environment.

In this respect, control covers the concept of place identity and exists as a component of an individuals' self. It also defines the personal identity in relation to urban space. Lack of spaces to identify or lack of control over space may cause severe



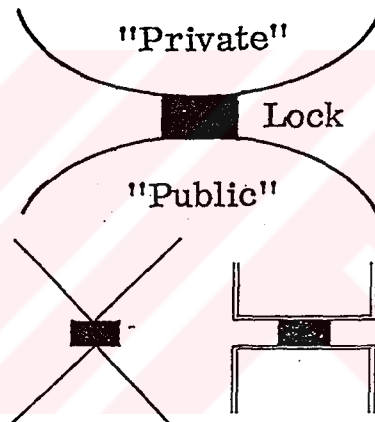
problems. Zimring (1981, cited in Silbereisen and Noack, 1988) stated that real or perceived lack of environmental control is a determinant of stress. Stokols (1970, cited in Silbereisen and Noack, 1988) added that lack of control leads some problems that individual cannot reach personally significant goals in an environment and, also significantly, cannot change the environment according to these goals. For instance, the lack of private areas leads to the use of public spaces as though they are private ones, therefore conflicts with other individuals using the space arise.

Control can be divided into two categories; passive and active. There are numerous physical means by which control may be allocated and secured. One is the marking of boundaries by hedges, fences, signs, and landmarks. Another is to increase one-way visibility into the space. According to Lynch (1981), a good settlement is one in which place control is certain, responsible and congruent, both to its users, and also to the structure of the problems of the space. Physical design plays an important role in influencing the control process. Rapoport (1976) stated that, as shown in Figure 3.5., a lock controls the information flow between two spaces. If we remove lock, a fundamental change occurs in relations and flow of information.

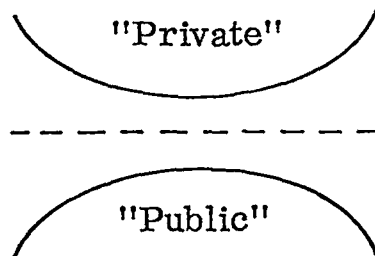
As Lynch (1960, cited in Sherrod and Cohen, 1978) has stated, codable elements in urban space such as well-defined neighborhoods, clear pathways, allow individuals to form clearer

cognitive maps of space, facilitate information processing, increase predictability, and enhance perceptions of control. Moreover, when the urban space is planned to encourage the use of open spaces and streets and becomes more controlled, the needs for safety and belonging are satisfied.

Figure 3.  
 a. The significant fact is the "lock" and the control of information flow between the two domains. Changes in shape, materials, etc. (even though important experientially) do not modify the basic relationship.



b. If, however, we remove the "lock" (i.e. change the relationship to take away control over the flow of information) a fundamental change occurs.



**Figure 3.5.** The Effects of Control

**Source:** Rapoport A., 1976, p: 19.

An important consideration in the relation between territory and control depends on the categorization of territory which involves the fit between control and need for control. This idea was developed by Stokols (1976) in his analysis of crowding. He suggests that environments can be classified as primary and secondary environments. The important private and personal activities occur in the primary environments, on the other hand, secondary environments include the public environments that we encounter daily. Stokols also suggested that needs (and thwarting of needs) can be classified as personal or neutral. Personal thwartings include situations that are personally important or likely to persist, whereas neutral thwartings are more transitory and less serious. Neutral thwartings in secondary environments are hypothesized to be the least stressful of the four combinations, personal thwartings in primary environments are most stressful. For example, we can accept a crowded bus because we know that it's in a secondary environment and that thwartings are likely to be transitory and impersonal. However, if our home is small and poorly organized, it may provide a very stressful experience, because important needs must be satisfied there over a long time period (Quoted from Zimring, et.al. 1978; 173).

#### **III.4. Spatial Hierarchies as Associational Variety of Spaces**

Hierarchy exists as “the basic structural order of complex systems with pervasive and universal laws of organization” (Lozano, 1993, 85). Hierarchies provide a conceptual framework

for dealing with variety in the spatial formation of an urban system and for understanding the various types of spatial behavior.

"Variety is already synthetically produced: ... To restore genuine variety each kind of experience must be allowed to develop for itself and of itself under conditions that are special, clearly defined, and even physically separate. Without definition and organization experience becomes chaotic, at best incomplete, and inevitably dull ..., the housing designed for the new mobile look-listen society is absolute. It makes little attempt to solve traffic and acoustic problems and, while supplying the standard, mechanized comforts and convinces, ignores completely the need for variety in day-to-day life" (Chermayeff and Alexander, 1963, 125).

Urban hierarchies are spatial systems with different levels. Each level is related to at least another level. Simon (1965, cited in Lozano, 1993) stated that the concept of hierarchy helps to evaluate urban elements from different perspectives, inasmuch as a member of a spatial hierarchy can be regarded from three points of view; firstly from that of its membership of a level, secondly from that of its entering into the essence of a member of the next higher level, thirdly from that of its analysis into an aggregation of members of a lower level.

### **III.4.1. Models on Division of Urban Space as Spatial Hierarchies**

The urban spatial system is an expression of behavioral system and the purpose of all spatial divisions, clustering and the like is to improve communication, understanding, predictability, and the legibility of and obedience of cues (Rapoport, 1977). If the spatial formation of urban space is simplified, conflicts from that space may be reduced.

Chermayeff and Alexander (1963) suggested that the structure of urbanism should be organized at two levels. First, the numerous kinds of experience need to be translated into distinctly articulated and appropriately structured physical zones. Second, these separate zones must be organized in relation their intensity of effect each other, in hierarchies, according to their size and quality. The first thesis suggests that zoning is the containment of every activity in a certain and well-defined physical zone, and each zone through its formal clarity and integrity induce, reflect, and sustain the activity. On the other hand, the second thesis presents hierarchical organization.

The idea of hierarchy can be seen as a natural and inevitable way of organizing complexity. At the city scale, hierarchy keeps disorder (Lynch, 1981). Whyte (1972) also added that hierarchy is a structural characterization for understanding order in complexity. "... a structural hierarchy may be defined as a

spatial system displaying a sequence of separable levels of sufficiently stable structures or processes” (Whyte, 1972, 611).

There are some rules about systems / hierarchies, which identify the relations between spatial system, behavior system, cues and the way in which spaces are defined. Here, some models developed by different scholars are analyzed. The models given in the following section will have similar characteristics but they are developed in different disciplines with different points of view.

#### **III.4.1.1. Chermayeff and Alexander’s Model**

Hierarchical organization is an important feature of any complex form, whether natural or technical, and is, therefore, germane to the urban problems of the modern world (Chermayeff and Alexander, 1963, 128).

Urban hierarchy of spaces falls into six domains.

*Urban-public areas* are the places and facilities in public ownership such as highways, roads, paths, parks.

*Urban-semi-public areas* are the special areas of public use under government and institutional controls, such as city halls, schools, hospitals,...

*Group-public areas* are the meeting ground between public services and utilities and private property requiring joint access and responsibility, such as places requiring mail delivery, garbage collection, utilities control, access to fire-fighting equipment or other emergency rescue devices.

*Group-private areas* are those in which residential components under control of management acting on behalf of private or public interest for the benefit of tenants or other legal occupants, like service spaces, community gardens, pay-grounds, storage areas.

*Family-private areas* are the spaces with the private domain controlled by a single family that are devoted to communal family activities such as eating, entertainment, hygiene, and maintenance.

And finally, *individual-private areas* are the room of one's own, the innermost sanctum to which individuals may withdraw from their family.

"In cultures both present and past where recognition of the dichotomy or separation of public and private has not been overcome by complexities, as it is in modern industrialized society, there is a clear physical expression of the need for varying degrees of privacy and the integrity of domains corresponding to these. (Chermayeff and Alexander, 1963, 130)

Some spaces have different attributes than the others. It is easier to differentiate some spaces than the others because they

differ on many aspects. The way of identifying and defining a space is to clarify its position in the hierarchy.

#### III.4.1.2. Zimring's Model

Hierarchy of spaces, according to Zimring et.al. (1978), refer to a connected set of spaces that gradually move from individual to a group control. For instance, we have much control over our bedroom space, less control over the living room, and less control over the public street space.

“Each space has its own norms and uses. One would expect to see strangers in the street, but not in one's bedroom. A key feature in this hierarchy is the gradual transition in control from private to semi-private to public. It would be jarring, indeed to have a bedroom door which opened directly on the street” (Zimring et.al., 1978; 172).

Zimring (1982, cited by Gifford, 1987) suggests that space may be categorized into a hierarchy ranging from very public to very private.

*Public spaces*, exemplified by shopping malls and sidewalks, are sites for interactions to the strangers and these interactions are unplanned and ritualistic.

Slightly more private than public spaces are *semipublic spaces*, such as apartment hallways, house yards, shared by neighbors.



Designing semiprivate spaces is a matter of creating arrangements that facilitate social interaction or discourage it.

*Semiprivate spaces* include spaces like open-plan offices, house back yards, and other settings where the outsiders excluded. A primary design objective at this level is to create efficient boundaries between activities, because if the semiprivate spaces are underutilized, everyone enters to private space.

*Private spaces* are open to few individuals. It has stated that when individuals have private spaces, they are more sociable rather than less sociable. Private space gives an individual a sense of control and satisfies the security, identity needs.

#### **III.4.1.3. Newman's Model**

Newman (1980) mentions about the transition space concept. As stated above, Newman develops the hierarchy of territories ranging from private to public spaces. "We can create groupings of people who share a common need for areas outside their dwellings in which to interact with others then areas which were previously public and undefined for any use can now be designed to facilitate specific uses and be removed from nebulous classification as public space" (Newman, 1980; 16). In his work, he found out that families have a common need to define collective areas outside their dwelling for them to interact with the others. These collective areas

become an extension of the individual dwellings into the outside world. They would also provide a buffer between the private (of the dwellings) and the public (of the city). "If properly conceived, it can become the first of a growing hierarchy of collectively held areas which spread throughout the city to take over the unutilized public space we have inherited. ... urban public areas could be reassigned to particular groups for their use, supervision, and control" (Newman, 1980; 16).

He developed this hierarchy as a mechanism for the creation of intermediary zones between the private home and the public street, which, in turn, provide people with identity. The creation of these zones serves some purposes; it takes unused and unsafe public space that is costly to maintain and turns it into intensively used semiprivate space which is identified with the particular group of families who use, maintain, and control it. The process of changing this space from public to semiprivate status means the identification of the unused space to have an acceptable usage.

#### **III.4.2. Spatial Hierarchies and Barriers**

Urban space is divided into realms identified by various rules and symbols. Their purpose basically is to establish boundaries between individual and the others, the public and the private, in order to achieve the desired levels of interaction. Rapoport (1977) suggested that the interaction can be controlled through

rules such as hierarchies, through behavioral cues, through spatial separation, through physical devices such as walls, doors, locks, etc. and through symbolic devices such as fences, hedges, plantings, etc.

As stated in previous chapters, the need for security is fundamental in human behavior. The physical elements in the urban space act as cues to territorial behavior, that is, that a person's understanding about who belongs to a space and who does not, is based on an assessment of the physical elements associated with the space. This assumption derives from theories about defensible space features and territorial signs (Brower, et.al., 1983).

The physical barriers necessary for the creation of zones of influence can be defined either by real or symbolic barriers. Real and symbolic barriers are used to define areas of influence and to improve opportunities for surveillance -that combine to bring an environment under the control of its residents (Newman, 1972). The spatial layout of the urban areas is full of symbolic and real barriers in order to perceive and control the activity taking place within it.

“There is a language of symbols which has come to be recognized as instrumental in defining boundaries or a claim to territory. These boundary definers are interruptions in the sequence of movement along access paths and serve to create perceptible zones of transition from public to private spaces” (Newman, 1972, 63).

Other scholars (Rapoport, 1977, Appleyard, 1979; Brower, 1983) argued that physical elements make a space more identifiable, more distinctive, and more closely associated with a particular occupant. These physical elements act as territorial signs, or markers, conveying messages.

In urban areas, some interruptions can be seen as real barriers, which are the tools for physically preventing intrusion, such as U-shaped buildings, high walls and fences, locked gates. Physical features function not only to keep outsiders out, but also to make residents more possessive (Brower et.al., 1983). Others are symbolic barriers, such as open gateways, light standards, steps, planting, and changes in the texture of the walking surface. Symbols can be used to assert control (Lynch, 1981). Both serve the common purpose, that is, to inform that one is passing from a space which is public where one's presence is not questioned through a barrier to a space which is private and where one's presence requires justification. (Newman, 1972).

Some scholars such as Newman (1972, 1980), Rapoport (1977), Canter (1977) argued that the symbolic barriers are found to be more effective than real barriers. They inform outsiders to the realization that he / she is intruding on semi-private or private territory and restrict behavior within the defined space.

As Newman (1972) suggested that the success of the symbolic versus real barrier in controlling entry depends on four conditions:

1. the capacity of the intruder to read the symbols for their intended meaning
2. the evident capacity of the inhabitants of the internally defined space, or their agent, to maintain controls and reinforce symbolic space definition through surveillance
3. the capacity of the internally defined space to require that the intruder makes obvious his intentions -that is the space must have a low tolerance for ambiguous use
4. the capacity of the inhabitants or their agent to challenge the presence of the intruder and to take appropriate subsequent action if need be.

The success of the symbolic barriers comes from that these components work together.

There are many occurrence of real and symbolic barriers which define zones of transition. They are found while moving from public street to the semipublic grounds of the area; in the transition from outdoors to indoors; and finally in the transition from the semipublic space of a building lobby to the corridors of each floor. The use of real barriers, e.g., locks, gates, and electronic interview systems, must be viewed as components of a hierarchy of means of defining space which also includes a wide range of meaningful and effective symbolic elements.

Newman (1980) gave an example of the 19th century Dutch row houses in order to understand the meaning and effect of symbolic barriers.



**Figure 3.6.** 19th. Century Dutch Row Houses

**Source:** Newman O., 1980, p: 51.

The single family houses located adjacent to each other that define the house belong to a particular family. On the front facade, the windows of each dwelling unit face the street directly. At the rear of each house, there is a yard that belongs to the occupant family and serves as its exterior private space. Then, at the front of each house, there is a

small extension of private space of the dwelling out into the street. This zone is defined by a brick line in cobble stone running parallel to the facade.

The street, of course, is public and is open to everyone. It is possible to walk along it without being interfered with and without the presence questioned. If man has moved from the public portion of the street on to the cobbled area defined by brick line, he will be perceived as having moved from a zone that is essentially public and trespassed into the private territory of an individual.

The change in the paving texture is seen as a sign of demarcation that create buffers between the public street and the private home.

In existing housing developments, the subdivision of grounds into distinct clusters defined by real barriers may be difficult to achieve. In such cases, it may be possible to create a series of symbolic boundaries that define a hierarchy of increasingly private zones in transition from public street to private building and apartment. This hierarchy can be called as 'zones of transition'.

As a design tool, symbolic barriers achieve their greatest utility when used to define zones of transition. These boundary definitions act as interruptions in a person's sequence of movements along access paths and create perceptible zones of

transition from public spaces to spaces intended for private or semi-private use. In creating zones of transition, symbolic barriers serve the purpose of informing people that they are passing from a public space, where the range of possible activities is large and not subject to much restriction or control, to more private spaces where activity is limited to what is considered acceptable by adjacent residents. Within these defined private spaces, one's presence requires justification. When moving through a sequence of defined areas one can be made to experience these symbolic barriers as a matter of course. Residents have thus been given low-keyed physical supports for their role in defining users' behavior in these areas. (Newman, 1980).

Opportunities exist for creating zones of transition through the use of symbolic barriers to define the transition from public street to the semi-public grounds of the urban space; from outdoors to indoors; and from the semi-public area of a building lobby to the more private corridors of each floor. Symbolic barriers are also used by residents as boundaries for defining areas of comparative safety.

Symbolic barriers are interpreted by;

- a change in levels,
- lights and standards used to define transitional space
- low walls, posts, and change in pavement texture.



Fences and hedges are considered as the physical manifestations of territoriality. "The hedge or fence served as a visible sign that the land was owned by one particular man and not by a group or community" (Jackson, 1978, 270). Greenbie (1981) stated that while the shape, size, location, and degree of enclosure by fences or shrubs and trees will vary, the structuring of transitional spaces between private and public spaces, allowing for different degrees of publicness and privateness, is important to all. Expanding clusters of fences and gateways, of openings and closings, can give coherent and legible form to spatial behavior. Fence creates a permeable boundary which controls but does not isolate.

Because symbolic barriers make outsiders realize that they are intruding into a semi-private domain, the barriers can effectively restrict behavior to that which outsiders deem the residents will find acceptable.

### **III.5. Summary and Conclusion: Formation of Spatial Hierarchies as Associational Variety in Urban Space**

Up to this point, the behavior side of the man-environment relationship is analyzed. The psychological processes acting as complementary and regulative mechanisms in spatial behavior are explained with respect to the understanding of the formation of urban space. Privacy, personal space, territoriality are the important psychological mechanisms which influence the way

people interact with urban space. They are the spatial regulative mechanisms in determining the forms of relationship between people and, also between people and urban space. The spatial arrangements/configurations influence the type, intensity, and form of those interactions, which are carried into the urban space in the form of spatial levels. In each spatial level, different kinds of activities and communication occur and different kinds of needs are fulfilled. The spatial levels enhance the relationship of people according to their changing needs for contact. They also provide safety, belonging, and identity needs to be fulfilled. In this thesis, these spatial levels are referred to as hierarchies.

Hierarchies are seen as the “associational variety” in urban space. This hierarchy provides activities, regulates relationships, and helps to maintain the fit between man and his environment. Some conflicts occur where it lacks. Hierarchy of spaces exists as an important mechanism in arriving at an optimum match between behavior and form. Spatial hierarchies are also the mechanisms for the creation of intermediary spaces between the private and the public realms. This, in turn, provide people with identity and control.

The spatial representation of hierarchies is enabled through some spatial features of the environment. These are seen as the boundaries between the individual and others, the public and private, in order to establish the desired levels of interaction. These boundaries are maintained through spatial separation,

through physical devices or through symbolic devices. The spatial features or elements of hierarchy of spaces in the urban space act as giving clues for behaviors.

The hierarchy of spaces between the house and the street has two different but related aspects. First, having these hierarchies, there is a transition between the inside and outside the house, “the ‘here’ and ‘there’ polarity that governs all human experience” (Greenbie, 1981). This occurs first in the relation of the rooms to the house, and then in terms of house to yard, yard to the street space, street to neighborhood, and so on. Second, this hierarchy involves the continuum between private and public. The formality and informality of behavior do not conflict while establishing these hierarchies.

The fit and coherence between man and environment established through the psychological and physiological needs, has to be fulfilled. Associational variety, here taken as hierarchy of spaces and its specific features act as an important contributor to the fit between man and environment. After analyzing the associational variety, the following chapter tries to evaluate the formal variety in urban space. Chapter V will cover the survey analysis of these two components of variety, in selected sites, in order to find out what specific characteristics of the environment affect likes/dislikes or preference of those environments.

## **CHAPTER IV**

### **VARIETY IN THE PHYSICAL FORMATION OF URBAN SPACE**

When formal variety in urban space is considered, attributes of the physical/spatial configuration become important aspects for the analysis of urban space. The form of urban space, here, refers to the physical elements that shape urban space; buildings, streets, and so on. As Canter (1977) stated, the role of physical environment in the matrix of human experience and activity can be understood by studying how reactions made and coped with the variety of these environments.

The analysis of formal variety begins with the division of physical variety as macro space (city) and micro space (neighborhood). Studying variety in macro space is important in order to understand dualities as specific features representing variety in macro urban spaces. These dualities represent the location, direction, and orientation of different activities and spatial behavior, occurred in urban space.

On the other hand, variety in micro space is another important point that it represents the home range -as Porteous (1977) defined as the space beyond the individuals home where the personal and formal behavior and activities occur-. Variety at this scale is crucial to understand the role of physical surroundings on human activity and preference.

#### **IV.1. Variety in Macro Space (City Scale)**

According to Lozano (1993), the pattern of urban space is the outcome of the bringing together of many elements in a composite totality. The urban form is the result of aggregations of more or less repetitive elements, and here such composite forms refer to as patterns. Patterns are the distinguished formal features of urban areas. A pattern can be defined as a product of form that results from a composition of parts.

Urban patterns have variety. As some scholars (Pyron, 1972, Lozano, 1993) argued, they are complex in and between each other and they can be easily understood through a series of dualities. These dualities emerge not only as opposites, but also as complementary parts showing the complex nature of urban space. In the following sections, these dualities will be dealt with.

#### **IV.1.1. Unbuilt Space - Built Form Duality**

Variation between closed-enclosed-open spaces is one dimension of variety. This duality identifies that urban patterns combine built structures enclosing space for some use together with unbuilt areas used as open space. It provides the basic form of urban areas, with figure-and-background images (Lozano, 1993, 40). Spatial concepts and definitions, environmental qualities, microclimate and health conditions, and other aspects of urban life can be understood by examining this duality of unbuilt space versus built form.

This duality is related to the distinction between public and private areas in cities. Most unbuilt space can be considered as public, yet some open spaces can be private, as in residential courtyards. Also, enclosed spaces can be public or enjoy some sort of semi-public status, as in the case of arcades. It is important to make these evaluations carefully, because some conflicts occur in understanding the relations related to urban space. This duality helps one to identify the formality-informality of the activities and the nature of spatial behavior.

Enclosed area without instant view and access to open space may be constricting and claustrophobic. But also, no access to enclosure in an environment of wide expanses of open land may be agoraphobic or suffocating. Closed spaces are most inviting when entered from open spaces, and open spaces may be more attractive when they are entered or seen through a small opening in enclosed spaces. Space enclosure on an

intimate environmental scale is unusually found in the contemporary environment. But the enclosed courtyard or garden is found in much of the domestic architecture in the past, either it is private or semi-private.

#### **IV.1.2. Continuous - Discrete Events Duality**

This duality recognizes that urban patterns are made up of two different kinds of elements: Some is extended over the whole area; others are diverse. This difference is drawn out qualitative differences in the two types of events. The first can be characterized as continuous forms or networks in an urban space, and the second as particular forms bordering the networks -infillings.

#### **IV.1.3. Repetitive - Unique Events Duality**

This duality points out that urban patterns are made up of a limited number of relatively uniform types of elements that repeat and combine. Relatively special elements appear from time to time, either isolated or combined, forming unique areas of the undifferentiated elements. This is one of the most pleasant duality, because it implies that the image of a city can be created by the visual repetition of undifferentiated elements.

Repetitive elements are the true urban form givers, covering the community's activities and expressing its way of life and culture. Particular elements are the expression of either a very specialized activity or, more likely, the peak and more symbolic stratum of the social hierarchy.

#### **IV.1.4. Front - Back Duality**

People act differently in different settings. The various place identities and roles of individuals may be too distinct. There is a front and back division of roles, as Goffman (1959) suggested, according to the dimension of behavior involved formality-informality.

Front areas are those in which we know ourselves to be in a sense of show, in backstage areas, we can unbutton and be ourselves (Heath, 1992). In urban scale, cities have their 'front' and 'backstage' areas. The squares and boulevards of historical cities and the shopping areas and financial districts of modern ones are observed as 'front' areas. On the contrary, service districts, factory districts, and dormitory suburbs are more or less 'backstage' areas, therefore this leads to a high degree of formal order are most appropriate in 'front' areas, where it serves to reinforce formal behavior.

The city expresses social values. Heath (1992) added that closely related but distinct is the expression of the social significance of places. As Ittelson (1978) put forth the city,



like any environment, has the potential of enhancing value systems, but it also has the potential of contradicting them. Social importance is generally linked to formality of behavior, which is supported by order in the physical environment. On the other hand, this importance is also expressed by means of association and of formal variety (Heath, 1992).

Social importance expressed by association is through scale and quality. The size or historical linkages are linked with its social significance. The quality of material, details are also commonly associated with importance. "Interesting, or complex, forms make a call on our attention, and the elaboration of form that we often find in public buildings and places is therefore unsurprising; complexity, too, marks importance" (Heath, 1992, 10).

#### **IV.2. Variety in Micro Space**

The visual qualities of the built environment are crucial in terms of satisfaction of cognitive and aesthetic needs in urban environment. The built environment sends information through perception and cognition, and affords different behavior and visual experiences. An important question in man-environment relations is what information must an urban form generate in order to satisfy the physical-visual and psychological needs.

Two main hypotheses can be formulated with regards this issue:

\* First hypothesis is that the individual has deep needs for a combination of different visual inputs from the environment. As explained in Chapter II, some visual inputs construct simple, low-order, and easily understandable information; whereas, the others construct a complex, high-order, and only partially understandable information. The environment generates a variety of visual inputs defined by different levels of visual orders (Lozano, 1974). The low-order information satisfies the orientation needs of the individual, on the other hand, high-order information satisfies the variety needs of the individual.

\* Second hypothesis is that the different visual informations are not conflicting, they are complementary. The lack of one type of visual information may result in the reduction the effects of the other. For instance, in the modern movement purism, environment is organized on a very low-order, therefore it would result misorientation due to lack of visual cues and monotonous image; on the other hand, environment, organized on very high-order, would not result a satisfactory variety but in confusion, due to lack of visual linkages and chaotic images (Lozano, 1974)

In order to find the role of physical surroundings on human experience and activity, a study of how reactions and means

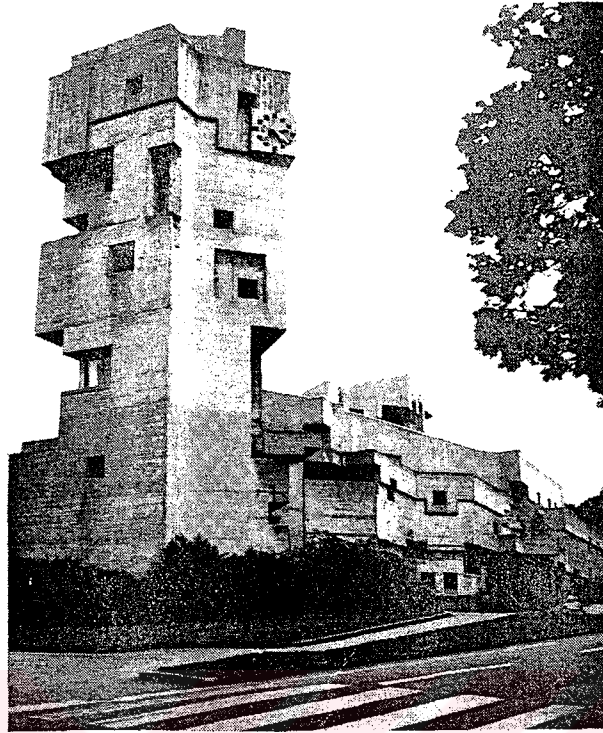
of coping with the complexity and variety of these surroundings become important (Canter, 1977).

According to Lozano (1993), human brain combines information in patterns in order to assimilate the vast amount of information it receives. The brain also seeks changes in these patterns to avoid monotony. Accordingly, form is organized by the combination of repetitive patterns and changes in those patterns, in a stable relationship. This circumstance is what Plato called 'unity-in-diversity' and what others called 'sameness-in-differences' and 'regularity-in-randomness'. The identification of patterns and of the changes made in patterns in response to the visual-psychological need is a universal characteristic of perceived order and organization of form.

Variation in the forms of individual housing units makes a considerable change how space is seen. If all houses are rectilinear boxlike or cubic forms, the flat surface of the form does not penetrate into space, nor does the surrounding space enter the form (Pyron, 1972).

The visual properties of the urban space have to satisfy human needs. "Urban forms must provide patterns that yield a sense of order in an urban environment" (Lozano, 1993, 265). Thus, visual information obtained from urban forms have to meet the physical-psychological needs.

a:



b:



**Figure 4.1. Variety in Building Forms**

**Source a:** Groat L., 1994, p: 209.

**Source b:** Bentley, I. et.al., 1987, p:28.

Variety is defined as properties of the environment by sets of similar, but not equal, elements that belong to a common and recognizable typology that are perceived as a rhythm in the pattern. "The rhythmical differences appear within the commonalities unifying the set" (Lozano, 1974, 357). He also added that this definition of variety is visually most applicable to cases of formal similarity or homology, but it can be extended to cases of functional similarity or analogy. There is a continuum in the interpretation of variety, with the degree of perceived differentiation being an inverse function of the strength of the underlying pattern. A pattern imposes a matrix of order and variation represents the acceptable range of changes within the typology of the pattern. Thus, variation is the acceptable and noticeable range of differentiation within an order.

Thus, Berlyne (1971) described variety as the presentation of elements that are alike in one respect, but different in another. Particular elements can be held together by repetition of a relation, as when a series of colors or pitches separated by equal intervals occurs or a series of intermediate shapes through which one shape successively transforms itself into another. Variety not only is a rhythm within an acceptable range of order, but also confirms the order, by maintaining the observer's interest in the pattern. (Lozano, 1993).

### IV.3. Components of Variety

The visual environment also has a hierarchical structure in which each level is assigned a specific visual role. Some visual levels must construct a simple and easily understood order, establishing a continuity of fully predictable experiences that direct the observer. Other visual levels must construct a more complex and only partially understandable order, establishing a sequence of more or less unpredictable experiences that fulfill the observer's need for diversity. As Lozano (1993) argued that some familiarity is required to allow the observer into the environment, yet some novelty is also necessary to maintain the observer's interest in learning what is unfamiliar. Without diversity there is monotony; without order there is confusion.

The optimal combination of contrasting (varying) visual inputs have not been scientifically tested but an important point is the awareness of the qualities that the visual environment must show and of the human needs it must fulfill.

Rapoport and Kantor (1967) argued that for each individual there is an optimal perceptual rate. Too few and too simple spaces lead to boredom and monotony; too many and too complex spaces lead to saturation and chaos.

“If the optimum perceptual rate varies with the individual, then buildings and townscapes must be sufficiently complex to provide a variety of stimuli, only some of which are perceived by any one individual. Human

preference for high levels of complexity suggests that modern, glass slab buildings will prove boring to most urbanities. .. building in open-ended, complex, involved, allusive ways is ... more psychologically satisfying than the traditional simplicity” (Porteous, 1977, 232).

Rapoport and Kantor (1967) rejected the modern architectural tradition of simplicity, clarity, and control. They argued that all that a contemporary glass-and-steel office building has to say to the observer is revealed at a glance: there is no range of meanings and possibilities for the individual to perceive, select, and organize to his satisfaction.

Several of the dimensions related to the variety in providing preference and attention of the individual is diversity, complexity, and surprise, which are the subjects of following parts.

#### **IV.3.1. Diversity**

Diversity is one of the related attribute of urban space considered as the important contributor of environmental quality. Diversity can be defined as similarly as variety. Diversity is defined as attributes of the environment made up by sets of related elements belonging to a more universal typology and showing fewer commonalties than in the case of variety. If the different areas are more alike, the diversity will be lower.

According to Pyron (1972) diversity is considered as the number of different elements in the total repertory of a space and not as a particular pattern of successive occurrence.

Diversity can be applied to the entire range of accessible things. "Variety among the available behavior settings means that it is easier for any individual to find one that is congenial to him or to become competent in new ways" (Lynch, 1981, 191-192).

The relationship between visual attributes in environments and people's responses to environments is studied by Berlyne (1972), Wohlwill (1976) and so on. Their studies indicated that preference was related to visual diversity (Nasar, 1985).

It is difficult to measure diversity. All elements are to some degree like and to some degree unlike each other. As a result, what is similar or dissimilar depends on the needs and perceptions of the observer. As Lynch (1981) stated, diversity cannot be identified or measured until one knows how people perceive differences, and which features variety is important to them.

A quality of environment can be evaluated accordingly the affordances of the space in which there is an obvious and easy access to a moderate variety of people, goods, and settings, while this variety can be increased if a person wish. Consequently, the use of diversity as a measure depends on knowing the levels of choice that people desire, and can



permit. This level may rise with experience or training, or people may cope more easily with choice making, and come to value diversity more highly, the longer they live in a stimulating and varied environment.

Diversity represents higher levels of differentiation than variety and may be applicable only to cases of analogy (functional similarity). For example, a row of residential brownstone buildings exhibiting minor architectural differences of detail is a case of variety within a common typology and homogeneous use; but diversity should be applied to qualify the whole set of different building types devoted to housing in a given area (Lozano, 1974). It must be clear that the difference between variety and diversity is a matter of agreement, since both qualities are actually points along a continuum.

#### **IV.3.2. Complexity**

Complexity is one important factor influencing preference. The simplicity-complexity dimension of urban space affects man-environment relationship. Craik (1970, cited in Porteous 1977) has stated that people's preferences are generally related to intermediate amounts of complexity. In different time periods, the look to the problem of complexity and similarity has changed (Porteous, 1977). The eighteenth and nineteenth century views of aesthetics hold complexity as an essential component for continued interest and satisfaction. Early twentieth-century architectural views have ignored such complexity, the modern

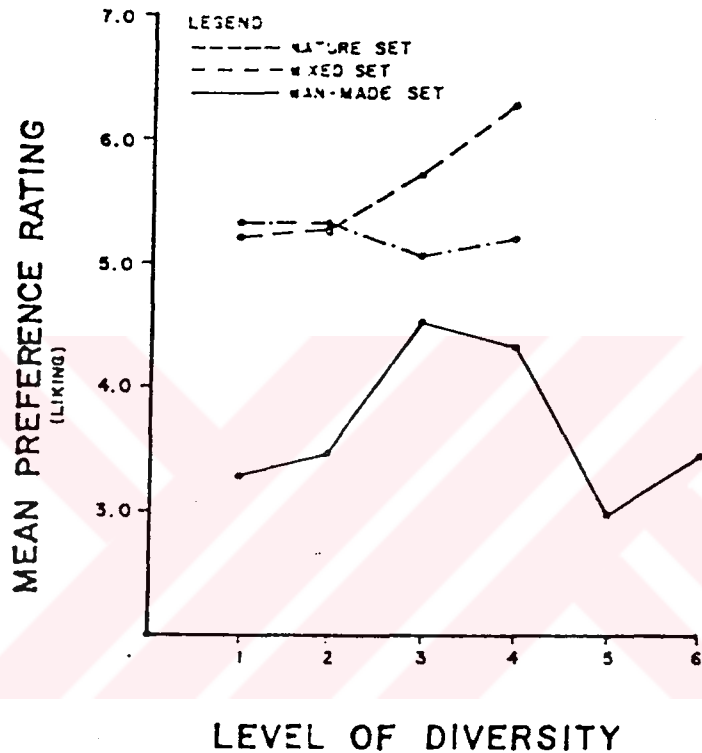
design theory favors simplicity and clarity, therefore every modern metropolitan center is glazed by number of indistinguishable glass cubes.

Complexity is defined as the amount of variation in the scene (Nasar, 1992). A pattern is considered more complex, the larger the number of independently selected elements it contains. In two patterns that consist of the same number of elements, that one will be less complex that has a greater degree of similarity among its elements or, more generally, a greater degree of redundancy of interdependence (Berlyne, 1971).

As stated before, preference is the product of mainly two fundamental human needs: the need to be involved and the need to have the scene make sense (Kaplan and Kaplan, 1982). Complexity plays a major role in satisfying these human needs. "The physical manifestation of complexity occurs as a function of both the initial level of complexity built into the neighborhood by the original designers, and the complexity gained organically over time as residents modify their surroundings in response to new needs and circumstances" (Moudon and Ryan, 1994, 185).

Complexity creates uncertainty, which maintains involvement to reduce uncertainty. Too little complexity leads to monotonous and boring environments, too much is chaotic and stressful. A middle level is the most pleasant (Nasar, 1992). "If the optimum perceptual rate varies with the individual, then buildings and townscapes must be sufficiently complex to

provide a variety of stimuli only some of which are perceived by any one individual" (Porteous, 1977, 231). There is an inverted-U shaped relationship between preference and complexity as seen in Figure 4.2.



**Figure 4.2.** Relationship Between Complexity and Preference

**Source:** Wohlwill J.F., 1976, p: 47.

As the level of diversity increases, the preference is likely to increase at a certain level. At this level, the observer becomes saturated to this diversity, then this preference begins to decrease as the level of diversity increases. "For the man-made set the expected inverted-U shaped relationship of liking to

complexity does obtain, while over the more limited range of this variable represented in the nature set the relationship is more nearly monotonic” (Wohlwill, 1976, 48). There is the proposal that environmental preference is a function of optimal complexity. The idea that complexity is the critical factor underlying preference may be too general not only in the sense that it ignores context, but also because it ignores other variables that also appear to be important in preference (Kaplan et.al., 1976).

The important characteristic of complexity to be noticed is that it can be seen as variety of meanings attached to the built environment. This is in contrast to measuring complexity quantitatively as manifest in dramatic silhouettes, complicated juxtapositions, or delightful picturesquenesses, as Negroponte (1972) argued. Furthermore, since meanings are applied by each observer differently, it follows that each observer ought to have the opportunity to generate those environments that are likely to be the most meaningful to him.

Complexity within the urban space has to do with the relative order found in the elements that comprise it. “Where little or no order is evident, an environment is perceived as chaotic and irregular. The opposite condition is one of total control and uniformity of components. Most actual environments lie between these two extremes, reflecting different degrees of complexity” (Moudon and Ryan, 1994, 185). Order is also an important factor in human preference. Berlyne (1971) stated that order and complexities are the variables affecting uncertainty

and arousal. Complexity increases arousal, order decreases it, and aesthetic value is highest at a moderate (optimal) level of arousal. With reference to Kaplan and Kaplan's study (1982), visual quality depends on the need for involvement and making sense or comprehension. Complexity creates involvement and order makes comprehension. Nasar (1989) added that moderate complexity and high order should be desired.

Complexity emerges as a factor in what people prefer, but not a factor that can be viewed in isolation from other important influences. Familiarity, a new variable, was on the whole as effective a predictor as complexity, although its variation as a function of content was substantially greater (Kaplan et.al., 1976).

#### **IV.3.3. Surprise**

The quality of environmental variety is closely associated with the experience of surprise, since the complete sequence cannot be apprehended fully in anticipation. The degree of surprise felt by the observer is a function of the rhythm of variety and the range of change, -as well as of the relative familiarity with the place. If the changes occur following a rhythm not discovered by the observer, he can be left totally unprepared to expect the next stage of visual inputs, constituting a surprising sequence of events, -their weight in the total visual experience depending on their relative degree of change. The changes, however, could occur following a rhythm

understandable by the observer, in which case a situation of partial expectation would be developed, constituting an anticipatory sequence of events of climatic or cyclical type. Even in the case of observers familiar with the place, in which the sequence of varied visual inputs lacks an intellectual surprise, the eye is still attracted by the changing environment, resulting in a confirmation (an enjoyment in many cases) of the memorized experience (Lozano, 1974).

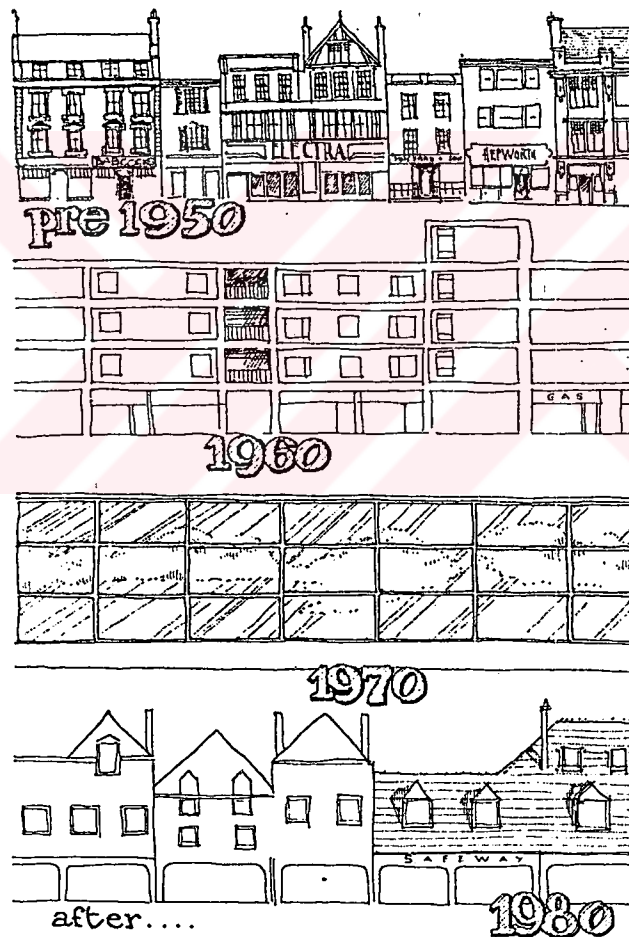
#### **IV.4. Consequences of Variety**

##### **IV.4.1. Lack of Variety: Monotony**

“The importance of variety has been recognized by social scientists, and many of the research reports focus on the problems of an environment without variety, stressing the negative effects of monotony” (Lozano, 1974, 357). Monotony can be defined as the quality of environment lacking visual variety. Sanoff (1974) stated that monotony can be overcome by creating as many diverse environments as possible.

Monotonous environments are partially unperceived. That is, an environment, organized on a low level order, would not be properly seen. “One of the most common experiences in the monotonous environment is to pass a place, regularly, without being aware of the physical elements in it; in cases where a functional need forces perception of part of the physical world, there is often a feeling of mild astonishment at ‘discovering’

part of what should have been familiar a long time ago” (Lozano, 1974, 358). According to Hall (1966, cited in Lozano, 1974), as he moves through space, man depends on the visual messages received from his body to stabilize his visual world. Without such body feedback, great many people lose contact with reality and hallucinate.



**Figure 4.3. Visual Monotony**

**Source:** Bentley, I. et.al., 1987, p: 90.

Another characteristic of the monotonous environment is the lack of differentiation. The complexity of an environment combining different visual orders strengthens the perception.

Rapoport and Kantor (1967) criticized the modern architectural tradition of simplicity and clarity. They suggested that this purism leads to monotony, that means there is no range of meanings and possibilities for the individual to perceive, select, and organize his satisfaction.

#### **IV.4.2. Excess Variety: Confusion/Chaos**

“The exclusive stress on complex visual organizations, simpler visual inputs, would not lead to a higher level of variety; on the contrary, most likely it would result in a decrease of variety” (Lozano, 1974, 359).

Confusion or chaos can be defined as the quality of environment lacking visual orientation. In a confused environment, formed by continuous flow of diverse visual inputs without any perceived link, the observer is bombarded with disjointed visual inputs until it is saturated. His predictability is drastically reduced since there is no understandable rhythm, and expectation is drawn in a fast build-up to nothing. The saturation experience means that the observer loses the enjoyment of variety and his senses become insensitive to this succession without purpose.



#### **IV.5. Variety as an Important Tool in Man-Environment Fit**

There are distinct individual differences in the meanings of, associations with, and preferences in environments. As Nasar (1985) stated that people care about the visual quality of the environment, therefore this concern expresses itself in various ways: a change in the visual character of a home or yard. Private and public actions are taken to regulate the visual character of the environment. Berlyne (1971) suggested that geometrical transformations underlie some of the most widespread means of contriving contrast among otherwise identical elements. Side-by-side repetition makes use of translation, one of the so-called rigid transformations preserving Euclidean properties of space. But others, such as rotation and inversion, are also available, as well as the more far-reaching transformations associated with more comprehensive geometries, beginning with expansion and contraction. Alsleben (1962, cited in Berlyne, 1971), following Wolf and Wolf (1956, cited in Berlyne, 1971), has drawn up an impressively complete specification and classification of the relations that can give spatial forms a greater or lesser degree of similarity. The juxtaposition of contiguous elements that are identical apart from spatial transformations creates the various forms of symmetry.

There are also some survey analysis, qualitative and quantitative investigations, and findings asserting positively the human needs for variety. As Lozano (1974) analyzed, variety appeared as the quality enjoyed by man, necessary for psychological development

and sensorial stimulation, indicated in the human's choice for changing and interesting environments.

Moreover, Lynch (1981) added that variety among the available behavior settings means that it is easier for any individual to find one that is congenial to him, or to become competent in new ways, therefore fit is improved.

To fit a space refers to how well its spatial pattern matches the behavior of its users. It is the match between activity and form. It also emerges as an important concept in shaping preference. The personal correlation of fit refers to the sense of competence that is the ability to do something well, to be adequate or sufficient. Rapoport and Kantor (1967) argued that complex environments, that are more varied, are preferred over simpler ones, that are less varied.

In searching fit in an urban space, the questions may be as follows;

- Is there a good fit here between action and form?
- Is this match sufficiently stable and in accord with the expectations of participants?

Lynch (1981) noted that public streets and semi-private areas are occupied by different people for different purposes, therefore, an analysis about fit, man-environment studies should deal with this variation. It means, hierarchy of spaces, as discussed in previous chapter, are occupied by people by different purposes. Therefore, an analysis is useful to understand

the variety in urban space with respect to fit, that means the analysis covers the observation of matches or mismatches between actions/behavior, and spatial pattern. The following chapter will cover this survey analysis.



## **CHAPTER V**

### **FIELD SURVEY: THE ANALYSIS OF FORMAL AND ASSOCIATIONAL VARIETY IN SELECTED SITES**

#### **V.1. Scope of the Survey**

This thesis mainly argues about the role of variety in shaping man-environment relations. In this context, it is important to find the fit -or balance- between spatial behavior (may say activities) and urban space. In searching the role of variety in urban space, the concept of how well its spatial pattern matches the behavior of its users becomes crucial. The match between activity and form, the adaptations of the urban space by the users, the role of specific environmental features on spatial behavior and activity also emerge as important concepts.

After analyzing the theoretical framework about variety in urban space as a means of understanding man-environment relations, examining the real world examples is also an important tool in making evaluations about:

- how people actually use it,

- how they feel toward their surroundings,
- how that particular characteristics of the environment meets the needs of the users.

This thesis argues that variety, both associational and formal characteristics, exists as a crucial concept in shaping human preferences and well-being. The theoretical analysis in the previous chapters covers different approaches and formulations of variety in urban space and its vital role in evaluating good environments and in satisfaction of human needs. This chapter focuses on an analysis of formal and associational variety in selected sites in Ankara. It aims to describe, understand, and evaluate the user attitudes of different sites in order to measure the needs of variety in man-environment fit. In this measurement, the questions are as follows;

- how people cope with their surroundings,
- how they adapt their environment according to their needs,
- how well actions match the characteristics of an urban space,
- which particular characteristics of the environment or what are the spatial features that regulate the formation of activity patterns.

This survey is designed with the purpose of:

1. Identifying and analyzing the perceived attributes, categorized into physical and symbolic components of the areas, affecting, perception of visual quality and the image of the urban area,
2. Identifying and analyzing the effects of perception of visual quality on spatial behavior and user attitudes,

3. Measuring and comparing the level of usage of open spaces in the residential areas with analyzing their meanings for the users,
4. Developing a behavioral portrait of each of these residential areas, including both the ranges of activities that occur in the outdoor spaces and an identification of the environmental features that support these activities.

In this survey, the main goal is to find and evaluate the particular features of the environment that generate, regulate, manage, and determine the activities/frequency of use of urban space.

The question here is whether design factors might positively or negatively affect user attitudes and environmental activities, causing some housing schemes to be perceived as more or less successful than others or not.

In order to measure the effect of the built environment on spatial behavior and the impact of spatial behavior on the built environment, this investigation focuses on the analysis of specifically defined physical and symbolic/associational environmental characteristics influencing user attitudes. It attempts to identify some patterns that might be perceived as fulfilling user's preferences or not, affecting their satisfaction with the urban space and their responses to it through higher or lower frequency of use.

Here it is assumed that visual quality affects user attitudes, motivations, and behavior, encouraging or discouraging activities or frequency of use. The exterior spaces of the residential environments are designed in order to afford specific physical qualities and symbolic/associational values, and also the identification of the codes that the users understand and enjoy. The good environment is obtained if the assessment of patterns and symbols, that affect the fulfillment of users needs, user attitudes towards an urban space and their behavior, is accomplished. In order to account for the source of the effect of those features on spatial behavior, user satisfaction, and the use of spaces, activities and the qualities in the environment are grouped according to physical and symbolic environmental characteristics.

**Physical Characteristics:** In order to understand the way certain visual attributes in the urban space affect the perception of and how the attributes interrelate, specific concepts and elements related to the visual quality have to be discussed. These include; enclosure, territorial definition, the kind and quality of materials used, specific features of the urban spaces, and the arrangement of buildings.

**Symbolic/Associational Characteristics:** Users produce symbols that represent values and aspirations that are manifested in the environment. The uses of certain cues in the residential areas have an influence in creating and conveying the social image

of the urban space. These express user attitudes, tastes and identity.

The specific physical and symbolic components of the housing area are examined in terms of: the environmental messages they transmit, and the dynamics of these environmental messages; how environmental images created, how these images generated, how the conflicts and misunderstandings between individuals and environment arise. Selected physical elements perceived by the residents are analyzed in order to measure the effect of the built environment on them. Moreover, some of the images and associations of their environment which residents hold, how these were influenced by their perception of symbolic characteristics provided or missing in the urban area, and how the symbolic messages transmitted by the attributes in the urban space are further analyzed.

## **V.2. The Context of the Survey**

For this kind of analysis, different residential areas are selected in order to make a comparative analysis on the distinct features of environments and activities. This study is done as a comparative analysis of mainly two typologies selected from residential areas in Ankara.

*Typology I:* The mass-housing development areas of the early Republican period; Yenimahalle, Saraçoğlu housing areas,

*Typology II:* The recent mass-housing development areas: Batıkent, Koru Sitesi.



The sites selected have peculiar characteristics. They are comparable with the usage, activity-generated, and preference (resident satisfaction). The survey analysis is divided into two categories, because it is important to measure the level of adaptation of urban space according to the needs of the users.

This survey analysis was designed not only to investigate the need of variety in urban space in terms of the user needs and activities generated in the urban space, but also to show the different characteristics/features of the environments in which the fit between man-environment relations is established with the adaptation of urban space according to the human needs. Zeisel (1981) stated that a structure for looking at environmental behavior useful to designers results in data to help physical designers make decisions that improve places for people. The better information designers have about how the people they design for behave in physical settings and how those people relate to or exclude other people, the better they can control the behavioral side effects of the decisions they make (Zeisel, 1981).

The current urban development in Turkey, especially on housing, is mainly connected with quantity. The big mass-housing constructions resulted in psychological dissatisfaction. The user needs are not considered at all. On the other hand, the current trend makes it possible for every family to own an individual unit. As a result of these, huge mass-housing blocks -with modular system- are seen in the conurbations.

The contemporary trend in the design of these areas is closely related to the developer's preference, for simple and easily reproducible built forms can be produced. This results in physical homogeneity. These areas have lack of variety, both in perceptual and associational terms. Every building has the same attributes with no differentiation in portions. These areas are monotonous environments with order and unity. The design of most housing areas is not appropriate for the satisfaction of user needs and aspirations. These areas do not satisfy the need of the users in terms of associational meanings.

### **V.3. Method of the Survey**

As Lynch (1981) stated, in order to find how well the environment fits to behavior and action, there are two ways of observing that fit. The first method is to watch people acting in an urban space, in order to see how well overt actions match the characteristics of an urban space. Is movement hindered? Can people easily carrying out the actions they attempt, such as lifting something, opening a door, or talking to another? How many apparent misfits can be seen? Is there a congestion, or lack of use? He added that these questions deal with problems rather than benefits. The observer should be quick and have an empathy for the values and life experiences of those he/she is watching. To that degree, these cannot be neutral, "factual" observations; already they are interpretations.

But they can be documented by photographs or audial recordings so that other observers can verify that interpretation.

The second method is to ask to users themselves. But this method has difficulties such as making a good questionnaire, having the full participation of users of the area, gaining their cooperation, having the true answers and so on.

Once I decided to study spatial behavior and activities in accordance with the influences of variety in urban spaces, finding a better observation method in such a survey analysis become important. There are many observation techniques in the literature. Especially in social sciences, the method of the survey becomes crucial because, if the observed people are made aware of the observation, they may change their behavior, and then there emerges a bias in the respondents attitudes. In order to cope with this situation, as to my observation method, my aim is to see/record undisturbed normal flow of events/activities in urban space, thus I will interpret and evaluate the fit between environment and action/behavior truly.

This method is called in the literature as **unobtrusive technique**. This method is developed by Webb, Campbell, Schwartz, and Sechrest in 1966 in their book namely 'Unobtrusive Measures: Nonreactive Research in the Social Sciences'. Unobtrusive measures are widely used techniques in

social sciences especially in psychology and human behavior studies.

Baker (1988) stated that unobtrusive measures refer to studies of physical traces, archives, and observations without participation. Unobtrusive measure is a kind of analysis that the goal is “not to replace the interview but to supplement and cross-validate it with measures that do not require the cooperation of a respondent and that do not themselves contaminate the response” (Webb, et.al., 1966, 2). Generally, unobtrusive techniques are generally used as a supplementary tool in evaluating the measures about physical surroundings. This survey analysis is a kind of observational study and this technique is not used as supplementary. There is nobody in no way participates in the field or be known to those in the field.

Unobtrusive technique, or one may say nonreactive observation method, have advantages and disadvantages. As Baker (1988) stated, in social science researchs there are problems of;

- gaining cooperation of respondents,
- keeping them committed to completing questionnaires and interviews,
- demand characteristics that is where the subjects in an experiment are affected by what they think the experimenter wants for them,

the Hawthorne effect that is where the occurrence of an experiment, even if it offers what would seem to be a meaningless or negative experimental stimulus, may itself

produce an experimental effect. Moreover, in field studies, the observer/researcher needs to consider carefully how his/her role in the field may alter the actual field environment being studied. Unobtrusive method is developed to avoid these problems. "Unobtrusive measures avoid errors generated by both the subjects being studied and by the researcher interacting with the subjects" (Baker, 1988, 279).

On the other hand, the primary purpose of unobtrusive method is to serve as a supplementary tool, not a primary source of data. This may see as an obstacle, but as stated above, my aim is to observe the undisturbed normal flow of events in urban space in order to evaluate the comparative analysis of different sites, user attitudes, and activities generated by them.

The survey covers observation of specific spatial characteristics and of spatial behavior. For appraisal, two evaluative factors are considered:

1. the setting - the social and physical attributes of each residential area,
2. the users - needs, preferences, attitudes, and behavior of people who are involved with the setting.

This survey analysis is conducted in weekends and in afternoons. In summer, the use of street and street related activities increase. This survey is made in August. One may say that the time period of this survey analysis is short, it may be true but the fact is that the survey analysis have to be made in very long time periods such as one or two years.

This analysis is made in a short time in order to give an example and show the man-urban space interphase with observing activities.

In nonreactive observation, the survey study has mainly two parts. In the first part, the principal activities are identified according to the defined main behavior categories. In recording the activities observed, the elements are defined as shown in Figure 5.1.

As a second part, observed activities are grouped as necessary, optional, and social activities, like in Gehl's (1987) chart as shown in Figure 3.1. Similarly, selected sites are grouped in terms of the qualities of the physical environment. The qualities of these urban areas are determined in accordance with the formal and associational variety characteristics as discussed in previous chapters.

Elements in Environmental Behavior Observation

<i>who</i> is	<b>Actor</b>
doing <i>what</i>	<b>Act</b>
with <i>whom</i>	<b>Significant others</b>
in <i>what relationship</i>	<b>Relationships</b> (aural, visual, tactile, olfactory, symbolic)
and <i>where</i>	<b>Physical Setting</b> (spatial relations)

**Figure 5.1.** Elements in Environmental Behavior Observation

**Source:** Adapted from Zeisel, 1981, p: 124.

## **V.4. Survey Analysis**

The method in this survey is of the nonreactive kind and the observations are recorded as categories. The table has been developed in order to evaluate the main behavior categories and related principal activities for each field.

Main behavior categories\* are defined as:

- children play (activities of children only),
- communication (activities of teenagers, adults, and elderly),
- maintaining public open space,
- active recreation,
- building related activities,
- unexpected events and other activities.

### **V.4.1. Typology I: The Mass-housing Development Areas of the Early Republican Period; Yenimahalle and Saraçoğlu Housing Areas**

Yenimahalle and Saraçoğlu have been selected in order to evaluate their environmental features which affect user attitudes, activities and frequency of use in urban spaces.

**YENIMAHALLE** is an old district which is developed in the 1950s. It can be clearly seen that the relations between neighbors are very well established. Everyone knows who is

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\* In determining these topics, I benefit from Eubank-Ahrens's study about Woonerven.

coming and the strangers feel themselves as outsiders. The dwellings are designed as multi-storey apartments.

In Table 5.1, principal activities and related behavior categories that are observed in Yenimahalle are given. Figure 5.2 presents the selected street layout (Cengiz street).

### **Spatial Behavior:**

The principal users of the streets are children. They comprise an important part of the daytime population of the housing area. Children use the street as playground, and are mostly found in front of their houses (Figure 5.3).

Adults mainly use the frontyards (a semi-private space) of the houses, and stay close to the door. The stairs are semi-public and finally the street is the public space (Figure 5.4). As shown in Figure 5.5, when there are no physical features such as stairs and a frontyard, this area is occupied with cars and people cannot use that area. Adults use semi-private or semi-public spaces (or 'transition areas' in Newman's words), for having fresh air, communicating with neighbors, drinking tea, and so on (Figure 5.4 and Figure 5.6). As shown in Figure 5.3, one old woman is sweeping the street. This shows that she cared for that street. Moreover, maintaining of privacy and identity can be seen in plantings or low walls, as shown in Figure 5.4.



Table 5.1 Observed Activities and Related Behavior Categories in Yenimahalle

PRINCIPAL ACTIVITIES	MAIN BEHAVIOR CATEGORIES
<p>Boys playing football,                      Girls playing with their babies in the front of the houses,                      Children ride a bicycle,                      Children argue among themselves in the middle of the street.                      There are many parks, so many children play there.</p>	<p>CHILDREN PLAY</p>
<p>Families are sitting in front of the house and chatting.                      While two man arrange flowers in the front garden, a woman sits on a chair for having a fresh air, in the backyard, there is a table and chairs. (They don't want us to see the whole backyard of the houses).                      Teenagers are chatting in the front of the houses.                      Womans are gathered together and drinking tea in the frontyard.</p>	<p>COMMUNICATION</p>
<p>Two elderly woman sit on the street (they have no front garden) and looking back who is coming to the street.                      In relatively newly built houses, they have real barriers in order to have frontyard and a group of woman sit there.                      An old woman sweeping the street.</p>	<p>MAINTAINING PUBLIC OPEN SPACE</p>
<p>Neighbors are sitting in front of their houses and talking each other, an old woman 'yün atmak' to the floor, others are talking.                      A group of old men sitting and chatting in the street.                      A woman rides a bicycle in the street.</p>	<p>ACTIVE RECREATION</p>
<p>a woman looks for her children                      two woman stand and look into the street.</p>	<p>BUILDING RELATED ACTIVITIES</p>
	<p>UNEXPECTED EVENTS / ACTIVITIES</p>



In Yenimahalle, a surprising observation is that old men also use the street actively even if there are no transitional spaces. They use streets for sitting and chatting (Figure 5.6). But this may also be the result of some psychological factors through which people felt themselves as relaxed and as the owners of the street.



**Figure 5.3.** The Activities Observed in Yenimahalle



**Figure 5.4.** The Hierarchy of Spaces and Related Activities in Yenimahalle



**Figure 5.5.** Loss of Hierarchy of Spaces



**Figure 5.6.** A Porch: A transitional area which serves for sitting with visitors.





**Figure 5.7.** Activities Observed in Yenimahalle: A group of old man sitting and chatting in the sidewalk



**Figure 5.8.** Photos Representing the Use of Street in Yenimahalle

### **Spatial Features:**

As clearly seen, the territorialities are formed by some area related definitions (Figure 5.4 and Figure 5.6). It is clearly observed that there is a gradual shift in the private home to semi-private porch, and from the porch to the semi-public stairs, stairs to public street.

There is an area near the entrance door, a *semi-porch*, which may be defined as a semi-private space. This area is used for sitting with family members as well as acquaintances and outsiders. It is a transitional area where people deal with salesmen, passers-by, neighbors, and so on. It is also a playing area for children.

The transition between this space and street is maintained by *stairs*. It is a kind of spatial feature which functions as symbolic barrier. Symbolic barriers are interpreted by change in levels. It is also a transitional area between the semi-private porch and the public street.

*Fences* are other spatial features of urban spaces. Fences are designed in order to maintain the transition between public and private spaces. It may appear in the form of low walls, plantings, scrubs, etc. As shown in Figure 5.4 and Figure 5.6, it defines the boundaries of semi-private areas.



**SARAÇOĞLU**, on the other hand, have different characteristics than Yenimahalle. These differences may emerge from the differences in ownership types in each area. In Yenimahalle, everyone owns or rents their houses, but in Saraçoğlu, the ownership pattern is different. Saraçoğlu was developed as lodgings for military. The houses are three-storeyed.

The principal activities and related behavior categories are shown in Table 5.2. The physical layout of Saraçoğlu is presented in Figure 5.9.

#### **Spatial Behavior:**

The principal users of the street are transit pedestrians and cars. The residents are not using the street for any activity. There is no communication observed between users.

Children are playing in front of the houses, seemed as open public spaces (Figure 5.10). They also choose vacant areas, which may be originally design as a courtyard. In the middle of the housing block, there is a courtyard designed for community gatherings. Neighbors meet there in the afternoon and night (Figure 5.11).

Table 5.2. Observed Activities and Related Behavior Categories in Saracoğlu Houses

PRINCIPAL ACTIVITIES	MAIN BEHAVIOR CATEGORIES
<p>Children are not playing in the street, they choose empty areas, and front of the houses. Children ride bicycles.</p>	<p>CHILDREN PLAY</p>
<p>One man talks with two old women sitting in front of the house. The streets are used as transit ways for pedestrians, people are just walking along the street.</p>	<p>COMMUNICATION</p>
	<p>MAINTAINING PUBLIC OPEN SPACE</p>
<p>In the courtyard, there is a green area with a pool, people are gathered here especially in the afternoons and night.</p>	<p>ACTIVE RECREATION</p>
	<p>BUILDING RELATED ACTIVITIES</p>
<p>An vendor sells something, but he is a watchman.</p>	<p>UNEXPECTED EVENTS / ACTIVITIES</p>

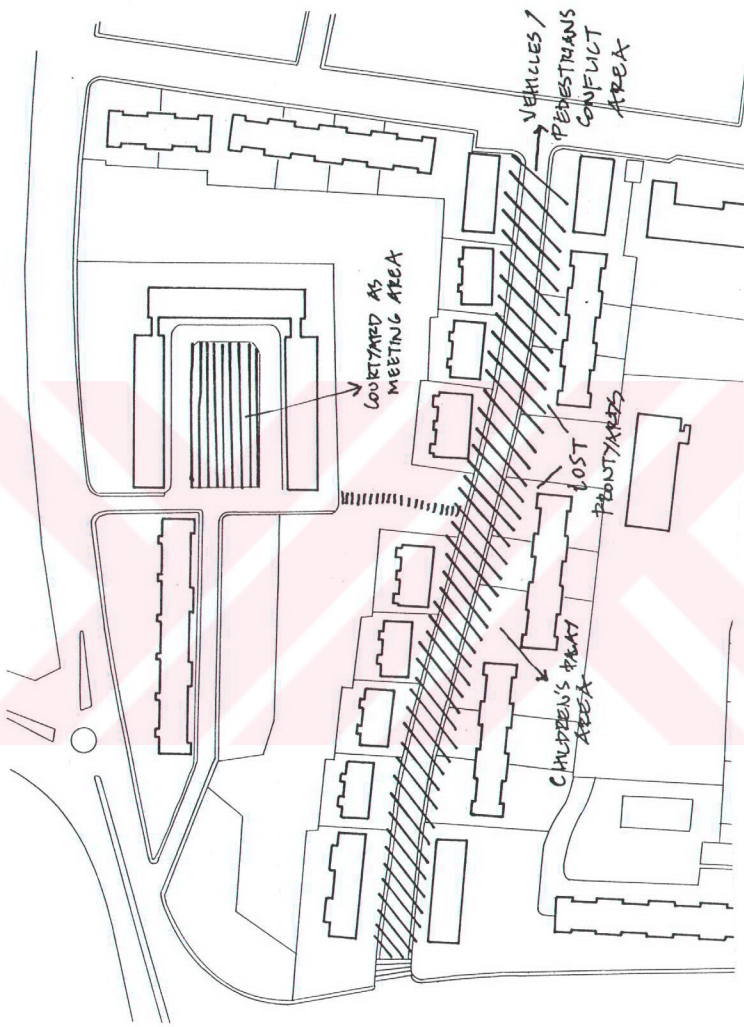


Figure 5.9. Physical layout of Saraçoğlu



**Figure 5.10.** Children's Activities and Related Urban Spaces in Saraçoğlu



**Figure 5.11.** The Courtyard: Located in the center of the block and used as the meeting area of the neighbors





**Figure 5.12.** The Front and Back Areas of the Houses

### **Spatial Features:**

Saraçoğlu presents a lower frequency of use and a smaller number of activities generated in the street. It may be caused by the location of the area which is located close to the Central Business District, Kızılay. The actual users of streets are transit cars and pedestrians.

In the front of the houses, there is a wide frontyard, but it is used as public open space (Figure 5.10 and Figure 5.12). Because the cars occupy the entire sidewalk, transit pedestrians use this space as a streetway.

In the center of the blocks, *courtyards* are designed in order to provide social space (Figure 5.11). Children play in these areas, and neighbors interact. It is designed in order to maintain socialization.

#### **V.4.2. Comparative Evaluation of Yenimahalle and Saraçoğlu**

Yenimahalle and Saraçoğlu presents the mass-housing development areas of the early Republican period. The houses are built with similar formal characteristics in each area. Yenimahalle developed into a fullfledged housing area, yet, Saraçoğlu, located close to the Central Business District, Kızılay, remained as a smaller housing quarter. These locational differences influenced the way which the areas developed.

In Yenimahalle, the street is used very intensively by the residents, Saraçoğlu, however, presents lower degree of use in street activities (Table 5.5). The main activity observed is walking and strolling (passers-by or transit pedestrians). The sidewalks are occupied by cars. People and cars use the street at the same time. The use of sidewalks give opportunity to maintain safety in a neighborhood and contact with others (Jacobs, 1961). If it is occupied by cars, these possibilities are decrease. Moreover, there is no activity related with the residents in the street could be observed. On the other hand, in Yenimahalle, people use the street actively for a wide range of activities. As Jacobs (1961) stated, nobody enjoys looking out a window at an empty street. People entertain themselves, on and off, by watching street activity.

The street related activities in Yenimahalle occur in different spaces. As explained, the porches, stairs, and fences assessed as having different meanings and uses. Porch is a kind of semi-private space, and occupied by family for different activities. Stairs, as semi-public space, serve as transitional zones between semi-private and public spaces. Fences, on the other hand, shows the ownership or rights to a place and personalization of a space. They act as territorial demarcations in order to obtain privacy, territories, and control. It can be clearly observed that the hierarchy of territories or spaces is established. There is a gradual shift from private to the public spaces. All features of hierarchy of spaces, associational variety, exist as explained in Chapter III.



As stated in Chapter II, the meaning and use of the environment are mutually exclusive. Moreover, the use and meaning of space, rather than its location, determine the type of territoriality present. The use and meaning of space change for each individual, thus, it is important to distinguish between territories. Conflicts occur in ill-defined spaces (such as clashing territories) causing meaningless, thus:

“A good city street neighborhood achieves a marvelous balance between its people’s determination to have essential privacy and their simultaneous wishes for differing degrees of contact, enjoyment or help from the people around. This balance is largely made up of small, sensitively managed details, practiced and accepted so casually that they are normally taken for granted” (Jacobs, 1961, 59).

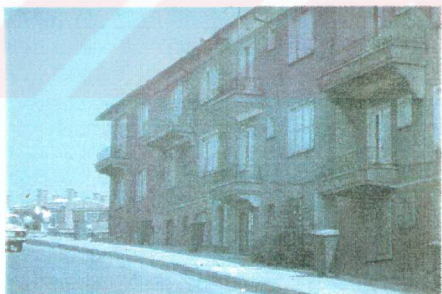
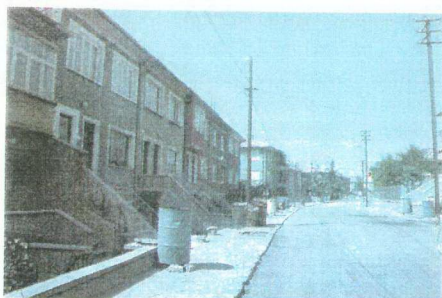
In Saraçoğlu, the spatial characteristics reveal that there is a misfit between territories and activities. All the features of a hierarchy of spaces existed in physical terms, but in associational terms there are none. The use and spatial definitions are different. Frontyards of the houses are designed originally as semi-private spaces but they give the feeling of open public spaces. Sidewalks -semi-public areas- are occupied by cars. Therefore people cannot use street actively.

The emergence of some activities gives some clues about the fulfillment of human needs, and residents’ satisfaction. In Yenimahalle, adults use semi-private or semi-public spaces for having fresh air, communicating with neighbors, drinking tea, and so on. The identity and belonging needs are well established, as shown in Figure 5.3, one old woman is

sweeping the street. This shows that she cared for that street, thus, the belonging needs are fulfilled. Moreover, privacy and identity are also provided and this can be seen in the use of plantings (a family tries to maintain its privacy with having a porch closed by plants, another wants to have a good frontyard, therefore takes good care of planting arrangements).

Characteristics of formal variety also have important role on residents' satisfaction. The visual qualities of urban space have a crucial role in the formation of activities and spatial behavior in terms of satisfaction of cognitive and aesthetic needs. As explained before, people act according to the information they perceive from environment. The lack of visual cues, too simple, and too few spaces result in monotony, on the other hand, the high informational, too many, and too complex spaces result in chaos. Formal variety exists in a rhythm with an acceptable range of order. Diversity is one of the important components of formal variety.

In Yenimahalle, all houses are designed as two-storey units. The diversity of the environment comes from both the difference of the design of adjacent houses and the difference in the facades of those houses are similar in plan types (Figure 5.13 and Figure 5.14). On the other hand, Saraçoğlu presents the diversity in the window and door proportions and small building details. In Saraçoğlu, the surprise element is also used. There is a footpath (arnavut kaldırım) through the center



**Figure 5. 13.** Diversity: Difference of the design of adjacent houses in Yenimahalle.



**Figure 5.14.** Diversity: Difference in the facades of those houses are similar in plan types in Yenimahalle.

of the apartment blocks. This space has a courtyard for meeting and social activities for neighbors.

#### **V.4.3. Typology II: The Recent Mass-housing Development Areas: Batkent and Koru Sitesi**

Batkent and Koru Sitesi are selected to represent the recent mass-housing development areas.

**BATIKENT** is developed in the 1970s. The aim of this housing cooperation is firstly to create a housing development alternative to the squatters, then this aim has shifted to that of housing for the low and middle income groups. Batkent, today, is seen as a low and middle income residential area, lacking social and physical infrastructure, as well as public amenities. The organization of housing development is conducted by a semi-public institution, namely Kent-Koop, and municipality.

Table 5.3 presents the principal activities and related behavior categories in Batkent. Figure 5.15. shows the use of street and street related activities.

#### **Spatial Behavior:**

The streets are not used by people for any activity, but we may say the principal users are children. Children use the street for leisure (Figure 5.16 and Figure 5.17). Generally the



Table 5.3. Observed Activities and Related Behavior Categories in Batkent

PRINCIPAL ACTIVITIES	MAIN BEHAVIOR CATEGORIES
Children ride bicycle, play in the streets.	CHILDREN PLAY
People use the backyards of the houses for sitting activities with their families, neighbors	COMMUNICATION
Playgrounds for children, no recreation areas for adults.	MAINTAINING PUBLIC OPEN SPACE
People use the backyards which are well-kept and plantings, frontyards, on the other hand, are not well-kept. Two couples play cards in front of the house.	ACTIVE RECREATION
	BUILDING RELATED ACTIVITIES
	UNEXPECTED EVENTS AND OTHER ACTIVITIES

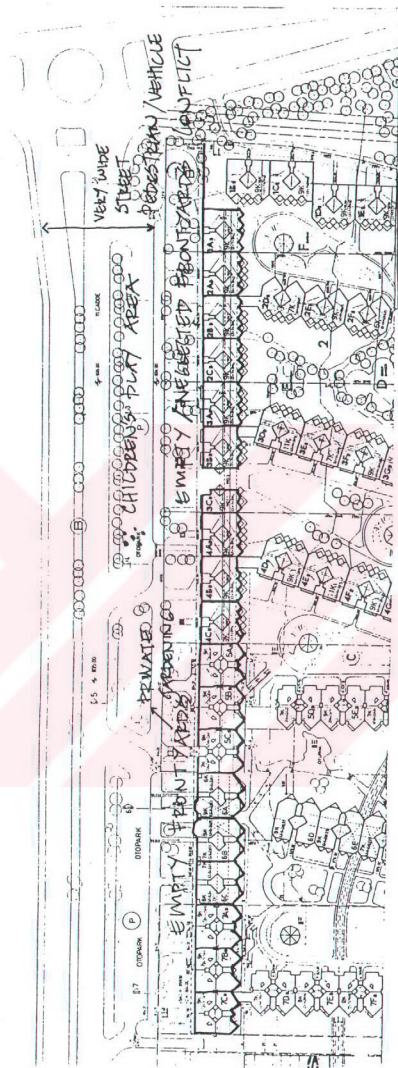


Figure 5.15. Batkent street layout and activities

level of maintenance is low, but in some houses, the backyards are used for sitting, having dinner, chatting with the neighbors, and so on. The front and back yards are presented in Figure 5.18.

### **Spatial Features:**

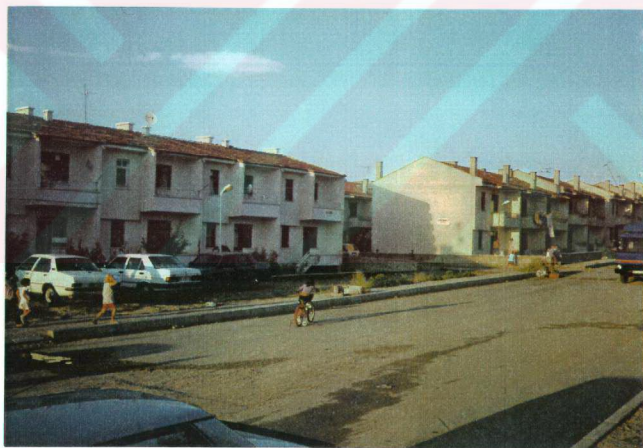
The fences are seen in front of the houses. They depict the boundary between the house and the street. Level of maintenance is very low (Figure 5.17). People are not using any space related with the street for socializing and acting.

In some places, where the main use of the street is lost (street perceived as not public, as semi-public space), the use of front spaces increase (Figure 5.18 and Figure 5.19).



**Figure 5.16.** The Observed Street Activities in Batkent





**Figure 5.17.** The Lost Hierarchy of Spaces and Activities in Batıkent



**Figure 5.18.** The Front and Back Areas of the Housing Units



**Figure 5.19.** The Use of Front Areas



**Figure 5.19.** The Use of Back Areas



**Figure 5.20.** Observed Activities in Front of the Housing Units: Two couples play cards



**KORU SİTESİ** is quite a different housing area. It was developed in the 1980s by a private sector firm. The level of maintenance is very high and the area is very well-kept. This area is designed as a suburban residential development area. The public services and recreation areas are established. It is clearly observed that the organization of the environment is high.

The principal activities and related behavior categories are shown in Table 5.4. Figure 5.21 shows the physical layout of selectes street in Koru Sitesi.

#### **Spatial Behavior:**

The principal users of streets are children. They ride bicycles and rollerblades. There are also children playgrounds in the center of the apartment blocks (Figure 5.22).

Adults are walking along the street for having fresh air (Figure 5.23). Families use the back and front areas of the houses for sitting, eating, having communication with neighbors, etc (Figure 5.25).

Table 5.4. Observed Activities and Related Behavior Categories in Koru Sitesi

PRINCIPAL ACTIVITIES	MAIN BEHAVIOR CATEGORIES
Children are riding bicycles, rollerblades in the streets, they are playing in the parks.	CHILDREN PLAY
Couples are walking along the street for having a breath of fresh air. Young girls are talking and waiting bus. People are using the frontyards for sitting with their families.	COMMUNICATION
There are many parks for adults and children.	MAINTAINING PUBLIC OPEN SPACE
Frontyards and backyards are very well-kept. All these areas are used by the families for different purposes.	ACTIVE RECREATION
	BUILDING RELATED ACTIVITIES
	UNEXPECTED EVENTS / ACTIVITIES



**Figure 5.21.** Physical layout of the selectes street in Koru Sites



**Figure 5.22.** Observed Activities in Koru Sitesi





**Figure 5.23.** The Courtyard: Located in the center of the apartment blocks



**Figure 5.24.** The Use of Streets in Koru Sitesi



**Figure 5.25.** The Front and Back Areas of the Housing Units

### **Spatial Features:**

The two-storey houses are designed with front and back spaces, in which are used for sitting and eating. In those areas, the concepts of identity and belonging needs are well established. The back spaces are designed with plantings in order to maintain semi-private space and each has different attributes (5.25). The front spaces, on the other hand, generally have the same attributes, because they flank the cul-de-sacs (5.24).

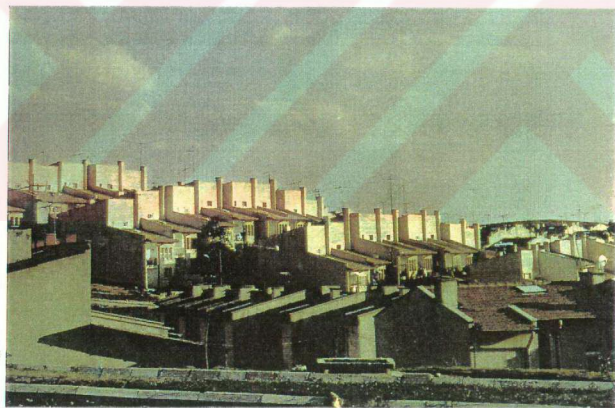
The streets are designed to serve two purposes: some streets are cul-de-sacs, serving vehicular service. In these streets, parking lots are very well defined. Other streets are designed solely for circulation. The backyards of houses, that are faced with the circulation streets, are organized with plantings in order to maintain privatization (Figure 5.25).

These plantings may be seen as a form of fence. There are no clearly seen physical boundaries such as low walls, or stairs.

#### **V.4.4. Comparative Evaluation of Batkent and Koru Sitesi**

Batkent and Koru Sitesi are selected as representatives of the recent mass-housing developments. The current trend of design in these areas is related to the simple and easily reproducible built forms that result in physical homogeneity. This is easily observed in Batkent (Figure 5.26). Those areas are seen as





**Figure 5.26.** Physical Homogeneity in Batkent

monotonous environments. In the street scale, there is no differentiation/variation. Every building has the same attributes in the street scale.

In Batkent, it can be easily seen in the observation that the organization of the environment is poor. The physical and social services are not well established. The maintenance levels of the houses are very low. They are not well-kept.

In Batkent, there is no significant street activity except children's activities (Table 5.5) The conditions for outdoor activities for adults near the houses are very poor. Outdoor spaces are physically large but they are impersonal and not organized. Under these conditions, it is observed that most residents may prefer to remain indoors. Since the organization of the outdoor spaces is low, there is no activity recorded/observed in the street. As stated before, the emergence of some activities give some clues about the residents' satisfaction and fulfillment of needs. There is no street related activity observed in Batkent, therefore it can be said that the concepts of identity and belonging are lost. People do not use the transition areas for any activity. The territories are physically seen, but the important thing in establishing territories is the meanings and use of space, rather than its location. Territories serve to fulfill safety, belonging, and identity needs. An area can be called as territory if only it is characterized by its owners' personal means of

Table 5.5. The Comparative Evaluation of the Selected Sites

	<b>CHILDREN PLAY</b>	<b>COMMUNICATION</b>	<b>MAINTAINING PUBLIC OPEN SPACE</b>	<b>ACTIVE RECREATION</b>	<b>BUILDING RELATED ACTIVITIES</b>
<b>YENİMAHALLE</b>	Boys playing football, Girls playing with their babies in the front of the houses, Children ride a bicycle, Children argue among themselves in the middle of the street. There are many parks, so many children play there.	Families are sitting in front of the house and chatting. While two man arrange flowers in the front garden, a woman sits on a chair for having a fresh air, in the backyard, there is a table and chairs. (They don't want us to see the whole backyard of the houses). Teenagers are chatting in the front of the houses. Womans are gathered together and drinking tea in the frontyard.	Two elderly woman sit on the street (they have no front garden) and looking back who is coming to the street. In relatively newly built houses, they have real barriers in order to have frontyard and a group of woman sit there. An old woman sweeping the street.	Neighbors are sitting in front of their houses and talking each other, an old woman 'yün atmak' to the floor, others are talking. A group of old men sitting and chatting in the street. A woman rides a bicycle in the street.	a woman looks for her children two woman stand and look into the street
<b>SARAÇOĞLU</b>	Children are not playing in the street, they choose empty areas, and front of the houses. Children ride bicycles.	One man talks with two old women sitting in front of the house. The streets are used as transit ways for pedestrians, people are just walking along the street.		Playgrounds for children, no recreation areas for adults.	
<b>KORU SİTESİ</b>	Children are riding bicycles, rollerblades in the streets, they are playing in the parks.	Couples are walking along the street for having a breath of fresh air. Young girls are talking and waiting bus. People are using the frontyards for sitting with their families.		There are many parks for adults and children.	Frontyards and backyards are very well-kept. All these areas are used by the families for different purposes.
<b>BATIKENT</b>	Children ride bicycle, play in the streets.	People use the backyards of the houses for sitting activities with their families, neighbors		Playgrounds for children, no recreation areas for adults.	People use the backyards which are well-kept and plantings, frontyards, on the other hand, are not well-kept..

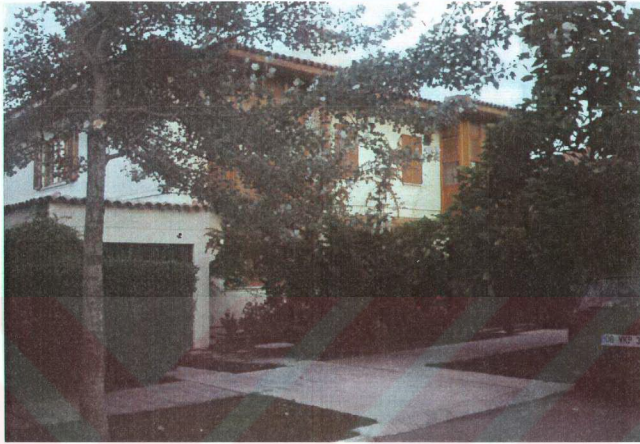
identification and constitutes a component in the social behavior of users. In Batkent, territories are not well defined, therefore one may say that there is a shift from private and public realms in physical terms, but, as an observer's note, people do not feel it psychologically/ associationally. The meanings are lost.

The housing cooperatives are very similar to each other in Batkent. No diversity can be seen. Each house share similar attributes. Each housing cooperatives are developed identically. This means that there is no planning/design rules considered in the interaction of adjacent cooperatives. As previously explained, in Yenimahalle, diversity can be maintained through this procedure.

On the other hand, Koru Sitesi represents a high degree of organization of the environment. All social and public services are well established. The playgrounds are designed for children and adults. Sidewalks are designed for different purposes such as for walking, taking fresh air, maintaining safety, and maintaining contact with others. They also exist as important features in street related activities (Figure 5.27). As Jacobs (1961) stated, sidewalks support trust of a city street accordingly many little public sidewalk contacts. The absence of this trust is a disaster to a city street.

In Koru Sitesi the two-storey houses are designed with front and back spaces, which are used for sitting and





**Figure 5.27.** Sidewalks in Koru Sitesi

eating. The backyards are designed with plantings in order to maintain semi-private space and each has different attributes. The transition from public to private spaces has been established by some plantings and changes in the texture. In those areas, the concepts of identity and belonging needs are well established. The associational variety features can be easily seen.

In Koru Sitesi, formal variety and richness of the environment is established through the design of apartment blocks and two-storey dwellings (Figure 5.22 and Figure 5.24). In apartment

blocks, the proportions differ and this gives the attention and interest to the observer.

## **V.5. Evaluation Results and Discussion**

This survey analysis confirmed that:

1. Resident perception of visual quality is based on the functional and associational properties of the physical attributes and components.
2. The perceived quality of the site regulates (or has a great influence) the type of spatial behavior.

The effects of the structure of the urban space on spatial behavior/activities are analyzed on the basis of observations suggesting that when urban space design provides a distinct hierarchy of spaces from private to public, conflict among neighbors is reduced and resident involvement is positively affected.

Here, some spatial features also play an important role in generating variety in urban spaces. Their emergence gives some clues about the preference of the users and the visual quality of the environment. The formal characteristics of the hierarchy of spaces, such as porches, fences, and so on, offered the opportunity for staying outdoors, defined the transitional zones between the house and the street.

One is the **porch**. “In the hierarchy of spaces between internal rooms and street, a most important area is the threshold, which traditionally has been enhanced by some sort of porch” (Greenbie, 1981, 13). The porch is a kind of transitional area, structurally as well as spatially, between inside and outside of the house, offering shelter overhead and a raised floor below. It is a kind of semi-private space. The porch on the street offers an extension of the built living space out into the social environment. Generally it also works as a transitional area for visitors. On the porch, one shares one’s house with nonfamily members in a way that is much less intimate than inviting them inside. It is a much more pleasant way of dealing with salesmen, and neighborly conversations. For children, particularly, porches were fine play areas.

**Fences** are the other physical attributes that are taken as territorial demarcations. Fences define the hierarchy of spaces and act as symbolic or real barriers.

**Stairs** are another physical attributes which particularly are seen in Yenimahalle. The transition between semi-private space - porch- and public space -street- is maintained by stairs.

**Sidewalks**, also exist as important features in street related activities. Sidewalks are used by pedestrians for different purposes serving different needs fulfilment. It offers maintaining control over the street, maintaining contact with others. Sidewalks are used a way of socialization of residents.

Another evaluation method is the measure of the relationship between the quality of urban space (as an outdoor space) and the occurrence of activities by types. The activity types are identified as Gehl (1987) defined them: necessary activities, optional activities, and social activities. Environment shapes the everyday activities of individuals and specific demands of them. Its high valued quality comes from the function and enjoyment provided by urban areas. Environment, also generates activities. Built environment influences the activities to a varying degree and in many different ways.

Necessary activities are those that are compulsory. They are the everyday tasks and their existence is influenced only slightly by the physical environment. These activities take place throughout the year, under all conditions, and more or less independent of the exterior environment. These activities are going to work or school, shopping, waiting for a bus, etc. Optional activities are those pursuits that are participated in if there is a wish to do so and if time and space make it possible. These activities occur only when the outdoor conditions are optimal, when weather and place invite them, therefore they are dependent on exterior physical conditions. This category of activities are taking a walk to get a breath of fresh air, sitting, standing, observing the other people, etc. Finally, social activities are those depend on the presence of others in public spaces. They are also be called as resultant activities, because they evolve from other activities linked to the other two activity categories. They develop in connection with other activities. This implies that social activities are indirectly supported whenever necessary

and optional activities are given better conditions in urban space. These activities are children at play, greetings and conversations, communal activities of different kinds, passive contacts (seeing and hearing the other people), etc.

According to Gehl (1987), the quality of urban spaces affected the rate of occurrence of the activities as shown in Figure 3.1. When the urban space is of poor quality, only necessary activities occur. When the urban space is of high quality, necessary activities take place with approximately the same frequency -because the physical conditions are better. If the quality of the physical environment is good, optional activities occur with increasing frequency. Besides, as levels of optional activity rise, the number of social activities usually increases substantially. In a good environment, a broad range of human activities is possible.

If we apply the observation survey of the different sites of Ankara, we can easily identify which spaces are being successful and others not (Table 5.6).

Table 5.6 confirmed the observation results. The more people spend outdoors, the more frequently they meet and the more they communicate. "Life between buildings comprises the entire spectrum activities, which combine to make communal spaces in residential areas meaningful and attractive" (Gehl, 1987, 16).

Table 5.6. The Relationship Between Quality of Environment and the Activities

QUALITY OF THE PHYSICAL ENVIRONMENT	OBSERVED ACTIVITIES		
	NECESSARY ACTIVITIES	OPTIONAL ACTIVITIES	SOCIAL ACTIVITIES
BATIKENT	People are walking along the street to reach their home.	People use the backyards of the houses for sitting.	Children ride bicycle, play in the streets.
	People are walking along the street quickly because it is a transit way for pedestrians.	In the courtyard, neighbors meet at night.	Children play in the courtyards.
SARAÇOĞLU	People are standing on the street or walking.	Families are sitting in front of the houses for sitting, talking, observing the other people. Neighbors visit each other and talking. A group of old man sitting and talking in the street. People are sitting in front of the house for taking a breath of fresh air.	Boys play football, girls play in front of the houses, children ride a bicycle and argue among themselves. There are many parks for children and adults.
	People are walking alone the street, young girls waiting bus.	Couples are walking along the street in order to take a breath of fresh air, Families use the front and back areas of the houses for sitting, interacting with the neighbors.	Children play in the street and playgrounds. Adults sitting and children playing in the parks.
KORUKENT			

This sample selection permits one to analyze different projects and to measure the obvious disliked and liked housing areas. That is, of the two sites selected, Yenimahalle and Koru Sitesi represent positive resident evaluation and high degree of usage of outdoor spaces, on the other hand, Batıkent and Saraçoğlu represents negative resident evaluation and a low degree of usage of residential areas.

The success of Yenimahalle and Koru Sitesi comes from not only in the established hierarchy of spaces (we call this hierarchy as an associational variety), but also the diversity and moderate complexity of the environment, which may be called as formal variety. They are achieved by establishing some design tools and some adaptations done by the users. These characteristics of the urban space give richness and variety in perceiving these areas. Variety is, as we defined it in the fourth chapter, the properties of the environment by sets of similar, but not equal, elements that belong to a common and recognizable typology that are perceived as a rhythm in the pattern. A pattern imposes a matrix of order and variation represents the acceptable range of changes within the typology of the pattern. Thus, variation is the acceptable and noticeable range of differentiation within an order.

Moreover, this observational study shows that the role of physical surroundings on human experience and activity gives important clues about how reactions and means of coping with



the complexity and variety of these surroundings made by the users.

As stated in the first chapter, the preference of the environment is depending on the qualities of the environment that permit involvement and making sense. Involvement is determined by complexity or diversity, on the other hand, making sense is the feeling that 'belong' there such as ground textures, repetition of elements. Involvement and making sense are the crucial properties of the urban space in shaping spatial behavior and activities.

In Yenimahalle and Koru Sitesi, the user needs, considered in this thesis as basic needs, such as safety, belonging, and esteem needs are observed as well-satisfied. Yenimahalle is an old district, although the maintenance level is low, the frequency of use of space and spatially generated activities are high. On the other hand, Koru Sitesi also satisfies the cognitive and aesthetic needs with its physical layout.

This survey presents that in order to make good, preferred, meaningful, and attractive environments, it is important to establish the variety both in associational and formal terms. The success of urban spaces may achieve by designing places which generates various activities for the users and maintains the user needs.

Hierarchy of spaces, or associational variety, strenghtens the natural surveillance (safety needs) and belonging needs. It also



maintains the needs of identity. “Establishing residential areas so that there is a graduation of outdoor spaces with semipublic, intimate, and familiar spaces nearest the residence also makes it possible to know the people in the area better, and the experience of outdoor spaces as belonging to the residential area results in a greater degree of surveillance and collective responsibility for this public space and its residences” (Gehl, 1987, 61). Therefore, the public spaces become part of the residential area and safety needs are well satisfied.



## CHAPTER VI

### CONCLUSION

This thesis tries to show that variety is as an essential property of an urban space through which it attains its quality. Moreover, it is not only an important component in man-environment relationships, but also gives the way how people evaluate their environments, its structure. Both formal and associational variety exist as important properties in the formation of urban space and spatial behavior.

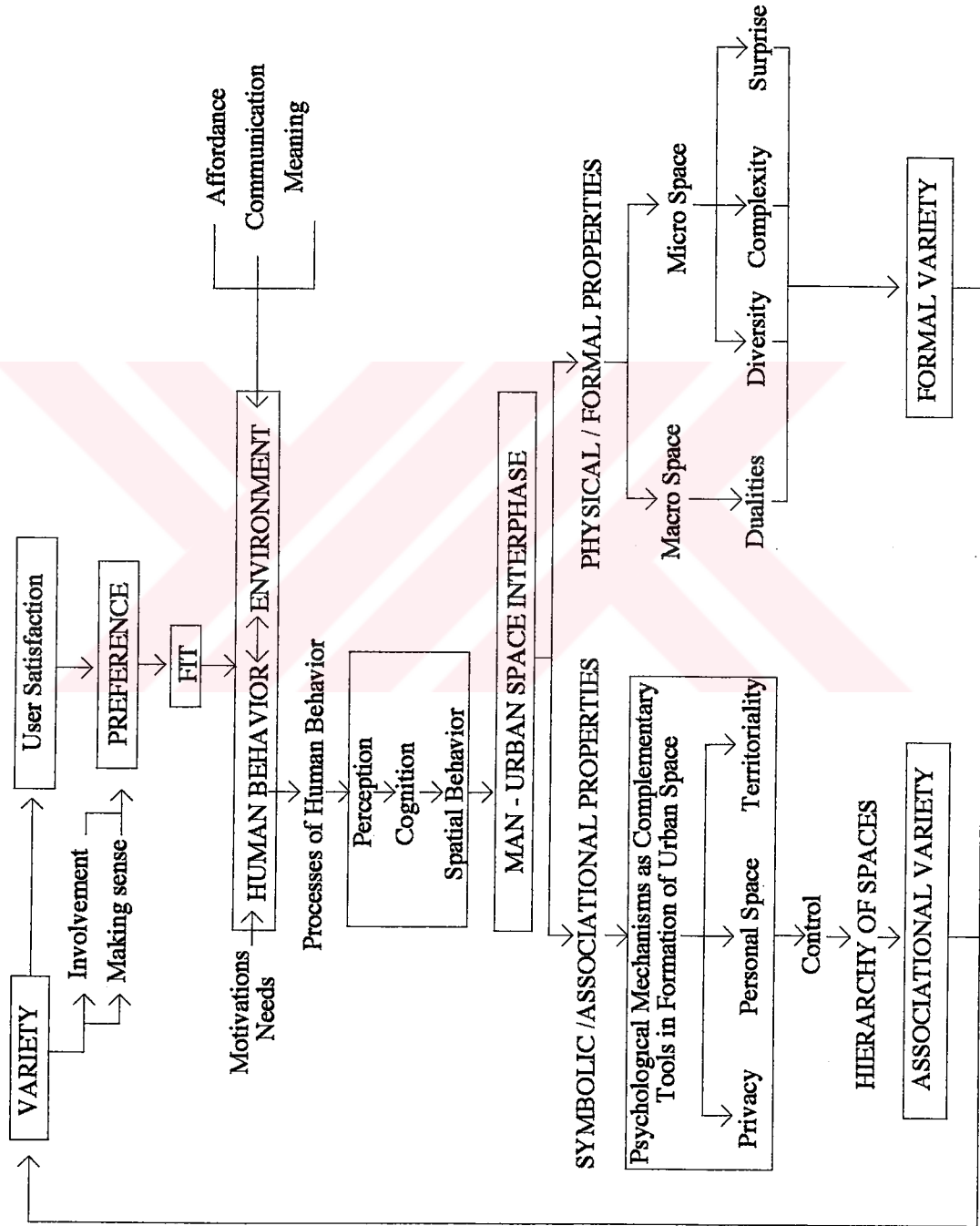
In order to make good environment, one of the important issue is to increase the exposure of people to a variety of environmental settings and potential interactions. This will provide choice and allow for individual differences, but it should also have important effects on increasing people's sense of the possible and level of aspiration. It accomplishes by increasing the real variety of action settings, linked together in space. When applied to the settings of daily activities, increasing variety means increasing personal efficiency.

The second important issue with variety is to stimulate and facilitate exploration of the environment. Variety serves to satisfy the cognitive needs of the individual, with respect to exploration and new experience. The right level of variety stimulates curiosity, openness, and connectedness to allow easy access to new settings and experiences. Varied environments increase individual interaction and also lead to growth both by broadening the individuals categories and concepts about the world and by increasing this sense of competence and capacity to formulate and execute new plans (Carr, 1978).

Variety of space has diverse aspects. This thesis suggests that formal and associational variety is important for environmental quality and satisfaction of user needs. Thus, features of physical/formal variety and symbolic/associational variety have to be considered together.

Table 6.1. presents the spatial manifestations of variety in man-environment interphase. Variety determines the level of user satisfaction and preference, while two features of preference, i.e., involvement and making sense are also components of variety. Preference is an important concept in evaluating people's responses to urban spaces. In determining the quality of urban space, the relationships between environment and activities and spatial behavior become important aspects which need to be surveyed.

Table 6.1. Spatial Manifestations of Variety in Man-Environment Interphase



Preference and fit are maintained with understanding and evaluating the relationship between human behavior and environment. Environment influences human behavior. The physical qualities of the environment influence the formation of urban space as well as formation of behavior in environment. On the other hand, environment conveys a variety of meanings/messages. Meaning is the important component of environment, which, is helpful in understanding environmental influences on spatial behavior and activities. The relationship between spatial form and people is mediated by meaning (Groat 1988, Pearson and Richards 1994, Steinitz 1968). The meaning of a space defines the range of its acceptable uses and these meanings are themselves shaped by the activities that take place in and around them. The variety and diversity in environments are useful tools for meanings to develop.

An important point in man-urban space interphase is what information or meaning must an urban form generate in order to satisfy the physical and psychological needs. The main emphasis in this thesis is “associational variety” in urban space.

An urban space can be interpreted as a system of subsystems of changing variety and scale, on a number of hierarchical levels. Each level of the spatial hierarchies can be assigned a specific visual role, in terms of conveying messages of unity or variety. The “associational variety” can be established in order to using the spatial levels which have different attributes and features for different kinds of activities in the fulfillment of human needs. Hierarchies provide a conceptual framework of

an urban fabric and for understanding the various types of spatial behavior and activities. Chermayeff and Alexander (1963) stated that variety is artificially produced and in order to get real variety, each kind of experience must be allowed to develop for itself and of itself under conditions that are special, clearly defined and even physically separate. The associational variety of spaces, that is urban hierarchies, are spatial systems with different levels.

The key feature in the hierarchy of spaces is the gradual transition in control from private - semi-private - semi-public to public spaces. Hierarchy of spaces can be seen as a mechanism for the creation of intermediary zones between the private and public realm, which, in turn, provide people with identity, safety and belonging. In order to that there must be a clear demarcation between what is public space and what is private space, public and private spaces cannot leak into each other. Hierarchies are seen as the “associational variety” in urban space. This variety provides different activities, regulates relationships, and helps to maintain the fit between behavior and form. The key feature in associational variety is how that particular space meets to the needs and activities of the users. The answer will respond to the likes/dislikes and preference of people.

This thesis also analyzes the role of “formal variety” in preference in accordance with the features of associational variety. The visual characteristics of the urban space have crucial role in formation of activities and spatial behavior in

terms of satisfaction of cognitive and aesthetic needs in urban environment. In order to find out the role of physical surroundings on human experience and activity, the important point is the evaluation of how reactions and means of coping with the variety and complexity of the surroundings. Sharp (1968, cited in Couch, 1990) asserted that what makes historic, organically evolved towns aesthetically interesting is often variety in building form, scale and materials but "variety within the same kind, variety within an established rhythm, variety within a broad unity of character". With rapid urbanization trends, cities have faced with the economically and socially segregated areas. These are the factors contributing to the generation of homogenous and monotonous environments, since they result in an absence of program variety. Hall (1974) pointed out that any artificially created environment, if it is to satisfy man's nature, should contain variety.

The formal and associational characteristics of the urban space affect the activities. The activities in urban space can be evaluated by understanding how reactions made and coped with the variety of these environments. Recent developments in urban areas show that the expanded range of speed and mobility have raised questions in relation to the humanscale and the need for an extended hierarchy of relationships between man and his environment is raised.

A survey analysis has conducted in order to test the influence of the characteristics of associational and formal variety in urban spaces on spatial behavior and activities. Urban space

conveys meaning through its spatial attributes, therefore the form and shape of the space become important. This survey is designed in order to understand;

- the way people give meaning to the environment,
- how and where they structure their activities,
- how spatial behavior is shaped,
- what spatial characteristics

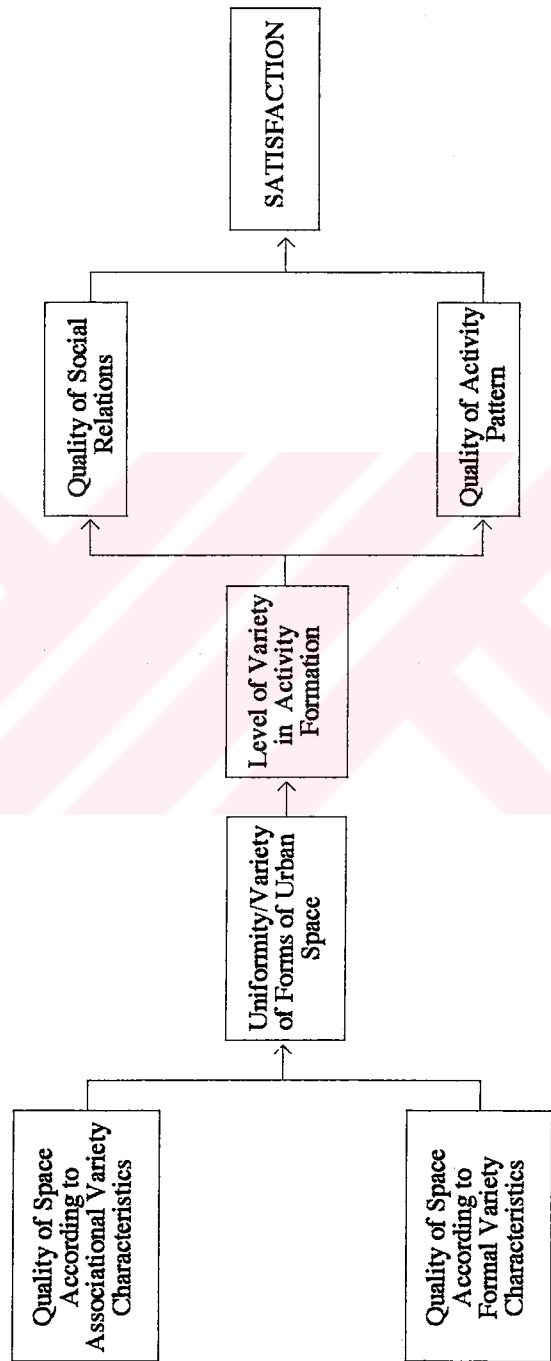
play important role in activity formation. Two typologies are selected in order to analyze and test the spatial features and spatial behavior.

This survey presents that some environmental quality attributes such as moderate variety, territorial control, the need of hierarchy of spaces, diversity etc., positively affected resident's attitudes including sense of belonging, sense of identity with the place and positive evaluation of the image of the site. These positive attitudes have had an important effect on resident motivation on social interaction among residents, which is then to increase socialization and man-environment interaction. As Moudon and Ryan (1994) stated, where variety is present, residents appeared to appreciate the richness of experience that it offers.

On the other hand, this survey also indicates that the residents' discontent with the spatial configurations on the site with conflicting uses caused by the nature of the semi-private and semi-public spaces caused the disliking environment and negatively affecting residents' emotional attitudes. They are encouraging residents' motivations for destructive behavior, social



Table 6.2. The Role of Variety in Users Satisfaction



conflict, etc. The lack of formal and associational variety results in monotony. This issue has been expanded by Sennett (1970); the visual simplification criticized in a monotonous environment is a parallel to the social simplification of urban life. These are seen as the property damage, poor maintenance, lack of activities, and neglect of spaces.

Table 6.2 presents the quality of environment according to both the characteristics of associational and formal variety influences human preference and satisfaction. The spatial characteristics such as presence of hierarchy of spaces in real and meaningful terms, diversity and richness of the environment affect the occurrence of different types of activities. They also influence the quality of relations both between people and between people and urban space. Variety emerges as one of the most important components of the urban fabric that helps to understand the quality of urban space, preference and user satisfaction.

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