

PRESENTATION OF FUNCTIONAL, PPS AND HALL'S METHODS IN COMPARISON WITH OTHER RESEARCH ON SPACE QUALITY

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Abstract

The end of the twentieth century was a period in which the need for quality control was developing in all areas of life in post-industrial countries. The impulse for the development of numerous methods of evaluating the quality in architecture and construction was "Green Paper" and "Agenda 21" concerning the idea of sustainable development. First of all, creation of a system of evaluation criteria is the basis for elaboration of any system of quality control. Several years of cooperation between J. Serdyńska and the author resulted in a cycle of studies on urban public space (squares in the city of Katowice) based upon functional, Hall's and PPS methods. This study aims to embed them in a typology of other studies of space quality.

Keywords: research method, public space quality

1. PRESENTATION OF EVALUATION METHODS OF PUBLIC SPACE QUALITY APPLIED IN PREVIOUS RESEARCH

1.1. Dominant Function Method

This method determines which function is performed by public space in the city on account of its dominant function. For the purpose of this elaboration the following functions have been defined [1], [2].

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Table1. Evaluation of Dominant Functions (on a scale from 0 to 5)

	Public Space			

• Public function				
• Sacred function				
• Commercial function				
• Representative function				
• Recreational function				
• Circulation function				
Dominant function:				

1.2. Hall's Method (according to Hall's concept of anti-social or pro-social public space)

In order to evaluate public space as regards its pro-social aptitude, the following questions must be asked: Does public space serve its purpose? Is it a place prompting or at least enabling social contacts between people? [3]

In accordance with Hall's theory [5], there is a series of factors determining human behaviour in a given closed space. They are as follows: space closure, scale and proportions, lighting, a way of arrangement, colour scheme, furnishings as well as internal space relations. Public space constantly interacts with green spaces, circulation areas and other areas, however, it can also constitute a part of the interior. Depending on the function it takes, public space should adjust to the requirements of people who occupy a particular space as well as it should meet their cultural needs. Particular features can be assessed, for instance on a scale of (-1, 0, 1). The final evaluation is a total of individual scores. Such a simplified method of assessment provides an answer to the question if a given space is of an anti- or pro-social character.

Table 2. Space Evaluation - whether it is anti-social or pro-social (from -1 to +1):

	Public Space			
	1 ...	2 ...	3 ...	4 ...
• Space closure				
• Space scale and proportions				
• Lighting				
• Space arrangement				
• 'Furnishings'				
• Colour scheme of urban interior				
• Space individualisation				
• Lack of distracting elements				
Final Score:				

1.3. PPS Method (of the organisation: Project for Public Spaces)

The subject of the research focuses on 'social life' in a given space. 'Urban life', understood as an active presence in a certain place of a possibly varied and numerous group of users, constitutes an essential condition for correct functioning of public space [4], [6].

While developing a regeneration strategy a lot of weight is attached to a systematic observation of a place and obtaining feedback from its users. A designer must define basic parameters of a correctly functioning urban space and distinguish four basic components, such as: accessibility, functionality, comfort and image as well as value [7].

Evaluation Method:

The number of points possible to obtain for each of the above four components may vary from -2 to +2. The evaluation of public spaces was performed on a five-degree scale, from non-existence to increased occurrence.

Table.3. Evaluation acc. to PPS Method (on a scale from -2 to +2)

	Public Space			
	1 ...	2 ...	3 ...	4 ...
Functionality:				
<ul style="list-style-type: none"> • presence of users • age diversity • services variety • use of space 				
Social Value:				
<ul style="list-style-type: none"> • presence of groups of users • social interactions • users diversity • maintenance of order and cleanliness by users 				
Comfort and Image:				
<ul style="list-style-type: none"> • comfort of the seating • safety and cleanliness • number of men / women • visual attractiveness 				
Circulation and Accessibility:				
<ul style="list-style-type: none"> • visibility from the outside • lack of obstacles preventing access • friendly neighbourhood • public transport accessibility 				
Total Score:				

2. STUDIES OF SPACE QUALITY IN ARCHITECTURE AND URBAN PLANNING .

Nowadays, it is expected more from buildings and living environment than just life and health security. Contemporary requirements go beyond this basic criterion which has been present in built environment for ages. The contemporary counterpart of the Vitruvian triad (solidity, utility and beauty, in other words: construction, function and form) is the triad of sustainable development (ecology, economics and society). This new triad defines social and cultural needs of people who want to feel satisfaction and pleasure in contact with the building and its cultural surroundings. Growing demands and requirements concerning buildings include:

- good working and living conditions,
- high quality of the environment,
- more flexible and adaptable buildings,
- better equipped and furnished buildings,
- proper attitude to health issues and security in built environment,
- low costs of maintenance [8].

The evaluation criteria of urban development and architectural environment are partly similar although different ideological assumptions lie at their basis. Architectural issues deal with the adaptation of the structure and furnishings of the building to considerably various needs of different social groups. Urban development issues focus on physical features of the examined area as well as social and aesthetic needs of the residents.

Common criteria for quality assessment studies are related in this case to the following issues:

- environment protection - protection of huge areas against industrial and municipal (public utility) pollution in urban development; the reduction of pollution emitted by buildings, human life and health protection;
- functionality - a harmonious development of cities and feeding areas as well as preservation of green areas within urban tissue; adaptation of functions of the areas to the needs of processes of life and work taking place therein;
- social needs - creating a friendly living environment for urban community, which provides the residents with a high quality of working and living environment; accomplishment of needs depending on the belonging to a given group, needs related to self-realisation, territoriality and privacy as well as physiological needs in the building;
- environmental aesthetics - ensuring high aesthetic quality of the whole urbanised area and individual buildings [8].

Quality assessment may bring the following results in the improvement of the existing buildings as well as in the development of knowledge about buildings:

- short term results - improvement of quality in the existing buildings;
- medium term results - elaboration of application forms for programming new objects of this type and improvement of designing processes;
- long term results - including: building a database of buildings, application forms for elaboration of new norms and standards, creation of new utility patterns adjusted to changing needs and development of knowledge about buildings [8].

The collected information and knowledge on buildings find their application in the following areas:

- routine surveys of building use efficiency - very important in building management;
- processes of modernisation and adaptations - providing complex solutions to all problems, sometimes even those the designer is unaware of;
- building databases on individual functional types of buildings - removing incorrect solutions from designing practice and even introducing changes to building law and standards [8].

The best known pioneering method of space quality assessment is a **POE Method** (Post-Occupation Evaluation) [9]. It is an assessment of built environment (a building or an urban complex) during its use. Checking the conformity of a building with the users' expectations acc. to POE method takes place by verifying the following quality criteria:

- technical quality - fitting the building with technical equipment, level of modernity and state of upkeep, safety of people and property;
- functional quality - adjusting space of objects to the needs of social processes taking place within them;
- behavioural quality - satisfying psychological needs of the users, such as: privacy, territoriality, feeling of security, aesthetics;
- organisational quality - providing fittings, services and spatial structure of the building matching users' needs;
- economic quality - keeping maintenance and operational costs at a proper level, which also depends on the design [8].

POE Method proposes the assessment including the building as well as its closest surroundings, individual rooms and even their furnishings and fittings from the point of view of different user groups.

Investigation techniques employed by POE Method are as follows:

- surveys (inspections);

- interviews (especially individual ones as well as informal meetings with selected groups in the form of ‘action research’);
- observations;
- mapping of people’s behaviour;
- analysing archives data and photographic documentation.

Public opinion surveys have been almost completely abandoned as being an inadequate technique for evaluation of the building [10], [14].

Over the past twenty-or-so years POE Method has developed and changed its direction. A new name has been proposed, namely **BPE** (Building Performance Evaluation) [11]. BPE aims to improve the quality of the decision making process in each phase of the life cycle of the building, i.e. from a strategic planning, through programming, designing, construction, facility management and finally using it anew after the adaptation [8].

Comparing POE Method with BPE Method it can be stated that POE aims to improve the quality of the building during its use as well as build databases concerning this quality, whereas BPE aims to improve the quality of the decision-making process in each phase of the life cycle of the building.

Due to a six-phase cyclic evolution of the building’s life the following actions are applied:

1. Strategic planning;
2. Programming;
3. Designing;
4. Moving tenants into the building ready for occupation as well as management;
5. Re-use after the adaptation for different purposes or recycling;
6. Construction.

BPE provides also six checking loops. It enables constant control and early intervention as well as reduces spontaneity in the decision-making process to a minimum [10].

POE is the only method in which a human being is the subject. This method has given rise to many other research methods focusing on different aspects:

Quality evaluation of buildings:

- REN - Real Estate Norm
- FSA - Functional Suitability Assessment
- BQA - Building Quality Assessment - for intelligent office buildings
- STM - Serviceability Tools and Methods
- PBAP&MM - Physical Building Audit Procedures and Maintenance Management) - checking a technical state of the building
- LCA&LCCA - Life Cycle Analysis & Life Cycle Cost Analysis

- BIU - Building-in-Use - quality assessment during the use of the building
 - the above-mentioned BPE Method - Building Performance Evaluation
1. Research on ecological and energy saving aspects:
 - GBC - Green Building Challenge
 - GBT - Green Building Tools
 - Eco-Building
 2. Integrated research on use efficiency as well as ecological and energy saving aspects:
 - BREEAM - Building Research Establishment Environmental Assessment Method in the UK
 - ECO Quantum - as above in Holland
 - ECO-PRO - as above in Germany
 - ESCALE - as above in France
 - ECOEFFECT - as above in Sweden
 - ECOPROFILE - as above in Norway
 3. Modernisation oriented research:
 - EPIQR - quick (but systematic and overall) evaluation of residential buildings condition
 - TOBUS - as above but for office buildings
 - INVESTIMO - in-depth and overall evaluation of the loss of quality of residential buildings and their surroundings
 - LIFECON - prediction of cycles and an integrated system of cycle management
 - EUROLIFEFORM - prediction of costs of a building's life cycle
 - SUREURO - programme for a European City of the Future encompassing social issues
 4. Quality research in urban planning:
 - LSA (Land Suitability Analysis);
 - VIA (Visual Impact Assessment) - assessment of the visual impact on the environment;
 - SIA (Social Impact Assessment) - impact of investments on social environment;
 - EIA (Environment Impact Assessment) - assessment of the impact of investments on the environment;
 - SBE (Scenic Beauty Estimation) - assessment of the aesthetic quality of the environment [8], [10].

The majority of research on the quality of architectural surroundings is based on the theory of perception originating from the 19th century Gestalt Principles (Gestalt Psychology). A great stress is laid here on the following aspects: the

degree of diversification, simplicity and complexity of architectural forms, rhythm, harmony, contrast, compositional axes and dominants as well as sequence of plans. There are also attempts to measure the quality of the architectural surroundings (landscape quality) on the basis of photographic analyses.

- PMU (Photomorphic Unit) [13] - teledetective analysis of landscape forms,

This intuitive evaluation of the photographic image (concerning such features of the picture as: shape, size, contrast, colour, texture and their relations) resulted in many other different methods, e.g.:

- SBE (Scenic Beauty Estimation) - serving for the assessment of natural scenery;
- VAC (Visual Absorption Capacity) - evaluation of the visual absorption capacity of the landscape
- LS (Landscape Sensitivity) - defining landscape sensitivity;
- LPR (Landscape Pattern Recognition) - new advanced instruments of digital photography, automatic recognition of picture, comparison and assessment of view relations [12].

3. CONCLUSIONS

Description of the research methods adopted:

Making an attempt to classify the adopted research methods, it should be stated that they are first of all observational methods without intervention. The elements of the survey became an aspect of a more coincidental than intentional action resulting from the fact of longer presence in a given space and arising social interactions.

Similarity of the methods analysed:

- The first one (Functional Method) is similar to FSA (Functional Suitability Assessment) and provides assessment of functional quality.
- The second one (Hall's Method) is similar to SBE (Scenic Beauty Estimation) and provides assessment of technical and organisational quality.
- The third one (PPS Method) is similar to SIA (Social Impact Assessment) and provides assessment of behavioural quality.

Application of the methods presented:

Hall's Method presents **public space development**, whereas PPS Method presents **its potential** (attractiveness of a certain space to its users), hence discrepancies in evaluation.

Three situations may be distinguished [4]:

1. When the evaluation score of development is negative but the evaluation score of potential is positive, which means that a given square is underinvested or the investment was made against the site's potential.
2. When the evaluation score of development is positive or equals 0 but the evaluation score of potential is negative, which means that a given square is overinvested or there is some sort of dysfunction.
3. When both evaluation scores are positive, which means development in compliance with potential. It also proves that financial outlay for the realisation of a certain square was properly used.

On the basis of table comparisons made in previous research [2] [3], it can be stated that PPS Method does not cause any change in the score ranking of the selected spaces. However, it is a more complex method because it refers not only to the analysis of the state of squares development but also to their actual potential, social impact and human interactions. Thanks to this method, a reliable diagnosis of the actual state is obtained, which can provide the basis for the next stage, i.e. broad social consultations. (They are, on the one hand, the source of information on social needs and desirable directions of spatial changes; on the other hand, they may provide knowledge concerning possibilities and ways of using them.) Finally, all this provides the basis for the development of a concept of effective regeneration.

It would be interesting to see conclusions drawn from observations made by way of **the comparison of results obtained from other research methods.**

Table 4. Statement of evaluation scores of the squares examined by means of PPS Method, Hall's Method and possibly other methods

	Name of Space	Hall's Method Assessment	PPS Method Assessment Method Assessment Method Assessment
1.					
2.					

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PREZENTACJA METOD: FUNKCJONALNEJ, PPS I HALL'A
NA TLE INNYCH BADAŃ JAKOŚCI PRZESTRZENI

Streszczenie

Koniec XX w jest okresem, w którym potrzeba kontroli jakości rozwija się w krajach postindustrialnych we wszystkich dziedzinach życia. Impulsem dla rozwoju licznych metod oceny jakości w architekturze i budownictwie była „Zielona księga” i „Agenda 21” dotyczące idei zrównoważonego rozwoju. Podstawą opracowania jakiegokolwiek systemu kontroli jakości jest przede wszystkim stworzenie systemu kryteriów oceny. Kilkuletnia współpraca autorki z J. Serdyńską zaowocowała cyklem badań miejskiej przestrzeni publicznej (place Katowic), opartych na metodach: funkcjonalnej (określenie dominującej funkcji przestrzeni publicznej), Hall'a (zagospodarowanie tej przestrzeni) i

PPS (badanie jej potencjału). Niniejsze opracowanie ma na celu osadzić je w typologii innych badań jakości przestrzeni.

Słowa kluczowe: metoda badawcza, jakość przestrzeni publicznej

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