

How the physical characteristics may affect the social life of streets in Athens, Greece?

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Abstract

The urban space is characterized by specific qualities that may contribute to, or mitigate the social life. These qualities were described by James Gibson as “environmental affordances”. According to that theoretical perspective, urban designers and environmental psychologists should focus on the physical features of a space in order to understand and explain the way in which it functions and the degree to which is sociable. For the scholars of road networks, this approach is particularly useful because streets shape the platform for a wide range of social interactions and experiences. Streets are by definition social spaces, which not operate always efficiently because of their form and their particular characteristics. This is one of the primary reasons why it is stated in the literature that public space is now declined and as a result it needs to recover its old glamorous prestige and importance. In the light of the above, the specific research as primarily qualitative, is focused on studies of the urban form of the Athenian streets and proposes a typology for them considering some key physical characteristics which affect with a specific way the embedded social life. Finally, an attempt is made to generalize the effects of the specific physical characteristics to the socialization of urban spaces.

Keywords: environmental affordances, sociable streets, streets classification, street behavior, Athens.

Introduction

Open public urban spaces are considered the type of focal areas of interest for urban centers, throughout time. Indeed, their course is longitudinal (Rubenstein, 1992) and consist of places for socio-economic, political and religious expression (Classen, 2009). Expression of people was to a large extent, the basis for the organization of cities historically. On this basis, subject of this study was the understanding the parameters that affect human behavior, additionally to studies performed by psychologists and social scientists, space designers and the professionals on the field of environmental psychology.

This specific research paper falls under the correspondin field and focuses on the understanding of the design and operation of streets in Athens, Greece, in the light of the theory of environmental affordances. An attempt is made to address the scientific research question as follows: how the physical characteristics may affect the streets of social life in Athens, Greece? To explore that question qualitative methodological tools (Section 3) are used, following the understanding of the concept of environmental affordances, as described in section 2. Section 4 attempts to study some representative streets of social life Athens, in view of their characteristics, and generalization of the findings in Athenian streets. These roads are both city center as well as neighborhoods roads. This is quite significant because neighborhoods roads have not been particularly studied, as underlined by Mahmoudi Farahani, et.al. (2015). The same authors underline that the large volume of the literature refers to the city centers and as a result the examination of neighborhoods is neglected. It is also important that the issue is being considered in a broad context and not isolating specific variables, something that Van Nguyen and Thi YingHan (2017) have found in literature review when they studied social life of the streets of Vietnam. Finally, the resulting conclusions (Section 5) aimed at understanding the degree of sociability of the streets of the Greek capital and the association with the feeling that exists on the specific open public urban spaces.

Theory of Environmental Affordances

As it was aforementioned, this research lies within the scientific area of environmental psychology that, from the 2nd half of the 20th century (Clayton and Saunders, 2012; Cassidy, 1997), studies the relationship of the environment and human behaviour (Scholz, 2011). During this time period hundreds of studies have been conducted with the scope of understanding the needs of people and their behavior, approaching the issue under different perspectives, achieving to form different theoretical concepts, most important of which are (Moser and Uzzell, 2003): determinism, interactionism and transactionism. This specific research for the study of human behavior and the response of the latter in its environment is part of the transactionism theory and the research object is accessed with the environmental affordances theory.

Under this theory, any human behavior relates, in accordance with the possibilities offered by the space on every user, each time. In accordance with Tillas, et.al. (2017), who referred to the research work of Turvey, the environmental affordances are a "real chance" for the event of an action. Indeed, the various features of the site can support or constrain behaviors, without meaning that their existence anticipate their emerging (Gibson, 1979). Characteristic is the example that is demonstrated by Gaver (1996), who expects that the number of moving individuals on space located at a higher altitude level from another is less because of the height difference.

For the better understanding of environmental affordances, Fallah and Fallah (2015) propose their classification in particular categories according to specific criteria, as applicable. It happens for some environmental affordance to belong to more than one category, depending on the criteria utilized each case. In this work the environmental affordances initially categorized according to the benefit of the user, in positive and negative affordances, and subsequently with the corresponding criterion of the behavior actor, functional and social affordances. It is worth noting that the categorization was not examined, in the light of the latter criterion, in cognitive and emotional affordances.

Methodology

To answer the research question, specific roads in Athens were chosen, both in city centre and in neighborhoods. These roads were the study areas. Main subject for the road selection was the criterion of being representative examples of the average Athenian Street. As happens in most Greek cities, the intersection of the roads, on average, hovering at 8 meters without islet, with sidewalks to be of small width and numerous vehicles to be parked on either side of the lane. However, because it was desirable to determine the extent that the physical characteristics of the road affect social life, three examples of roads were selected based on the type of road, for three main types of road: traffic calming, dual circulation without islet and dual circulation with islet in the centre. Reason for opting for 3 streets per road type was to confirm the conclusions up to a certain point and avoid deriving frivolous generalizations. Given the fact that the research focuses on the physical characteristics of the design, selection of the roads was based on the combination of land uses that characterize them. Respectively, regarding the traffic characteristics, choice of the roads was based on distance varying approximately 200-300m from track in order to avoid extracting incorrect conclusions associated with traffic from and to the specific stations of public transportation.

Then, recording of the environmental affordances for every street took place and they were grouped on the basis of two criteria: the benefit of the user and the corresponding behavior of the actor. Based on the affordances, it was attempted to grasp a deeper understanding of the observed social life in every way. For the understanding of occurred behaviors, observations were made on the study streets during the summer of 2017. Remarks were made on a systematic manner during the day, in proportion to the respective investigation (Mehta, 2013; Kyriakidis, 2016) and aimed at understanding and recording behaviors (Jorgensen, 1989; Mehta, 2009; Ranjit, 2011) for road users. Furthermore, taking photo samples contributed positively to information recording. Tabulation was also used in order for the data to be presented in an easy readable way (Kyriakidis, et.al., 2017).



Figure 1. Nine streets studied in Athens. Source: Google Maps and Own Elaboration.

Case Studies: Nine Athenian streets

Case studies choice and description of the main environmental affordances

The streets that were chosen are presented in Picture 1. In the category of dual circulation roads with an islet at the centre of the road, Thiseos Avenue in Kallithea, Stratachi Papagou Avenue in Zografou and Piraeus Avenue in the centre of Athens were chosen. In the category of dual circulation roads with a typical width of pavements (taking into account the existing situation in Greece), Agiou Dimitriou Str. in Agios Dimitrio, Kypseli Str. in Kypseli and El. Venizelos Str. in Nea Ionia were chosen. Finally, in the category of traffic calming streets, Agiou Alexandrou Str. in Faliro, Thoukididou Str. in Allimos and Kassaveti Str. in Kifisia were finally selected.

For these roads, the physical characteristics that are the main environmental affordances were recorded. Table 1 presents these physical characteristics by road and by category, depending on the criterion used, where appropriate.

	Affordances	Categorization	This side Ave.	Papagou Ave.	Piraeus Ave.	Agiou Dimitriou Str.	Kypseli Str.	El. Venizelou Str.	Agiou Alexandrou Str.	Thoukididou Str.	Kassaviti Str.
Pavement	Width of the pavement	Small	N-PH	+	+	+	+	+	+	+	+
		Satisfactory/big	P-S	+	+	+	+	+	+	+	+
	Corner of the pavement	Same as in the rest of the pavement	N-PH	+	+	+	+	+	+	+	+
		Widened (or large as in the rest of the pavement)	P-S	+	+	+	+	+	+	+	+
	Delimitation of the pavement and the main part of the road	Guardrails	P-PH	+	+	+	+	+	+	+	+
		Small columns	P-PH	+	+	+	+	+	+	+	+
		No delimitation	N*-S	+	+	+	+	+	+	+	+
	Ramps in the corner of the pavements		P-PH	+	+	-	+	+	+	+	+
	Green spaces	Trees and flower beds	P-PH	+	+	+	+	+	+	+	+
		Trees	P-S	+	+	+	+	+	+	+	+
		No green spaces	N-PH*	+	+	+	+	+	+	+	+
	Bus stops	Marking	N-PH*	+	+	+	+	+	+	+	+
		Sunshade and benches	P-S	+	+	+	+	+	+	+	+
	Benches along the pavement (benches on the bus stops are excluded)		P-S	+	-	-	-	-	+	+	+
Privatized spaces with tables and seats (extension of cafes)	Delineated space with sunshade	P*-S	+	+	+	+	+	+	+	+	
	No delineated space in the sunshade	N*-S	+	+	+	+	+	+	+	+	
Small stalls in the pavement		N*-PH*	+	-	-	+	-	+	-	-	
Bicycle track		P-S	-	-	-	-	-	-	-	+	
Vehicle space	Separating islet	With guard rail	P*-PH	+	+	+	-	-	-	-	-
		With no guard rail	N*-S*	+	+	+	-	-	-	-	-
	Zebra crossings	Close to traffic lights	P-PH	+	+	+	+	+	+	+	+
		Not related to traffic lights	P-S	+	+	+	+	+	+	+	+
	Parking	Prohibition	P-S	+	+	+	+	+	+	+	+
		Delineated parking spaces	P-S	-	-	+	+	+	-	+	+
Organized bucket placement		P*-PH	+	+	-	+	+	+	+	+	
Buildings facing the street	Height of the buildings	Small	P-S	+	+	+	+	+	+	+	
		High	N*-S	+	+	+	+	+	+	+	
	Set-backs resulting from the facades of the buildings or the staircases		P*-S	+	+	+	-	-	+	+	
	One side street arcades		P-S	-	-	-	-	+	-	-	
Shop window	Small	P-S	+	+	+	+	+	+	+	+	
	Large	P-PH	+	+	+	+	+	+	+	+	

P*/N*: potentially negative or positive affordances; Ph*/S*: potentially physical or social affordances
 * Although there are no zebra crossings, the form of the street is like there are zebra crossings. Almost everywhere along the street [?]

Table 1. Main environmental affordances in the 9 study streets categorized according specific criteria. Source: Own Elaboration.

Looking at Table 1, it is clear that all of the roads studied are largely (79%) characterized by positive or potentially positive affordances. Most positive affordances were recorded in the case of traffic calming streets, while the fewest in the dual circulation roads with an islet. But even in the case of the latter, positive or potentially positive affordances (63%) outweighed the negative or potentially negative (37%) condemning that these streets tend to provide positive benefits to users, with a greater benefit to that of security. Of these streets, Thiseos Avenue is the one with most positive affordances, while Piraeus with the most negative affordances.

In cases of dual circulation roads without islet, positive affordances were increased (73%), compared to the negative ones (27%). Of these, Agiou Dimitriou Str. seemed to concentrate a high number of positive or potentially positive affordances. Similarly, in the case of traffic calming streets, Thoukididou Street in Alimos appeared to gather slightly more positive affordances, with the streets of Agiou Alexandrou and Kassaveti fluctuating at similar levels.

At a later stage, a different reading of Table 1 was attempted, based on the corresponding behavior of the actor. It was found that most of the affordances were social (60%). This implies that there is a great deal of possibility of developing social activities in the planned streets. Therefore, in this light, the answer to the research question is that Athenian roads, in terms of physical design, are characterized by physical characteristics that characterize them as potential social. But who are more likely to have social activities?

Based on the same approach as the exploration of positive and negative affordances, it was found that traffic calming streets have the highest social affordances (79%), while the dual circulation roads with an islet, the fewest (51%). Regarding the latter, it is characteristic that, due to the high motorized traffic that characterizes these streets, urban designers' emphasis was on serving the physical needs of road users. Regarding the latter, it is characteristic that, due to the high motorized traffic that characterizes these roads, urban designers' emphasis was on serving the physical needs of road users. In the case of dual circulation roads without an islet, Kipselis Street has the lowest social affordances, while in the case of traffic calming streets there are no differentiations.

According to the above approach it could be noted a societal pattern in the streets studied. However, in order to better explore the relationship between sociability and environmental affordances, the streets were also examined in the light of the observed static activities which, according to Mehta (2013), are an indicator of the sociality of a region. The following section summarizes the results from the observation.

Social life of the study streets

The concept of social life in the public space is related to the daily and occasional activities that take place in it (Kyriakidis, 2016). However, according to Gehl (2006), particular emphasis is placed on day-to-day activities, due to their frequency of occurrence. Everyday use of all streets that present commercially intensive activity is an observation that is empirically confirmed in most cities in the world. This was also observed in the study streets where the most intense social activity was observed in the streets with a larger number of shops. Indeed, Piraeus Street was a typical example of a street where the number of static social activities was limited and spatially expressed in specific points that functioned as attraction poles, such as some restaurants and cafes and the Benaki Museum. The absence of shop windows resulted in the absence of activities such as window shopping, which was more evident in the other roads with more shops.

However, it was observed that this activity as well as other static activities were limited to streets such as Papagou Str., where the pavement was of a small width and elements such as flower beds and guard rails made it difficult for the users to remain on the pavement. Still, some static activities carried out were less time-consuming than on roads where the obstacle-free buffer width of the pavement was larger. Similar was the restriction resulting from the presence of parked vehicles, "sticking" to each other and the presence of obstacles on the islet (rails or reinforced concrete flower beds), as the pedestrians moved with difficulty from one side of the street to the other. On the contrary, on traffic calming streets and on streets without islet, a greater degree of interaction was observed from one sidewalk to the opposite. The main reason for this seems to be the short distance that the pedestrian has to travel on the street, the street coating material in cases such as in Agiou Alexander Str., which makes the road look more like a pedestrian street than a road, giving the message to the drivers to move on low speeds, and to park only in specific controlled parking areas. This results in delimitating parking, a fact that means a removal of the boundaries between the two sides of the road. Indeed, a characteristic

observation on dual circulation without islet was that many pedestrian movements from one pavement to the opposite were also occurring in places where there was no zebra crossing, a fact that was limited to roads with islet.

The small obstacle-free buffer width of a pavement was found to imply a limitation to other static activities, such as people watching, which is a popular activity observed in large –compared to streets- public spaces such as squares (White, 1988; Kyriakidis, 2016). On most streets, this activity was recorded taking place in private property locations such as food and beverage establishments (restaurants and cafes) or in privatized urban spaces (tables and chairs are locted in there, after the owner of an establishment make an aggrement for renting this public space) located on the pavement. Additionally, on streets where people could stay for awhile by using specific elements of space (e.g. a step or guard rails), such as on Agiou Dimitriou Str., people watching activity took place.

Frequent activity was the short discussions held, usually upright and in a shaded part of the pavement and preferably close enough to the facades of buildings or around any fixed point of space (eg. lighting pole, tree, bench, plaque, etc). Most discussions arose randomly and their displacement by the time of the appointment of people until the end of the conversation was short. Most random meetings were recorded in areas close to the corners of the urban blocks or in shop entrances with intense traffic and shading.

Finally, in regards of the time frame for the operation on the study streets, it was observed that most streets were populated by a large number of individuals, throughout almost the whole day. However, functioning of traffic calming streets was extended during the evening hours, due to the existence of food and beverage establishments on buildings that face the streets.

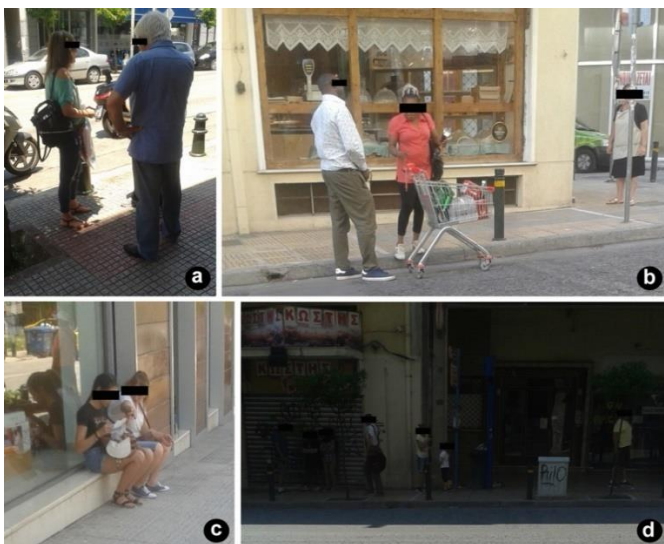


Figure 2. Scences from everyday life of the Athenian streets: Random meetings on the street, people rest for awhile, small conversations.

How are the environmental affordances related with the varying degrees of social life?

By comparing the data obtained from the observations with the conclusions resulting from the recording of environmental affordances, it was founded that there is a correlation between the physical characteristics of streets and structural activities. Some characteristic points illustrating the correlation of the two study variables be summarized as follows:

Land uses affect significantly the degree of social life on the streets. Although the issue of land uses is not investigated in particular, in the context of this study given the fact that emphasis is provided on the physical characteristics of streets, though, the observation in the streets e.g. as the Piraeus Street demonstrated the particular importance of land uses as parameter sociability of public spaces.

Streets with pavements of small width presented the lowest degree of sociality, like static activities. In the case that sidewalks presented delimitation (such as railings), like Papagou Str., the number of static activities was even more limited. Similar was the duration of static activities, where longer-lasting activities were observed on roads such as Theseus Ave., where the obstacle-free buffer width of the pavement allowed it.

The existence of a separating islet between the lanes of the road was suppressing the interaction of its two sides, compared to the other two categories. On the other hand, on the traffic calming streets, most pedestrian movements were observed from one side to the other.

The form of the facades of the buildings seemed to affect the occurrence of static activities, since there was a greater number of such in front of shop windows, in front of houses and in places where the form of the facade allowed the users to stay (eg steps enabling a person to sit for a while).

The duration of static activities seemed to be influenced by the particular characteristics of each street such as pavement width, shading (the research was conducted during the summer months and the shading is desirable due to the high temperatures recorded in Athens) and the existence of a bench.

A large number of static activities were observed at sites of the pavements rent by business owners for recreational purposes. The length of stay in such places was often long. Indeed, there was a proportion of the time spent in cafes and the comfort they provided to the patrons (eg restful seats, shading, etc.).

The main conclusion that emerges from the above observations is the fact that there is a correlation between the affordances and the social life on the streets of Athens. It can be seen that at points where affordances that were categorized as social, a higher number of static activities is observed, resulting to a higher degree of the sociability of those streets. Finally, it was found that while some affordances are expected to have a positive impact on the users of the urban space, in practice the resulting result does not seem to be absolutely positive from a social point of view. A typical example of this is the placement of railings in pavements or islets in order for the people to be protected by motorized traffic, a fact that often adversely affects the sociability of the streets. A similar feature is, finally, the delimitation of the buckets (by locating them into specific boundaries) on the streets where parking is prohibited. Although as an initiative it is considered as positive, this creates room for illegal parking, since the car users perceive that there is a possibility of parking at that point. The effect of this phenomenon is the difficulty in moving pedestrians from one side of the road to the other and thereby reducing sociability.

Conclusions

Streets consist of a fundamental part of people's everyday life. Nevertheless, over the decades, large surfaces have been conceded to the use of cars, resulting in many streets to function more as traffic channels than as spaces of social interaction. In line with this opinion, the extent to which the streets of Athens are sociable was studied in the context of this particular paper. The theory of environmental affordances was utilized in order to answer this question, assessing some of the key physical features of nine streets in the center and neighborhoods of Athens, in the light of this theory. The results can be summarized as follows:

The streets that were studied, present more positive affordances than negative. This means that a high number of activities that allows their characterization as sociable streets is expected to be observed.

The lowest rate of social affordances is recorded on dual circulation streets with islet, while the highest on traffic calming streets. However, a different categorization could lead to different conclusions, such as streets with wide or narrow pavements. The existence of an islet or not consists another one affordance that is evaluated and not a noticeable difference. However, it was used as a road categorization criterion because it is usually placed on roads with at least two lanes per traffic direction and high traffic conditions.

In the context of the assessment of street affordances in positive and negative, it was found that most affordances recorded were positive, with the result that the user would benefit from the use of these streets, satisfying his/her basic needs, a fact that consists a basic reason that urges him towards these specific areas. One of these needs is security, manifested by the existence of certain physical characteristics on the streets.

To assess the above conclusions, the pace of social life of the streets was recorded. The conclusions reached are summarized as follows:

The number of activities is related to the land uses of buildings facing the street. Land uses that include recreational activities, for example, seemed to lengthen the operation of these streets.

The form of the facades of buildings also affects the development of static activities. Indeed, in cases where recesses, shop windows or residential doors were recorded, the number of random meetings and conversations was higher than the ones occurring randomly on pavement points where the above data were absent.

The number of most static activities was correlated with some physical characteristics of space, such as the width of the pavement and the shading. The existence of specific elements of space, such as lighting posts or a sign, functioned as a pole to gather people and develop social activities.

The elements of the area seemed to affect, also, the motorized vehicles and the parking with characteristic example that of parking along roads where parking is prohibited and at the same time delimited buckets and access curbs are in front of bus stops.

Roads with moderate and low traffic appear to be more social than roads where traffic loads are increased

From the above points, it can be seen that the way of using the street is related to its physical characteristics. However, research must specifically investigate the influence of each feature on specific activities and examine the interrelationship of the various activities that have so far been scarcely explored.

It should be noted, however, that the roads studied were characterized as sociable, although there seems to be room for further strengthening of their sociability. Given the fact that there are typical cases of streets occurring in Athens, a first conclusion could be drawn that the Athenian streets have a significant degree of sociability. For the sake of a safer conclusion, research continues on the detailed examination of characteristic streets without an islet that make up the majority of the streets of both Athens and the rest of the Greek cities. The resulting findings will help to understand the degree of sociality of the Greek roads and examine the elements that will need to be revised in the future to make Greek roads even more social.

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