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## UTILITY VALUE OF SUBURBAN PUBLIC SPACES – NEW METHODOLOGICAL APPROACH<sup>1</sup>

### Wartość użytkowa podmiejskich przestrzeni publicznych – nowe podejście metodologiczne

**Abstract:** The aim of the article is to indicate suburban recreational spaces with the highest utility value by introducing a new tool and a method to measure space activity, which is an indicator of the so-called good public space. The new method is based on behavioural mapping, which was tested in selected Warsaw suburbs. The study proved that the potential of suburbs in stimulating local social life, measured by the utility value of recreational spaces, is generally low. The research confirmed the role of location in creating community-friendly public spaces and a greater distance in interpersonal relationships among suburbanites than city inhabitants.

**Zarys treści:** Celem artykułu jest identyfikacja podmiejskich przestrzeni rekreacyjnych o najwyższej wartości użytkowej poprzez zastosowanie nowego narzędzia i metody pomiaru żywotności przestrzeni, która jest wyznacznikiem tzw. dobrej przestrzeni publicznej. Nowa metoda oparta jest na mapowaniu behawioralnym, które zostało przetestowane w wybranych suburbiach Warszawy. Badanie wykazało, że potencjał przedmieść w stymulowaniu lokalnego życia społecznego, mierzony wartością użytkową przestrzeni rekreacyjnych, jest ogólnie niski. Potwierdziła się rola lokalizacji w tworzeniu pro-społecznych przestrzeni publicznych i większy dystans w relacjach międzyludzkich wśród mieszkańców suburbiów w porównaniu z mieszkańcami miast.

**Key words:** public space, utility value of space, suburbs, behavioural mapping

**Słowa kluczowe:** przestrzeń publiczna, wartość użytkowa przestrzeni, suburbia, mapowanie behawioralne

## INTRODUCTION

Public space is determined primarily by its collective use. This is confirmed by the definition formulated in the Charter of Public Space (*Karta...* 2009) and adopted by the Third Congress of Polish Urban Planning in 2009. Public space is defined there as “common good, intentionally shaped

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<sup>1</sup> The article presents the method that was used in the research described in the book: D. Mantey, 2019, *Wzorzec miejskiej przestrzeni publicznej w konfrontacji z podmiejską rzeczywistością*, Wyd. Uniwersytetu Warszawskiego, Warszawa.

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by man, in accordance with social principles and values – meeting the needs of local and supra-local communities”. Social sciences treat public space as a certain type of social space. Social space is constituted by a set of physical objects on the earth in relation to the person who explores and acts in it, including on the one hand material relations related to using and shaping the space, and on the other hand learning about, evaluating and experiencing the space (Lisowski 2003, 2014). This means the existence of a different ontological order than the one in which the strictly physical and objective space is embedded. The concept of social space is a direct reference to E. Durkheim (1915), who argued that space, like time, is a social construct. Social space, therefore, created by the action of individuals and groups, and fulfilling their aspirations, is a category that helps to understand public space. Social space is a physical space created and used by man, mediating social relations and affecting the reproduction of social structures (Lisowski 2014). The above-mentioned understanding of social space is consistent with the belief of B. Werlen (1993, after: Lisowski 2014), who claims that the subjects of interest of geography as a social science are social activities. The space itself plays only an auxiliary role as a tool of orientation. In the case of public space, an individual or a pair of people is not enough, but a group. It is not surprising, therefore, that in the concept of social space, a territorial community plays no less important role than a territory itself, and the spatial structure is not the result of interactions of elements of the space, but more a result of how social rules and regularities operate.

Assuming that active public space is the essence of social space, the aim of this article is to indicate suburban recreational spaces with the highest utility value by introducing a tool and a method to measure space activity, which is an indicator of the so-called good public space. The proposed methodology will be tested in selected suburban public spaces in order to determine their potential in stimulating local social life. In this way, the author of the article wants to signal the problem of lifeless public spaces in newly urbanized areas around Warsaw.

## THE GENERAL CONCEPT OF UTILITY VALUE OF PUBLIC SPACE

Although urban planners and architects have developed various guidelines for the so-called good public space, however, these guidelines are often too general (*Karta...* 2009) and based on the subjective “visions” or experiences. The only objective factor in this context is the activity / liveability of public spaces, which is defined as multiplicity, diversity and existence of different activities at different times of the day (Whyte 1980; Gehl 1987; Hall, Hall 2001). Liveability understood in this way is consistent with the essence of social space. While examining public space, it is worth determining its utility value.

Some of the studies aiming at space valuation focus on assessing the functions of public spaces, the way they are developed, their aesthetics, accessibility, security, as well as the ability to provide entertainment and pleasure (Pasaogullari, Doratli 2004; Van Melik et al. 2007; Németh, Schmidt 2007), while others estimate the effectiveness of the use of public spaces by examining the subjective perception of space by its users (Hajmirsadeghi et al. 2013). However, none of them attempts to assess the utility value of public space based on objective and measurable criteria. Since the action of individuals and groups in space are essential for social space, the utility value of public space can be determined by the amount and type of behaviour undertaken in a given space. The utility value refers to the category of behaviour when describing the relationship between man and space. It can be defined as the degree of adaptation of a given space to a function related to the required types of behaviour (Rapoport 1977).

The utility value of space, identified with its pro-social character, is the degree to which space fulfills its social function. It is the expression of space activity. Active spaces are an immanent element of what we call urbanity. In her classic work, J. Jacobs (1961) emphasizes that activity both produces and mirrors quality in the built environment. This means that when analysing space activity, two-way relationships between cause and effect should be considered. Activity, which is a pre-

requisite for a successful public space, is determined by a mixture of primary uses, intensity, urban form permeability, and a mix of building types, ages and sizes (Jacobs 1961; Carmona et al. 2003). J. Punter (1991) explains the concept of place activity through the prism of land uses, pedestrian flow, behaviour patterns, noise and smell, and vehicle flow. According to J. Montgomery (1998), activity includes two related concepts: vitality and diversity. Vitality distinguishes successful urban areas from the others and refers to the number of people using the space across different times of the day and night, the uptake of facilities, the number of cultural or other events over the year, and generally the presence of an active life in the space. Public space studies focus on street liveliness, essential and optional activities outdoors, duration of stay (Gehl 2004), and number of people engaged in social activity (Gehl 2004; Mehta 2007). Urban vitality is conditioned by a complex diversity of not separated primary land uses and activities, as well as by a relatively large number of diversified users (Montgomery 1998). This results in connecting with other people, whether familiar or strangers (e.g. talking and listening), which is a type of behaviour particularly important from the social perspective (Anderson et al. 2017). It is proved that people have tendencies to be in contact with other people seeing and hearing them (Gehl 1987) and thus, tend to ‘fit’ between settings and behaviour (De Haan 2009). Other than the vitality and diversity components of space activity are: street life, people watching, café culture, events and local traditions / pastimes, opening hours, flow, attractors, transaction base, fine grain economy (Montgomery 1998). The activity of place can be determined not only by the variety of activities undertaken by various users, but also by the form of space that stimulates this activity. Some research show that urban design interventions, involving improvement in quality of local public space, has a positive impact on liveliness and the behaviour of contacting with others (Anderson et al 2017).

## METHODS AND THEORETICAL APPROACHES IN STUDYING BEHAVIOUR

The measurement utility value of public space uses the achievements of behavioural theories, i.e. those in which the unit of analysis is behaviour rather than the need. Behaviour has the advantage of being definable and empirically verifiable. If we assume that human behaviour is shaped by space, we can refer methods of studying behaviour to the ecobehavioural theory of R.G. Barker (1976). Its key element is behaviour setting, which is an ecological unit of analysis, where physical environment and behaviour are indissolubly connected in time and space. It is composed of people, physical components and behaviour. The behaviour setting method imposes subdividing an environment or area behaviourally, in other words disaggregating designed outdoor environments into their functional parts (e.g. pathway, water play setting, gathering place, vegetable garden and so on) (Moore, Cosco 2007). It forces naturalistic approach in the research process, which means that the best method of examining public spaces is *in situ* observation. Observation method is connected also with the J.J. Gibson’s theory of perception (1979), which introduces the concept of affordances – the perceived properties of the physical environment that support the individual’s actions. For certain types of behaviour we search for affordances, i.e. functional properties of environments offering individual user certain possibilities, hence some spaces become important and behaviourally useful for the user, while others not. Going further, the more affordances related to a given space, the greater its utility value.

One of the most frequently used methods of field observation of environment variables and individual’s behaviour *in situ* is behavioural mapping with its multiple ways of converting results of observation into measurable indicators. This method is used to identify specific environmental features, where behaviour setting is the unit of analysis. The simplest method of generalization based on behavioural mapping is classifying and counting activities which allows to draw conclusions about activities specific to a given behaviour setting (Abu-Ghazalah 2007; Moore, Cosco 2007). One of the examples of such classifications is the categorization proposed by B. Poniatowski (2016), who used behavioural mapping in designing spatial changes in Plac Wolności in Łódź, Poland. He dis-

tinguished eight kinds of activities: (1) communication (associated with various types of movement in a given space), (2) commercial (associated mostly with shopping), (3) relaxation (walking with children, with a dog, in pairs), (4) integration (meetings), (5) cultural (related to the use of cultural objects in space), (6) recreational (related to active leisure), (7) creative (e.g. photographing, drawing), (8) professional (performing work in the external space). Some scholars measure also how long the activity lasts, as an important component of public space vitality (Gehl 2004; Mehta 2007). The most commonly used research tools to measure physical activity behaviour, also based on counting and coding physical activities level and type, are those developed by T.L. McKenzie and other investigators: SOFIT (System for Observing Fitness Instruction Time), SOPLAY (System for Observing Play and Leisure in Youth), and SOPARC (System for Observing Play and Recreation in Communities) (McKenzie, Cohen 2006; McKenzie et al. 2006). SOFIT and SOPLAY are dedicated to schools, while SOPARC to community spaces such as parks and playgrounds, where users are more diversified. Most of the studies based on behavioural mapping examine one large public space divided into smaller zones (Moore, Cosco 2007; Puhl et al. 1990; DuRant et al. 1993). Comparative research covering several different spaces is in the minority. If there is such a study, it usually includes two spaces that are similar in some respects, and aims at checking the impact of specific spatial factors on the behaviours undertaken in both spaces. A study of students' activity in open-area schools and traditional schools conducted by D. Beeken and H.L. Janzen (1978) is an example of such approach. The variable tested in this research was the architectural design of educational space, and the aim of the study was to determine how this variable influences behaviour. This study is a good example of how observations can be translated into quantitative methods of analysis.

One of the key issues for behavioural mapping is the selection of observable behaviour. From the public space perspective, social behaviour is the most desirable one. Social behaviour is understood as "conscious action of an individual or a group (...), aimed at influencing the personality and behaviour of another person" (Turowski 2000, p. 44). One can also adopt the point of view of J. Gehl (1987), for whom a category of social behaviour embraces all those activities that depend on the presence of other people in public space. Social behaviour is the result of necessary or optional behaviour, and includes all kinds of interpersonal contacts that take place if the time and place are appropriate (Gehl 1987). It covers a wide spectrum of activities and behaviours, from passive: watching people and what is happening, through greetings, spontaneous conversations, children's playing, spending time together by young people, to more or less planned joint activities: markets, street events, parades, demonstrations (Gehl 2014, p. 23).

The second key decision in behavioural mapping concerns the technique of coding and summing up these behaviours, as well as the measuring scales. It always depends on the aim of the research and the type of social space being investigated. Comparing behavioural settings that belong to many different types of space causes relatively more problems, because it requires the development of a universal measurement tool.

## NEW METHOD OF UTILITY VALUE MEASUREMENT

There is a lack of suggestions in the literature on how to objectively measure the utility value of public space, hence the need to develop a model that would allow to determine which spaces are more useful and which are less. The model for measuring the utility value of public space is based on three dimensions that directly refer to the observed uses and their intensity, and six indicators: two indicators within each dimension. Each indicator has its own four-point scale with a description of individual points. The indicators and scales are adapted to the specificity of open recreation spaces that are the most numerous category of public space in the suburbs. The following dimensions were recognized as determinants of the utility value of public space:

1. Vitality, measured by the number of people who appeared in a given space and the intensity of its use, i.e. the degree of use of objects and facilities, determining the density of interpersonal relationships,



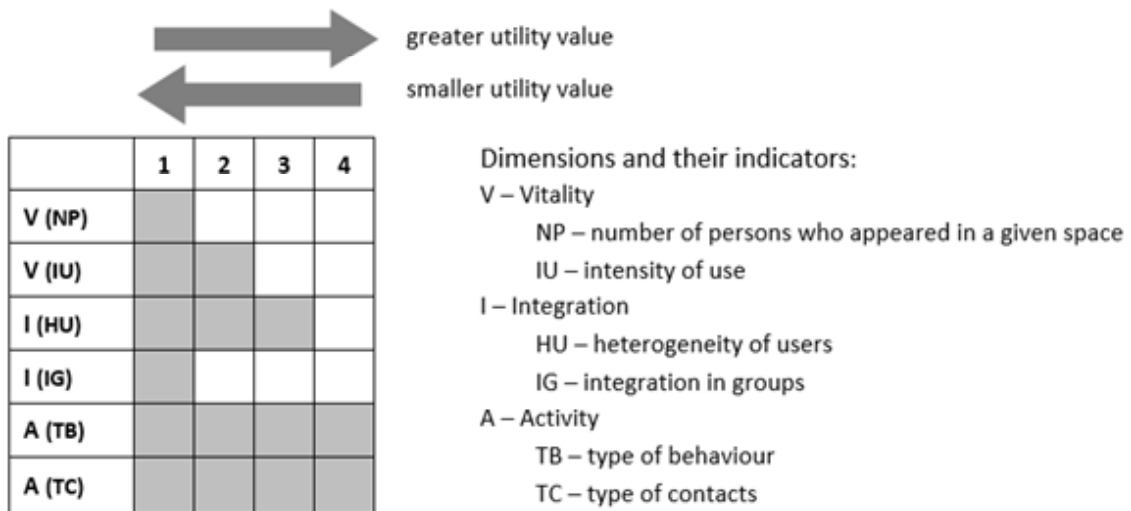
Table 1. Dimensions of utility value and their indicators

Tabela 1. Wymiary wartości użytkowej oraz ich wskaźniki

Dimension	indicators	Scale			
		1 low utility value	2	3	4 high utility value
Vitality (V)	NP number of people who have appeared in a given space	on average <b>up to 5</b> people on a working day	on average <b>6–20</b> on a working day	on average <b>21–40</b> on a working day	on average <b>more than 40</b> on a working day
	IU intensity of use	<b>low intensity of use</b> , there are visits when nobody appears in a given space, intensive use results from a very specific situation	place in use during every visit but <b>never with high intensity</b> (most of the benches, facilities and space are not used)	place used <b>intensively during one visit</b> (most of the benches, facilities and space are used), there are visits when no users are present	place <b>in use during every visit</b> , most of the benches, facilities and space are used during at least one visit
Integration (I)	HU heterogeneity of users	representatives of one gender or one age group predominate ( $\geq 80\%$ )	users represent at least two age groups, no group predominates ( $\leq 80\%$ ), representatives of at least one age group are missing	users represent different age groups, no group predominates ( $\leq 80\%$ ), there is no visit during which all groups would meet	users represent different age groups, including senior citizens, representatives of all age groups meet at least during one visit
	IG integration in groups	predominance of lone users ( $\geq 50\%$ )	predominance of people forming two-person groups or slightly larger family groups ( $\geq 50\%$ )	predominance of people forming multi-person groups representing more than one family ( $\geq 50\%$ ), among which organized groups predominate ( $\geq 80\%$ ), i.e. groups under the care of a teacher, event leader, or animator	predominance of people forming multi-person groups representing more than one family ( $\geq 50\%$ ), among which non-organized groups predominate ( $\geq 80\%$ ), or the proportion of multi-person non-organized groups and family groups is similar ( <b>40–50%</b> )
Activity (A)	TB type of behaviour	predominance of necessary behaviours (transit, shopping, waiting for a train) ( $\geq 70\%$ ) or users who stand ( $\geq 50\%$ )	recreational behaviours almost exclusively, transit accounts for not <b>more than 5%</b>	all kinds of behaviours, including transit <b>above 5%</b> , one kind of recreational behaviours predominates: physical activity or passive leisure ( $\geq 80\%$ )	all kinds of behaviours, both passive leisure and physical activity account for <b>less than 80%</b>
	TC type of contacts	predominance of <b>accidental or short-lasting contacts</b> , or persons who do not seek contact with others	intra-group contacts dominate; if there is more than one group, <b>groups ignore one another</b> or it is impossible to establish eye contact with all groups	besides contacts within groups, most groups maintain <b>longer-lasting eye contact</b> with one another (mutual observation); eye contact can result from the movement of the groups; groups tend not to mix	besides contacts within groups, some groups establish <b>verbal contact</b> with each other; some <b>groups move and mix</b> ; it happens that most users visually form one group

Source: own elaboration based on D. Mantey (2019).  
 Źródło: opracowanie własne na podstawie D. Mantey (2019).

The graphical image of the utility value is a graph that enables comparison of results obtained for many different spaces (fig. 2). The method of assessing the utility value of public space allows also to estimate analogous value for all spaces in a given city, housing estate, district or for all spaces used by representatives of a specific group of population. The values of each indicator obtained for individual public spaces located in the analysed area or used by a given group should be added and the median determined. If necessary, the median value should be rounded up to the nearest integer. For such modal values, an analogous graph is prepared, like the one developed for individual public spaces.



**Fig. 2.** Graph of utility value

**Ryc. 2.** Graf wartości użytkowej

Source: own elaboration based on D. Mantey (2019).

Źródło: opracowanie własne na podstawie D. Mantey (2019).

## DETAILS OF THE RESEARCH AND ITS RESULTS

The study was conducted in the western and south-western part of the suburban zone of Warsaw, in 12 suburbs, the spatial scale of which is suitable for creating recreational spaces there. The following suburbs have been studied: (1) the open estate of Nadarzyńska Spółdzielnia Mieszkaniowa (a housing cooperative) in Nadarzyn and an open estate “Słoneczne” in Kanie, (2) Komorów and Zalesie Górne, (3) Raszyn, (4) Stare Babice, (5) Książenice, (6) Kwirynów and Latchorzew, (7) Józefosław, (8) Żółwin and Ustanów. All recreational spaces belonging to these suburbs have been observed. Observations were carried out in the afternoon, on working days, in June and September 2018. Recreational functions have been referred to the broadest possible definition of recreation, according to which recreation is leisure activities, voluntarily, for pleasure, self-expression, self-formation, renewal and multiplication of psychophysical forces (Kiełbasiewicz-Drozdowska 2001; Wolańska 1997). Therefore, recreation includes physical activity on open air, but also common prayer in sacred spaces, conversation or a moment of reflection in a place conducive to contemplation. Finally, field observations were conducted in 39 public spaces, diversified in terms of intentional users, equipment and location. The presence of at least three benches in close proximity to each other was the primary criterion for selecting specific spaces to be studied. Spaces used by residents spontaneously, spaces without seating, and spaces of flow (streets, cycling lanes), as well as exclusively commercial spaces (local markets, local centres with a concentration of shops) were excluded from the research. Among public spaces studied there were: 8 playing fields (including those with accompanying functions, e.g. playground); 8 separate playgrounds, outdoor gyms or skateparks; 7 multi-

functional recreational areas; 5 squares with greenery and seating; 4 areas adjacent to churches or roadside shrines; 3 parks; 2 market squares with seating; 1 dog playground, and 1 recreational centre comprising publicly accessible walking and cycling paths and seating as well as private recreational facilities with paid access.

After estimating the value of all six indicators for each of the 39 suburban recreational spaces, the most useful ones have been indicated based on the total utility value that is a sum of these indicators (tab. 1). The total utility value of space could range from 6 to 24, and the obtained results were in the range from 10 to 23. Spaces that were in the 75<sup>th</sup> percentile in terms of the total utility value were considered to be the most useful. Thus, 12 spaces with a score of 18 or more were found to be the most community-friendly. They included: 3 multifunctional recreational spaces; 3 playgrounds; 2 parks; 2 playing fields; 1 market square; 1 area adjacent to a church. Then, the dominants of each of the six utility value indicators were determined for the group made up of the spaces listed above. In consequence, two graphs were created because two dominants were obtained for the *type of behaviour* (TB) indicator: 2 and 4 (fig. 3). Table 1 was used to describe the most socially useful spaces. Thus, the most community-friendly suburban recreational spaces are visited by, on average, more than 40 people at any given time in the afternoon. Most of the benches and facilities are used at least once at this time of day and people using these spaces represent all age groups. Most users do not form organised groups and do not constitute family groups. Groups of users have a longer lasting eye contact with each other, but they tend not to mix and they maintain a certain distance from each other. In spaces that have obtained the highest utility values all kinds of behaviours (transit, passive leisure, and physical activity, among which none is predominant) or almost exclusively recreational activities (without transit) can be observed.

	1	2	3	4
V (NP)				
V (IU)				
I (HU)				
I (IG)				
A (TB)				
A (TC)				

	1	2	3	4
V (NP)				
V (IU)				
I (HU)				
I (IG)				
A (TB)				
A (TC)				

Fig. 3. Utility value of the most useful recreational spaces  
 Ryc. 3. Wartość użytkowa najbardziej użytecznych przestrzeni rekreacyjnych  
 Source: own elaboration / Źródło: opracowanie własne.

## CONCLUSIONS

The proposed method of assessing the degree of utility value of recreational spaces turned out to be an interesting tool that allows to estimate what is difficult to measure and to operationalize what seems subjective and intuitive. The study of recreational spaces in Warsaw suburbs proved that the potential of suburbs in stimulating local social life is generally low. It occurs that among spaces with the highest utility values, the proportion of those in which transit takes place and those in which recreational functions are carried out almost exclusively, are similar. In recreational spaces that are the most useful from the perspective of social activities, all three kinds of behav-



our should occur simultaneously: necessary behaviours and recreational behaviours consisting of passive leisure and physical activity. In a “model” recreational space, those who have chosen passive leisure watch people engaged in physical activity, while passers-by exchange greetings or, encouraged by people staying in a given space, decide to take a short rest. It is characteristic of many suburbs, especially the new ones, that new recreational spaces are well-equipped, but poorly and randomly located, away from the main roads or the main nodes of activity, without a safe pedestrian access. Such location eliminates transit and many potential users. Unfortunately, all three kinds of behaviour, including transit, without the predominance of any single kind, were observed in only 10 out of 39 recreational spaces studied (indicator  $A(TB)=4$ ). The research confirmed the role of location in creating community-friendly public spaces.

From the perspective of establishing local ties, the type of interpersonal contacts, rather than the type of behaviour, is the most important indicator of the utility value of space. Public space, open and welcoming to everyone, enables people to mix, which contributes to building a society that draws on its class diversity, multicultural character, and heterogeneity (Carr et al. 1992). The necessary condition for establishing contacts in public space is the diversity of functions and activities that are mixed together rather than separated from each other (Montgomery 1998), and the vitality of space measured by the number of users. Persons spending time in a given space attract other users (Whyte 1988), while empty places discourage people from staying there. The study revealed that most suburban public spaces are characterized by moderate or low vitality, firstly because relatively fewer users appear there, and secondly, because suburban residents are somewhat more closed to contacts with others than people living in cities (Kim, Kaplan 2004). Although the scale of the  $V(NP)$  indicator was adapted to the realities prevailing in the suburbs, which resulted in high vitality ratings,  $A(TC)$  indicator for the group of 12 spaces that obtained the highest utility values were scored as 3 instead of 4. In the case of  $A(TC)$  indicator, the lower potential to build community-friendly public spaces is a consequence of greater distance in interpersonal relationships among suburbanites. This is partly due to lower vitality of public spaces compared to cities, and partly due to the fact that suburbanites have private gardens, which are the most popular space of leisure time for them (Mantey 2019).

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