A METHODOLOGICAL APPROACH FOR READING URBAN OPEN SPACE.

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Abstract

This paper suggests a methodological approach for reading and analyzing urban open spaces, based on the concept of behavioral setting, which deals with individuals and their behavior as a tool for reading the urban open space. The behavioral setting is defined as the smallest living entity in the physical environment and has three main components: physical (design), social (use) and cultural (rules). Based on that, the urban open space, as a part of the physical environment, can be considered as either one setting or a system of settings, according to the activities that take place within it and the users who occupy it.

The proposed methodological approach will be discussed through the theoretical analysis of various studies on the physical form of urban open spaces. The approach is expected to help planners and architects in developing and providing urban spaces that comply with people's needs and values.

Keywords

Introduction

In any society, individuals have specific needs and values that are reflected in their behavior. These may be reflected in the physical form of the spaces they occupy, through such elements as the physical layout, furniture, pavements, lighting, and the spaces' functions. As a part of modern internationalization, knowledge in the field of architecture and urban design is generally based on identifying standard human needs, but usually without considering properly how these needs influence behavior, which is a cultural variable.

Contemporary research and design professions lack a focus on individuals' needs according to local culture. Most scholars who study the physical environment in general do not give a clear picture of its components (physical, social and cultural), which are influenced by human needs, nor of the relationship between these components. They have focused on investigating needs in relation to behaviour or in relation to physical space without explaining well enough how both people's behaviour and the physical form of the space are influenced

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by their needs. In other words, the scholars do not explain clearly enough the relationship between needs and their components, which correspond to components of the physical environment   [Lang (1987); Altman (1975); Rapoport (1982); Hall (1966); Newman (1972); Guardo (1969); Lawton (1975); Worpole (1992); Lynch (1977); Gehl (1987); Abu-Lughod (1987); Morris (1994); Nooraddin (1996); Hakim (1982); Seedat et al (2006); Polk (2003); Kallus (2001); Karimi (2003); Hooshmand (2007); Kotnik (2006); Ghannam (2002); Kenzari & Yasser (2003); Eben-Saleh (1998); Al-Hemaidi (2001)].

In general, current theories concerning this topic seem inadequate for the purposes of this paper, which is concerned with developing a methodological approach that considers both human behavior and needs in reading the physical environment. Our goal, in other words, is reading the physical environment in relation to human needs as a physical, social and cultural phenomenon. This will help planners and architects to understand how different components of the physical environment mutually influence each other. This in turn should help them to design and develop the various elements of urban open space according to human needs and values, bearing in mind that the urban open space, as a part of the physical environment, can be considered either as one setting or as a system of settings, according to the activities that take place within it and the users who occupy it.

The interrelationship between needs, values, behavior and the physical space forms the theoretical background for developing the methodological approach that will be discussed in this study.

Theoretical Analysis

Needs and values are interrelated, therefore needs should be studied according to culture. Maslow (1943) classifies needs according to two types. The first represents basic needs, which are common to all humans and fundamental in motivating human behavior. These needs are biological and universal; they imply physiological, sociological and psychological needs (nourishment, shelter, security, belonging and love needs). Maslow's second type represents specific needs (values), which are deep desires but differ from one person to another, from one culture to another, and from one place to another. These needs are learned and influenced by traditions and religion and are subject to change and adaptation. Therefore, specific needs are cultural needs, always co-existing with the basic needs, thus they should not be understood as isolated determinants of certain kinds of behavior. Wiggins (1998) explains that there are needs that form a certain class of strong desires, and in that sense the idea of need is equivalent to the notion of desire.

Needs and values are also interrelated with both physical space and human behavior. Rapoport (1980) explains that the physical environments are shaped to meet human needs and values. He defines needs as the action of a proper activity, but on the other hand, values are the specific way of carrying out the activity. For example, sitting, cooking and socializing are activities common to all societies and independent of time or place. But the manner of sitting, cooking and socializing differs from one society to another, from place to place and over time. Based on this, not only the types of individuals' activities but also the way of

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doing these activities should be considered in reading the physical environment. Broadbent (1990) investigates the urban form of different cultures throughout history in relation to needs and values. He explains that basic needs such as water, sun and shade, in addition to aesthetic and strategic military needs, which affect comfort, convenience, and well-being, form the basis of Greek and Roman urban design. In the traditional Islamic city, however, as Broadbent explains, in addition to the above-mentioned basic needs, the need for the visual protection of women was the primary generator of urban form.

The previous studies maintain that needs and values are interrelated with each other as well with human behavior and the physical environment. In other words, needs consist of physical, social and cultural components. During the past two centuries, however, different trends in reading and designing the physical space have been developed. These analytical trends include typological, behavioral and cultural studies.

Typological studies are based on the modern movement, which is concerned with providing a physical environment that complies with standard and universal needs. Typology is based on reason as the basis for determining form, classification and a sense of the public domain. Petruccioli (1995) defines "type" as a collective product that is shared by architects and the general public. He defines the existence of the "type" by the fact that a series of buildings share an obvious functional and formal analogy. In general, the concept of "type" was developed after the 1950s to be used as an analytical method for understanding existing urban forms

in relation to their function. It appeared as a result of a critique of the model on which the modern movement in urban design was based. Quatremere de Quincy differentiates between models and types. He says: "Type doesn't represent an image of something to be copied or to be imitated completely; Model does" (in Broadbent, 1990: 90-91). Models and types are both products of the modern movement philosophies, which emerged in response to industrialization and urbanization. The modern concepts of space are based on functionalism, whose main concern is providing basic and standardized functions without focusing on specific cultural or individual needs. In his vision, Le Corbusier (1971) provides a model that shows how the basic functions within the city (residential, movement, vehicle and recreational areas) should be distributed. From the 1950s until the present, a stream of criticism against the modern movement projects of post-war urban development has emerged. This has come as a result of their products' failure to realize their initial promise or to meet differing individual needs. Among the problems that have come to light in the present literature are the placelessness of the new city, meaning, security, neighborhood and pleasure (Broadbent, 1990). Due to these critiques, several new movements appeared that consider forces such as climate, economics, identity and security in influencing the process of designing spaces.

In general, typological studies maintain that human needs are reflected in the functional, the physical and the cultural components of the space, but without explaining how individuals influence these needs, which is the main focus of behavioral studies.

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Behavioral studies are concerned with the relationship between people's behavior and the physical form of spaces in relation to culture. They focus on investigating human behavior to explain how the physical form of space meets human needs and reflects values.

Lynch (1977) used the mental mapping technique to explain that people's behavior in spaces answers to maps and images developed in their minds. The outcome of the research is that paths, edges, districts, nodes and landmarks are important signs in forming the image of the city. Lynch focuses on the physical objects – but without considering the local culture – of the three American cities studied: Boston, Los Angeles and Jersey City. He does not explain how the local culture of these cities influenced the interpretation of mental images, nor why the inhabitants were concerned with these physical elements. In this way, Lynch fails to consider how the individual differences in relation to culture and social status influence the image and use of the city. However, other studies do show the influence of social status and cultural issues on forming these mental maps and influencing the behavior of individuals in space. Moore (1983) used mental mapping techniques to show that different people interpret the same physical environment differently, depending on their lifestyle, gender, age, ethnicity and length of residence in the area.

Studies conducted by Wagner (1970), Fiske (1990) and Sless (1986) show that the physical form of the objects is not what influences individual mental images. Instead, it is the meaning of those elements that constitutes a cultural variable. Wagner argues that physical objects are not signs, but a potential vehicle of meaning. Whatever shape it takes, a physical appearance becomes a sign solely by virtue of the meaning attached to it. He explains that there are no marks or signs as such, but only marks or signs for somebody, and this suggests that behavior is culturally based. Although relying on people's experience in analyzing the physical form of a space covers both the tangible and intangible components of the space, it does not clarify how much each of these two components influences the physical form of the space. For example, the activities, the users, and many of the rules that govern the space are not clarified in these mental maps. Gehl (1987) wrote about the relationship between the individual activities and the physical conditions of the space. He explains that when using a public space for necessary activities, individuals do not care about its physical conditions to the same degree as when they use the space for optional and recreational activities.

White (1980) has carried out a similar study in which he explains how the physical conditions of spaces, such as sitting and walking facilities, are important for improving the social life in these spaces. Both Gehl and White focus on the type of activities but do not consider the influence of culture nor the social status of people engaging in the activities and how they are influenced by the physical conditions of spaces. Although the observations cover the tangible components like people's activities and the physical environment, they do not cover the intangible components such as people's feelings and experiences. Therefore, it is important to use both the observation and interview methods in analyzing the physical environment. The observations cover the tangible components of the space, while the interviews cover the intangible ones.

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Mountain (1992) investigated the relationship between human behavior in spaces and the formal rules that govern these spaces. Based on observations of social gathering activities in the street, Mountain explains that vehicle access to the street is an important requirement for pedestrians in the use of spaces. He suggests that providing good access for vehicles makes it more attractive for pedestrians to stay on the street. Lawton (1975) explains how life cycle also influences human behavior in spaces. He found, for example, that the proximity of space is an important need for elderly people. Other influences on human behavior, such as textures, sounds and seasonal effect, were discussed by Brodey (1969) and Nikolopoulou (2001).

Apparently, most scholars of behavioral studies group the users of the physical environment into categories according to their standard requirements. Although these studies maintain that human needs are interrelated both with individuals' behavior and with the design of spaces, there remain issues that have never been dealt with. For one thing, the scholars of these studies do not give adequate consideration to cultural behavior, plus they limit themselves to specific cultures, particularly to Western cultures. That is, most of these studies have been developed and tested in Western settings, and are influenced only by Western values, which are dependent in turn on culture and local context. Therefore these theories cannot be applied universally, and studying similar aspects of the physical space in non-Western contexts may well reveal different situations and thus require reconsideration of design criteria and concepts. Moreover, some of the researchers do not give proper consideration to the social status of individuals, so applying their theories

to different individuals may produce different results. Based on the behavioural studies, the experiences, activities and social status of individuals, the physical conditions of the space, textures, vehicle access, and climatic conditions are all important components that should be considered in reading the physical environment.

Cultural studies examine culture as a third dimension in analyzing space and people's behavior. Haviland (1999: 35) defines culture as "the abstract values, beliefs, and perceptions of the world which lie behind people's behavior". Fathi (1978) defines culture as the outcome of the interaction between man and his environment in satisfying his needs. Involving culture in studying the patterns and behaviors of a particular society helps us understand how different design concepts are being created by people over time. Hall (1966), for one, has studied human behavior in spaces as a reflection of culture. Based on his participants' observations, Hall explains that people are influenced by culture in their behavior in spaces, and this influences the spaces' physical forms. This is reflected, for example, in the distances that people maintain between each other within spaces.

Through the concept of "behavioral setting," Rapoport (in Kent, 1990) relates culture to both behavior and the physical environment. He used the concept of "behavioral setting" to indicate the milieu, which defines a situation and its rules of guidance appropriate to the setting, and he explained how these settings are also cultural variables. The setting's boundaries, rules, and the temporal qualities, which change according to the user groups and time, vary with culture. Rapoport (1980: 15-

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18)) explains that the behavior setting consists of various components relevant to the setting: vision, spaces, sound, smells, people, activities and functions. He divides the components of the setting into two groups. The first is related to the physical structure of spaces and includes the design components and the rules that govern it. These components present the fixed and semi-fixed elements in the space, thus they are permanent. Rapoport's second group of components is related to the people who use these spaces and their activities. This group includes the use components and the rules that govern it. These components are non-fixed and are subject to change. Also, Rapoport suggests linking culture with physical environment through the concept of needs and values. He suggests studying the needs and values through the activities, which take place in the "system of settings" that have been created for them in the environment. Rapoport divides the activities into four components: the first represents the activity itself; the second represents the way of carrying out the activity; the third deals with the association of the activity with other activities and its combination into activity systems: where it takes place and when and by whom it is carried out; and the fourth component represents the meaning of the activity, which is formed in the minds of users.

Although the concept of behavioral setting allows for analyzing the physical form of space in relation to human behavior, it does not clarify how the setting is influenced by the needs. If by definition the activities are reflections of needs (Rapoport, 1980) and the needs are both basic and specific (Maslow, 1943), then the observed situation will be influenced by both basic and specific needs. For example,

in the case of a woman who is stopping at the entrance of the house and observing the street, the motivation for her stopping is not only the need for observing the street, but also could be related to other specific needs such as a need for privacy or a need for security, or for comfort. In this case, then, the entrance of the house is not only a setting for observing the street, but it could also be a setting for seeking privacy or security or comfort. Therefore, it will be important to involve the needs in defining the setting, so that the settings are studied in relation to their specificity rather than generality. By doing this, planners and architects will be able to provide specific designs for the urban open spaces, rather than standard ones.

Lang (1987) suggests that human needs are met by various mechanisms that are related to the physical form of the setting. In addition, the mechanisms of the needs are not constant but rather respond to the setting and its components. For example, when people cannot achieve their needs through design (physical) components, they will utilize the additional use (social) or rule (cultural) components of the setting. This maintains not only that human needs are interrelated with components of the setting, but also that the components are influenced by each other.

Therefore, it will be important to involve the needs in defining the settings, so that the settings are studied in relation to their specificity rather than generality, and that the relationships between different components of the space are considered. By doing this, planners and architects will be able to provide specific designs for the different spaces in the physical environment, rather than standard ones, and

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to maintain a balance between the physical, social and cultural components of the setting.

Conceptual Model for the Proposed Methodological Approach

The previous theoretical analyses emphasize the need for a comprehensive approach, one which considers together different components (physical, social and cultural) in reading and analyzing physical environments. To achieve this purpose, the physical environment can be considered either as one setting or a system of settings, according to the activities that take place within it and the users who occupy it (based on Rapoport, 1980, 1990 and Lang, 1987). Accordingly, each type of setting is a reflection of the activities that take place within it. Based on the typological, cultural and behavioral studies, three main types of components of any given setting can be identified, as follows:

• Design components (physical components), which include the spaces (where the activities occur), their physical layouts, boundaries, shape, location and objects.

• Use components (social components), which include the activities in the spaces (type and time), in addition to the users of the spaces and the social relations between them.

• Rules components (cultural components), which include both the formal and informal rules that govern the physical form of public spaces. Formal rules include written rules that are concerned with the design and function of the space, such as written signs that govern the use of the space, building codes and regulations. The informal rules include rules that are concerned with people's behavior, such as religion, family and societal restrictions.

Nooraddin (2006) used the concept of behavioral setting, which encompasses all three types of components – design, use and rules, in order to analyze the physical form of the city streets of Oslo, Norway. The methodology of this study, however, did not take into consideration people's needs and how these needs are influenced by the settings' components.

Furthermore, as clarified in the theoretical analyses, human needs consist of physical, social and cultural components that are interrelated with the other components of the setting, as follows:

• Physical spaces are designed to meet human needs.
• Human behavior is motivated by human needs, and activities are reflections of these needs.
• Rules are a composite of needs and values.
This interrelation between the physical environment and human needs allows for investigating these needs in relation to the space's components – design, use and rules, as shown in the developed conceptual model (Fig 1), where the data relevant to a space's design can be grouped into three categories.

Al-Bishawi (2008) tested this methodology in her study about the physical form of open public spaces in relation to women's need for privacy in the city of Nablus, Palestine. She used the developed conceptual model, reflected in both her observations and a questionnaire, in order to investigate privacy and to analyze the physical form of public spaces and the degree to which they allow for women's privacy (privacy settings), in both old and new neighborhoods of Nablus.

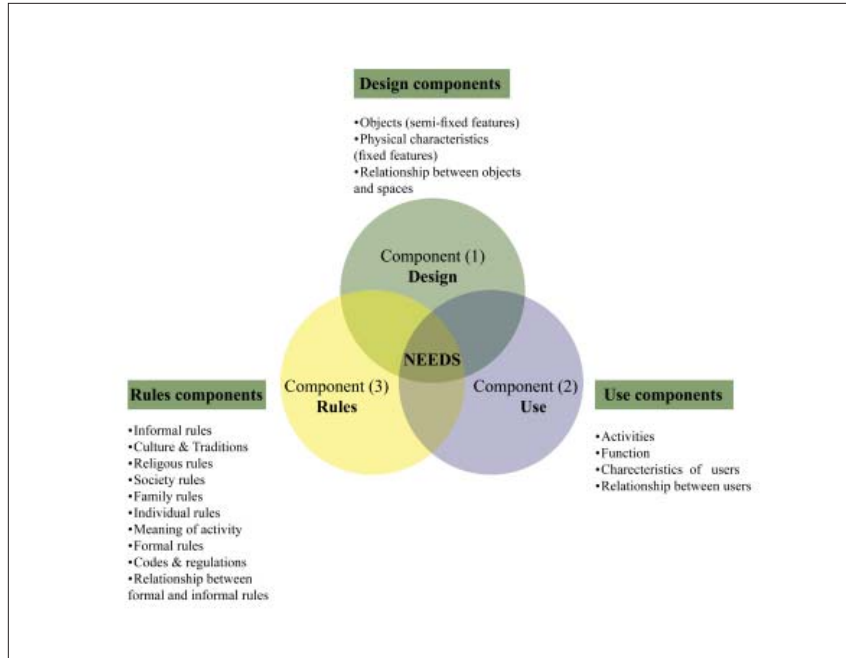MANAL AHMAD AL-BISHAWI AND SHADI SAMI GHADBAN

Figure1: A Conceptual Model   for the Physical Form of the Behavioral Setting (Source: Authors).

The observations were conducted in order to identify women's privacy components and to examine whether and to what degree women's privacy exists as a result of the three component types: design, use or rules (Fig 2). The observations were conducted on the three levels of city, street and public space, in accordance with the components of behavioral setting (design, use and rules). In general, the observations focused on the tangible components while the questionnaire focused on both tangible and intangible components of privacy. In the questionnaire, women were asked about how they assess their feeling of privacy (experienced privacy) and how

they would assess the importance of privacy (attitudes towards privacy components). The results regarding women's experience of privacy showed that the privacy statistical mean for the older neighborhood (58.3) is less than that of the newer neighborhood (61.3) (Table 1.A). Also, the results related to women's attitudes towards privacy components showed that the privacy statistical mean of the old neighborhood (68.3) is higher than in the new neighborhood (65.1) (Table 1. B). In other words, these results gave the same indication, i.e. that the privacy need for women in the old neighborhood is higher than the privacy need for women in the new neighborhood, which supports the validity of

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the method. The results also showed that there is a significant relationship between privacy and neighborhood (Table 1), which indicates that women's need for privacy is influenced by the physical form of open public spaces. In other words, the privacy components are interrelated with the components of the setting. This result also indicates that the need for privacy is important within the society of Nablus.

2.a.

2.b.

2.c.

Figure 2: Examples Showing the application of the Proposed Conceptual Model in the Observation Conducted by the Authors (Source: Authors).

In addition, the results showed that there is a high positive correlation between privacy and its components and between the components themselves, indicating that all the components are relevant to women's privacy and are influenced by each other (Table 2). This point was supported by the results of the observations, which showed that achieving privacy through use components encourages women's adaptation, and causes change in design, behavior or values. On the other hand, meeting privacy needs through design components allows for desirable (comfortable) interaction and preserves cultural continuity. Finally, achieving privacy through rules components restricts the use of the space and does not maintain the continuity of the architecture. Accordingly, this helped in providing suggestions for the design and development of open public spaces which support women's privacy and encourage women's use of these spaces in Nablus.

The conceptual model suggests that human needs should be factored in and studied through the setting components. This allows for investigating the relationships between human need and the components of the setting and between the components themselves, toward the goal of providing physical environments and urban open spaces that comply with present human needs and values. Moreover, structuring the components of the setting as in this model (main and sub-main components) makes the model flexible and allows for changes in the sub-components according to the context, which is under study. However, factoring the needs into components may cause some limitations. In particular, human needs are not fixed but are subject to change. Therefore, individuals may have perspectives differing

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from the standard (scholars') understanding about their various needs. To ensure the validity of the suggested model, it is necessary to use this model in the methods of both observation and interview. Using the model in connection with observation is important for covering the tangible components of human needs, particularly as these components are related to the physical environment, which is the main focus of this paper. Using the model in the interview method is also important, in order to cover the intangible components of the needs, particularly those related to social factors (the individuals' social and educational status, age, etc.).

Neighborhood	No.	Mean	Standard deviation	Degrees of freedom	T- Value	Sig
Old	100	58.3	7.46	198	2.46	0.036*
New	100	61.3	7.14			

* sig at (α = 0.05)

A: T-test results regarding the differences in women's experienced privacy in old and new neighborhoods.

Old	100	68.3	10.89	198	2.52	0.026*
New	100	65.1	14.46			

* sig at (α = 0.05)

B: T-test results regarding women's attitudes towards privacy components in old and new neighborhoods

Settings' component	Design	Rules	Use	Privacy
Design	-------	0.979**	0.971**	0.934*
Rules	-------	-------	0.954*	0.935*
Use	-------	-------	-------	0.989*

** significant level at 0.01

* significant level at 0.05

Table 1: Examining Privacy Need for Women in Old and New Neighborhoods of Nablus, Palestine. (Source: Authors).

Conclusions

This paper provides a comprehensive approach for analyzing and reading urban open space

in relation to human needs, taking into consideration all the components of the space (social, cultural and physical components) and the relationships between these components. The theory developed in this paper builds on this particular configuration of factors and investigates it in relation to the components of the setting. The relationships between the components can be summarized as shown in (Fig 3).
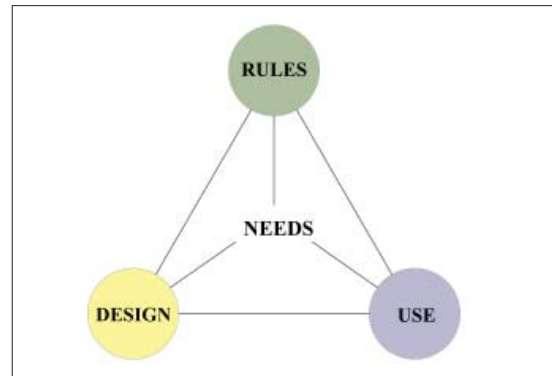

Figure 3: A Conceptual Drawing Showing the Developed Theory for the Relationship Between Human Needs and Components of the Setting (Source: Authors).

The relationship between DESIGN and RULES is the first half of what architects and planners need to know, that is, how design meets the requirements of the rules. The relationship between DESIGN and USE, then, represents the other half of what architects and planners need to realize, that is, how design makes possible appropriate and convenient use. The third leg of the triangle, the relationship between RUES and USE also needs to be considered, although this is a research area more appropriate to sociologists

and anthropologists. Rules are interpreted in practice, and also get re-interpreted over time. Nor do all individuals behave the same way at any given time, and how they behave depends on their values, which in turn are influenced by social status. Therefore, architects and planners need to be aware of current trends, and new research needs to be done regularly, as contributions to the ongoing development of discourse within urban design.

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