GU J Sci, Part B, 5(3): 1-12 (2017)

Gazi University

Journal of Science

PART B: ART, HUMANITIES, DESIGN AND PLANNING

http://dergipark.gov.tr/gujsb

Determining The Affordances Provided by Urban Open Spaces to Different Age Groups

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Article Info

Received: 02/05/2017
Revised: 08/08/2017
Accepted: 16/08/2017

Keywords

Urban Open Areas,
User,
Spatial affordances,
Objective affordances,
Subjective affordances.

Abstract

This study evaluates the concept of affordances that constitute an environmental initiative in urban settings, which provide open spaces for people of all ages. The affordances are evaluated in two ways: objective and subjective affordances. The objective affordances address the potential possibilities of the spatial components that depend on the predicted and planned activity for users. However, subjective affordances are the unplanned affordances explored through users' creativity and skills. Depending on the classification, the affordances of open urban spaces in Trabzon city center are examined in terms of its benefits to different age groups. The results have shown that the perception and evaluation of the affordances are different among age groups.

1. INTRODUCTION

The character of a city is viewed in terms of its compactness, fullness, completeness, and emptiness, as well as its relations with other cities and [1]. At outdoor places where people have free access [2,3], urban open spaces that provide integrity in the city are the spaces where people experience good faith, share ideas and carry out commercial activities or simply rest or entertain [4]. Urban open spaces are the urban components that have great importance in daily lives of people who live in the cities [5]. The number of people who use these spaces indicates the level of value accord to these urban open spaces because of the various functions provided for people [6]. An effective understanding of these functions enable the stakeholders to devise the strategies to manage the urban spaces in a better way by improving the activities of the existing urban spaces, as well as improving the design of new urban spaces. The functions can be explained based on the explanation in each of the following categories:

Environmental and ecological functions: Climatic improvements, reducing noise affecting hydrologic cycle, and providing habitats for wild plants and animals.

Social and societal functions: Providing space and opportunities for recreations, facilitating social contact and communication, improving the spirit of being a society, reaching and experiencing nature, physical and psychological health effects for people.

Structural and aesthetical functions: Defining and binding the urban texture, improving the reachability of places in the city, forming the sense of space and increasing the city image.

In this context, this study will focus on the social and societal functions of urban open spaces providing argument on the way the facilities of urban open spaces provide opportunities and activities for the users, as well the way urban spaces enrich social life of people. If cities have well-designed open spaces, they will make their citizens have a strong sense of being in a society because urban open spaces enrich societal life by bringing people from all ages and classes together. Moreover, these spaces make people

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develop the ideas of being part of the society by enabling them communicating with one another. This is extremely important for both the individuals and the wellness of social system [7].

The success of urban open spaces depends on their ability to provide avenues for social interactions for people, attracting people to use the existing activities, providing broad opportunities to people, either individuals or groups, being suitable for recreation, not being discriminative, but democratic and being accessible for people of all ages and classes [3, 8-11]. Successful urban open spaces should transfer the unplanned and spontaneous activities to the city and should be the attractive open spaces. The spaces should allow people to have a view of other people and the events passing by. Moreover, these spaces should be able to inspire people to watch and attend activities at a closer range, and these will influence them staying there much longer. Spatial features of the urban open spaces may be enabled through opportunities and activities they deliver to various users. Gehl (2010) categorized the activities of urban open spaces into three groups according to users' level of needs [4]:

Necessary activities: These are the activities that people can provide for themselves: Example of these activities, are going to work or school, waiting for buses, procuring goods for the customers, etc. These activities are done under any circumstances.

Optional activities: These are the activities that people may like, such as substantially recreational activities. The examples of these activities are walking or moving around, sitting to enjoy the scene, standing to watch the scene, enjoying a good weather, etc. These activities are done under suitable outdoor conditions or when the weather and space invite people to do so. These activities are generally related to the opportunities the outdoor spaces provide for users. However, the scopes and characteristics of these opportunities can be determined through a design decision. The result makes the urban open spaces not only allow people to walk, but they also allow people to take part in the city life in an active way.

Social activities: The social activities are done depending on the existence and non-existence of necessary and optional activities. Typically, social activities involve all activities created through social sharing and engagements that include greetings, chatting and passive communications, such as watching events and chatting with people. If the city life is enforced to provide these activities, then the preconditions are created to empower all kinds of these social activities. If there are life and activities in urban open spaces, there will a large number of social interactions. However, if urban open spaces are isolated and empty, there will be no socialization.

In an urban open space, the designers are required to integrate the optional activities in the open spaces, and include opportunities to be able to attract people from all ages and different ethnic groups. While the open spaces create an atmosphere of lively activities, the spaces also provide a variety of opportunities for a safer, and more preferably attractive avenues for more options social activities [12]. Therefore, it is very important to design urban open spaces that provide liveliness through various activities to different users to be able to deliver a high level of useful benefits. When urban open spaces do not function well, they lose all their benefits and values and turn into non-beneficial spaces.

In summary, when the quality of open spaces is inadequate, only necessary activities can be done. When the adequate opportunities are met for the spaces, they become frequently visited spaces with a long useful benefit. Moreover, the features that space provides for the users may go beyond what the designer has planned. The aims of this study are to determine the spatial affordances that urban open spaces provide for users of different age groups and the theoretical framework of the study is based on the concept of "affordance".

2. THEORETICAL FRAMEWORK

2.1. Affordances Theory

Gibson proposed the concept of affordance using the framework of "ecological perception" defining the purpose of perception as perceiving affordances. In other words, Gibson believes that, "seeing something is to see what can be done with that thing" [13]. The affordances that the environment provides are defined as "preconditions for the activities". For example, an environment is experiential affordances that

provide harmony, features and conditions perceived by an individual [14]. Typically, each environmental feature provides potential activities to individuals. In this context, affordances are the potentials, and if the environmental features are compatible with the features of the individuals or support they receive, they perceive these features as affordances [15]. In other words, affordances are the opportunities and threats, which all physical, social and psychological features are present for people. These are perceived to happen when different characteristics of the individual, such as physical aspects or the skills, social needs and personal aims are compatible with the environmental features [16]. However, individuals do not generally perceive all affordances as environmentally sustainable; they only perceive the affordances that are functional and suitable for them [17]. Moreover**,** environmental features are likely to be viewed as other affordances based on their different functions, which depend on the features and needs of the individuals [18].When evaluated within this context, it is revealed that the spatial components and elements in urban open spaces should have various features and significant. In consideration of the variety of features and the needs of open space for users, the features that open spaces offer vary. Consequently, individuals are likely to evaluate spatial features that are compatible with their features and meet their expectations.

Thus, the study summarizes individuals' need of the affordances in their environments in two ways:

1. Based on needs (using spatial components compatible with their affordances).

2. Based on personal features (physical features, social and emotional needs, cultural structure, creativity, and skills).

Figure 1. *Objective-subjective affordances: an accessory for an Individual*

Within this context, and in the scope of this study, the affordances of urban open spaces for people of all ages are evaluated in two ways: objective affordances and subjective affordances. Objective affordances are the potential possibilities created by the space components, which the designer brings to the environment for the activities designed for the users. Subjective affordances are the ones that are formed together with users' creativity and skills to use for the spatial components. For instance, a designer designs the banks for the users to carrying out other activities (Fig. 1). This is objective affordance. Typically, by combining their creativity, skills and needs, the stakeholders can provide essential recreation needs for people. For example, children can use these banks to stand, balance or jump over them. If the users are adults, they can stand on the bank to widen their sight (Fig. 2).

This discussion addresses the subjective affordances within the scope of this study

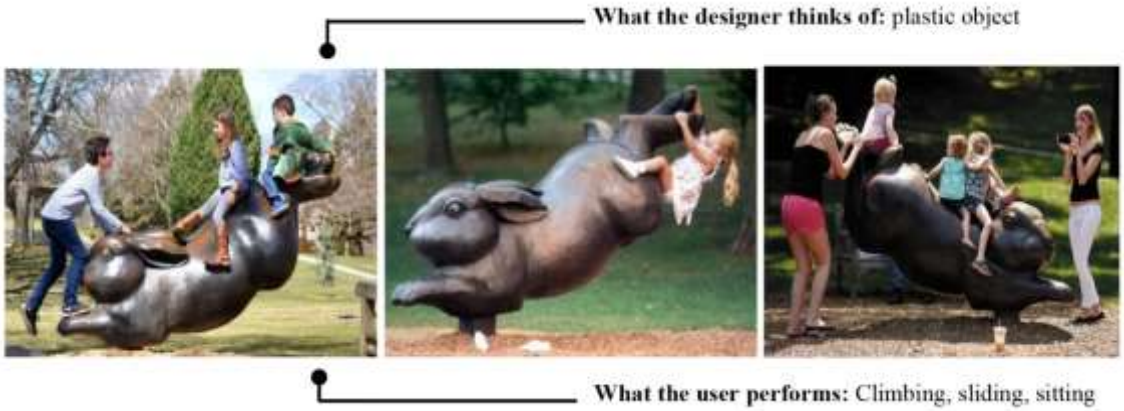

Figure 2. *Sample uses of objective-subjective affordances in Wilcox Park*

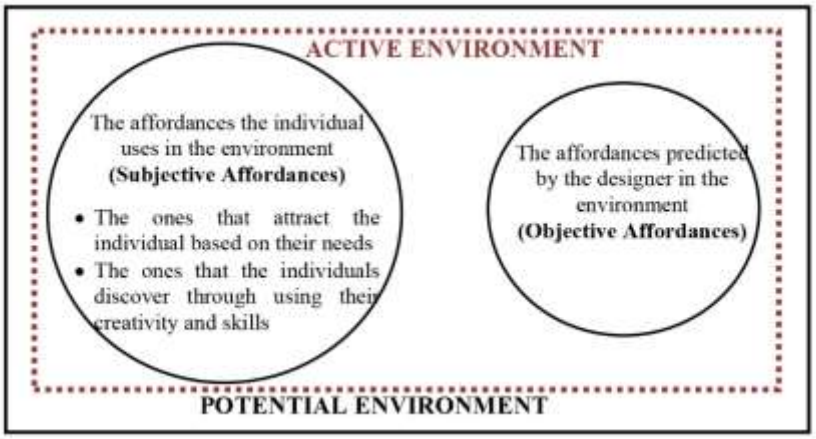

Figure 3. *Relationship between the affordances the environment provides for the individual and the environment*

Lang (1994) discusses the affordances that the environment provides related to individual's environmental experience [19]. However, the author provides a different perspective from the perspective of environmental designers by examining the concept of affordance in terms of specifically designed environments. Lang (1987) suggests that individuals can change the affordances that designed environments provide them in a way suitable for their desired activities. Lang identifies series of affordances that an environment provides, which is in form of potential environmental activities for individuals and aesthetics, which can have the ability to attract people's attentions, which are meaningful for them in their active environment [20]. Within this context, objective affordances are the affordances that the designer predicted for the individuals in the potential environment, whereas subjective affordances include individuals' creativity and exhibiting their characteristics for the use of affordances in their environment (Fig. 3). Thus, individuals can form the active environments by choosing the attractive and meaningful affordances and the ones they discover relating to their creativity from the potential environment. Considering this, the categorization of affordances in the scope of this study is different from Lang's (1987) argument on the environment [20].

2.2. Evaluations of Urban Open Spaces by Different Age Groups in terms of Objective and Subjective Affordances

For the objective and subjective affordances, it is revealed that the environment can be more comprehensible. Moreover, it is shown that the use of existent urban open areas has been evaluated

through these concepts. While these concepts are enabled to become more concrete, the type of affordances that the environment provides is different based on age levels.

In this study, objective affordances are considered to be related, especially to the frequency of the optional activities that the designer provides to the user in the urban open spaces. For a space to be a center of attraction for optional activities, it should include affordances other than the necessary ones. The low use of optional activities in a space is based on its inadequate social and physical quality. Increasing the quality of this urban open spaces will increase the number of possible optional activities (people's spending time together, standing, sitting, chatting or just having visual relations etc.), and creating subjective affordances opportunities for the people in the spaces to make the objective affordances to be rich (Fig. 4). However, people sometimes create affordances for themselves for the activities when there are no adequate objective affordances and spaces that can meet their expectations. Within the scope of this study, urban open spaces designed by the designers, which include objective affordances have been evaluated. Therefore, the statement "if there are no objective affordances in a space or if they are not adequate, it is difficult for the subjective affordances to appear" and has been the presupposition of this study needed for evaluation.

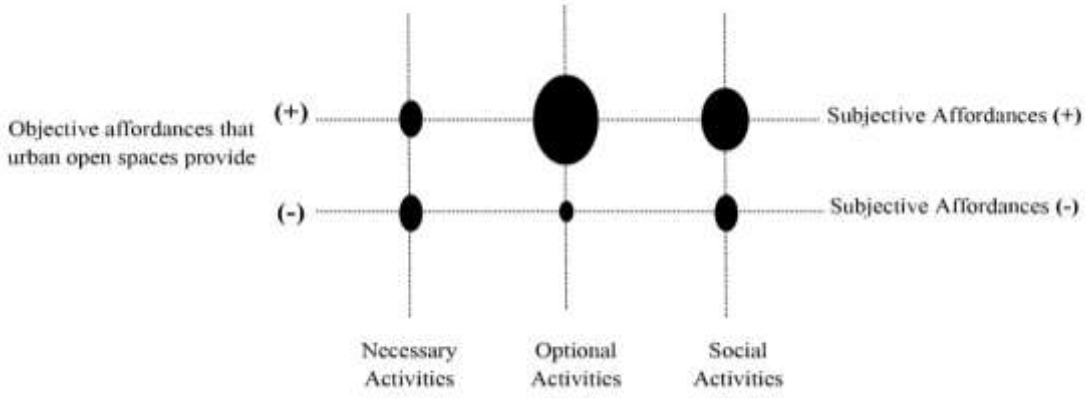

Figure 4. *Relationship between affordances and activities that urban open spaces provide (adapted from Gehl, 2010)*

2.3. Methodology

The study develops the conceptual frameworks related to the affordances (objective-subjective affordances) in urban open spaces through random observation technique and the schemas. The study uses the Trabzon city as the study location. Essentially, behavior observations are developed in the urban open spaces located at Trabzon city center, which include various affordances designed for users. Thus, subjective affordances are developed depending on users' creativity and skills by considering the existing affordances. Urban spaces are observed on the weekdays and weekend. Moreover, observations are conducted at different times of day on users of all ages.

Observations conducted in urban open spaces in Trabzon have been transferred to the table as data considering user's age range (children, adolescents and adults), the activities they are doing and the spatial component of their activities. These data have been evaluated in two stages: In the first stage, the activities are done by different age groups and the spatial features that enable those activities to be determined. In the second stage, objective and subjective affordances from the features of spatial components and their elements have been analyzed in detailed, as well as schematized.

Stage I: The activities and spatial components that objective-subjective affordances in urban open spaces for different age groups

The stairs, banks, shading elements, water elements, grass surfaces, firm grounds, plants and animals in urban open spaces provide various affordances for users. As shown in Table 1, the varieties of affordances, such as spaces, components and elements are likely to create various activities for users of different age levels in terms of meeting different features and expectations. For example, a bank designed

by a designer for sitting activity can be turned into an accessory that children use for sliding and climbing. It can also be used by young children to listen to music and a resting place for an adult. In the open spaces, spatial components and their possible objective affordances provide different features in accordance with the creativity and the needs of different age levels. Thus, these are the plans for a designer to provide subjective affordances to the users (Fig. 5). However, the young children perceived the usefulness of affordances from spatial components (subjective affordances). It is essential to realize that the kids have been identified as the most creative individuals regarding using of the environments. It has been observed that they use the stairs and parapets to jump; the waterside to stand on balance; the running water to float paper ships; the trees to climb and their branches to hang; and using the field plastic and the rocks to hide.

It has also been observed that young children are very successful in creating subjective affordances from spatial components in their environments. They use the amphitheater for marriage proposals, the grass to dance, to listen to the lesson, to play with balls, to cycle; the plant-covered wall as a background for taking photos and the shading element to celebrate birthdays. However, it has been observed that adults use the spatial components in urban open spaces as they believe should be used by the designers. For example, they use the running water to watch and listen, the banks to sit and read newspapers. In this sense, they create limited subjective affordances from existed spatial components. The illustration shows that they use the sitting stairs to sleep making use of this as they think fit.

Table 1. *Objective and subjective affordances that urban open spaces provide*

	Space Component	**Objective affordances**	**Subjective affordances**
Children	Bank	Sitting-watching	Sliding, climbing
	Stair	Circulation	Playing, jumping
	Waterside	Bounding	Standing in balance
	Fountain	Drinking water, cleansing	Playing with water
	Pool	Watching, listening to the sound of water	Playing with water, touching, curiosity-discovery (throwing ball to the water and trying to get it back etc.)
	Running water	Watching, listening to the sound of water, watching animals	Jumping, playing hopscotch, throwing stones, floating leaf-paper ship, touching – patting and feeding animals, imitating animals, getting to know natural life
	Flat firm ground - ramp	Walking	Using bicycles, Cycling acrobatically, playing with balls
	Trees	Providing fullness – emptiness balance, shading, forming space	Climbing, hanging from the branches, playing with leaves
	Flat and sloping grass	Resting, sitting, watching Providing fullness – emptiness balance	Playing with balls, tumbling, hiding
	Grass hills and rocks	Forming boundaries, splitting spaces from each other	Hiding, climbing
	Parapet	Bounding, separator	Standing in balance, jumping
	Plastic object	Aesthetic, Emphasis, meaningful (respect, citizenship honor, identity)	Climbing, standing in balance, sitting
Adolescents	Amphitheater	Sitting, watching, reading books, performing ceremonies, celebrating	Marriage proposal
	Shading element-table- grass area	Eating-drinking, studying, chatting	Celebrating birthdays
	Sitting stairs, grass area	Eating-drinking, reading books, chatting, watching the environment, having a picnic	Making and listening to music, lying
	Bank	Sitting, watching, eating-drinking, reading books, chatting	Romance, making and listening to music
	Flat firm ground - ramp	Walking, walking animals	Skating –skateboarding, cycling
	Flat grass	Listening, sitting, watching, Providing fullness–emptiness balance	Dancing, acrobatical movements, celebrating birthdays, parachuting, playing with animals, playing with balls, having barbecue, lying-sleeping, lecturing-listening
	Upside of the wall	Bounding	Exhibiting, selling, lying, sunbathing, making-listening to music

	Pool	Watching, listening to the sound of water	Taking photos, sitting-lying-watching around along the waterside
	Plant-covered wall	Bounding	Taking photos
	Trees	Providing fullness–emptiness balance, shading, forming space	Leaning, taking photos
	Parapet	Bounding, separator	Sitting
	Plastic object	Aesthetic, Emphasis, meaningful (respect, citizenship honor, identity)	Taking photos, sitting
Adults	Pool and water jet	Watching, listening to the sound of the water	Taking photos
	Sitting stairs	Sitting, watching, chatting, reading newspapers	Sleeping
	Bank	Sitting, watching, chatting, reading newspapers	Romance, lying
	Shading element	Sitting, watching, eating-drinking	Having barbecue- a picnic
	Running water	Watching, listening to the sound of the water	Sitting
	Wide firm ground	Gathering, performing ceremonies	---
	Upside of the wall	Bounding	Exhibiting, selling, reading newspapers, watching people and the landscape

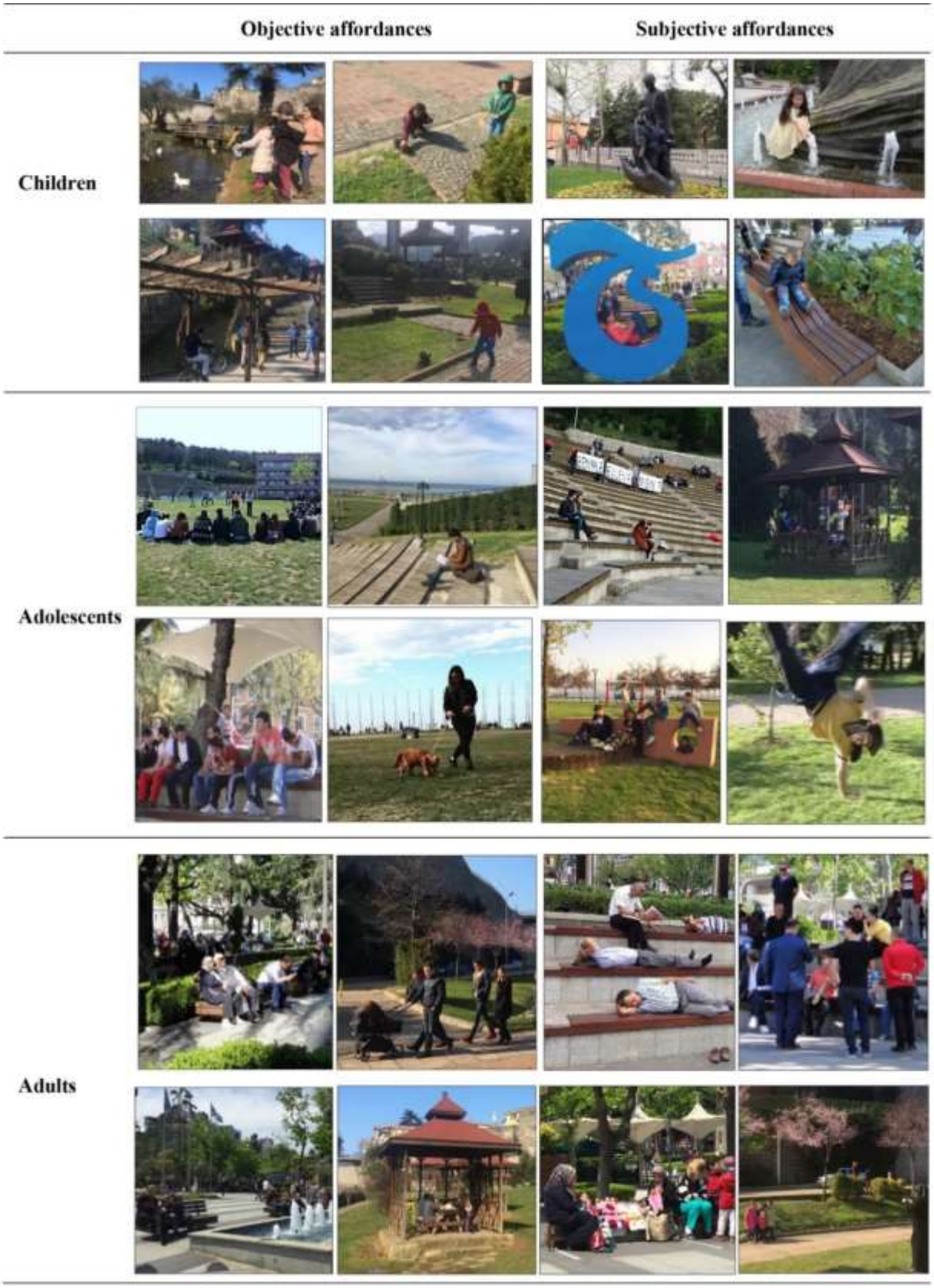

Figure 5. *Different users in urban open spaces and samples related to activities*

Stage II: Through schemas, the analysis of objective and subjective affordances that spatial components and elements in urban open spaces provide

This is the subjective affordances that the users have created by making use of the features of the spatial components and elements in urban open spaces. This is also the objective affordances that the users have predicted using the components and elements that have been analyzed on schemas (Fig. 6).

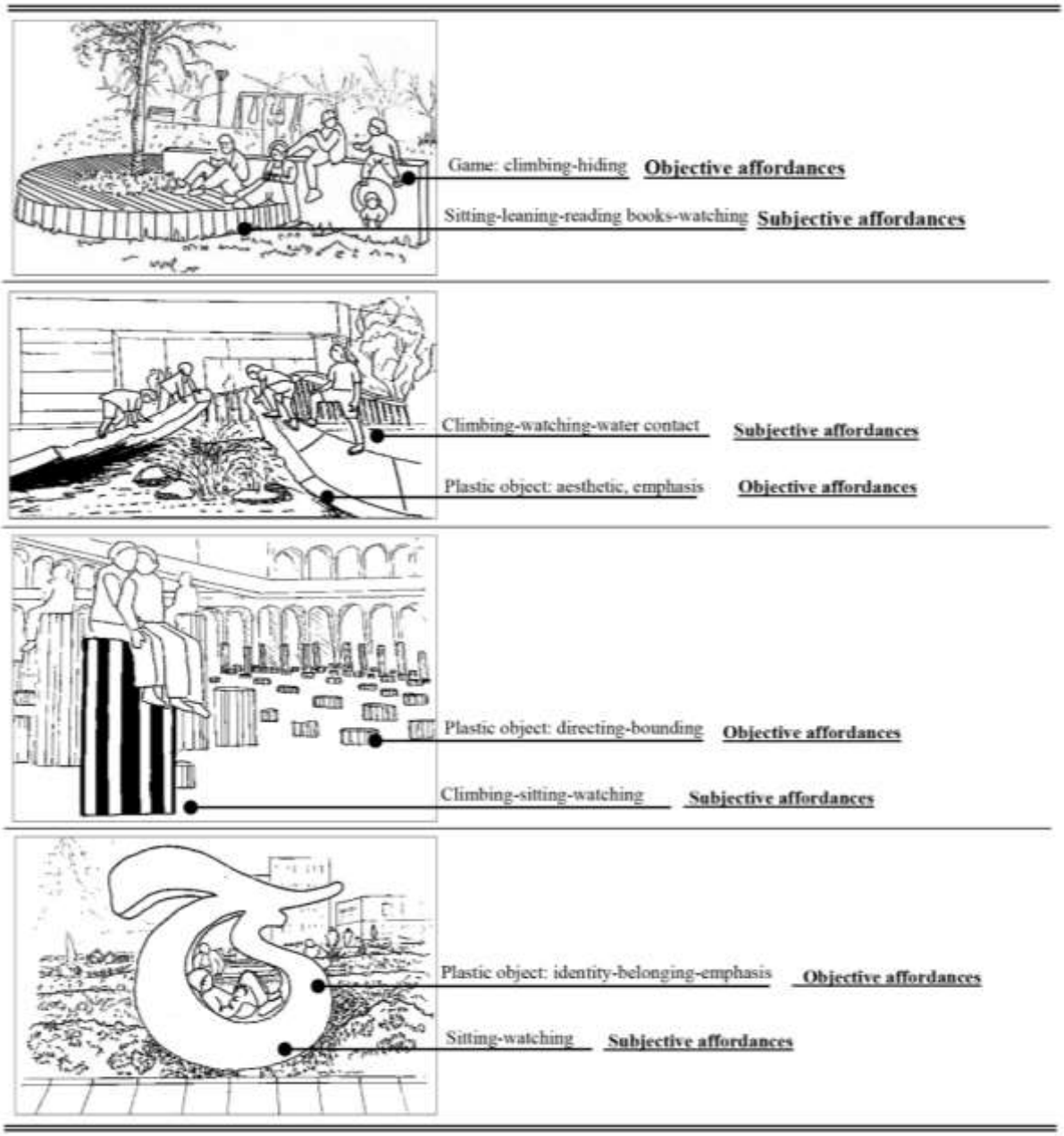

Figure 6. *Analysis based on objective-subjective affordances in urban open spaces*

By using their creativity and skills, kids develop subjective affordances related to games and contact with nature (feeding animals, touching animals, playing with the branches and leaves of the plants); related to socialization (spending time with friends, making friends, and playing with a group) and their personal development (being active, showing and improving their abilities, actualizing- showing themselves, and improving their general culture). However, adults generally use spatial components for the affordances that the designers have predicted for them. It has been examined that adults do not show their skills in

creating subjective affordances from spatial components as much as the kids and young do. This can be explained by the fact that individuals stick more to the societal norms as they are getting older and their acting is based on their experiences, as well as their ability to evaluate the spatial components in urban open spaces according to the affordances they provide.

However, kids and the young children interpret the environments as functional and they think about the spatial components of the environment, and activities using them in enriching their level of creativity. Thus, they create affordances for themselves without a regard for the societal norms. Therefore, they create richer subjective affordances from the environment more than the adults do.

In overall, when the results are evaluated, it is revealed that while adults perceive their environments as affordances as they exist, the kids and young interpret the environment beyond this. They interpret the environment with regard to their personal needs, creativity and functional skills. This can be explained based on their perception of affordances indicating their individual's level of development, tastes [21] and skills. As a result, the affordances perceived by the individuals in the environment in a specific life time may not be perceived in the following years and these affordances may change making them demanding for new affordances based on the individual's level of maturity and development [22].

3. RESULTS

Urban open spaces are more preferred compared to other spaces that provide various activities for individuals [23, 24]. In this sense, urban open areas that are satisfactory for the individuals may be considered for the people because they provide satisfactions and harmony for people's needs and aims [25, 26]. Therefore, satisfactory urban open spaces are the places that consist of components that can be interpreted by the users for satisfying their needs and aims where these affordances vary based on individuals interpretation of their environments. Nevertheless, for an individual to interpret their environment, factors, such as personal features and age are considered for their needs. Within this context, if the designers plan the variety of spatial components in urban open spaces, they can create rich objective affordances to the users. When a variety of affordances of the environment is combined with the creativity and the skills of the users, cities with urban open spaces are rich in subjective affordances. Especially, when kids and the young children enrich their lives in urban open spaces through various subjective affordances, they can make use of spatial components in their environments. However, adults can do the same by making use of the activities planned for them by the designers. Consequently, urban open spaces that include objective and subjective affordances for the users from all age levels become the spaces that are satisfactory and preferred by the citizens. Moreover, the different belief of making use of the affordances of different age group varies in urban open spaces. Therefore, when suitable spaces are created for different age groups, users' relationship with the environment increases, their socializing opportunities increase because they are able to spend their time in spaces that have affordances to enable them to be part of the society. As a result, designers should create urban open spaces that are not isolated, which have the capacity to improve urban life and life of the citizens.

CONFLICT OF INTEREST

No conflict of interest was declared by the authors

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