



Meaning of Senses in the Perception and Shaping of Architecture

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Abstract. Analyses of model facilities and interpretative records provide the guidelines for the research methods on design process via the assessment of form, function and architectural context. The assessment is a useful source of information on the quality of usable space perception. Verification of the nature and quality of an architectural form via an interpretative image opens up new perspectives of its analysis. This paper presents the perception and visual thinking via the parameter guidelines to arrive at the right means of space creation. Sensory perception and the sensory assessment method can facilitate the way we define architecture and play a significant role in the scientific discourse, which shows the importance of multidisciplinary cooperation of designers and academics. Only then can the potential of interrelations going beyond standard solutions be harnessed to our advantage. The research is based on the selected scientific publications, author's own experience and the case study.

Keywords: Interpretation · Sensory perception of architecture · Sense of identification

1 Introduction

A painting, being a visual record, is one of the most important forms of communication, conveying to the audience the author's values, ideas and emotions. Typically viewed as a product of artistic activity, it incorporates the individual expression of the author and traditional communications. It, moreover, lays the foundations for the research method initiated by Erwin Panofsky¹, an art historian and essayist, who found interpretative meaning of the contents coded in the strata of the works of art - paintings. Following his idea of interpretative iconology, one separates the prevailing theme of a work of art from the artistic composition of the whole painting. Historically, this method was used to gain information about the political, social, ideological and artistic

¹ Erwin Panofsky (1892–1968), an art historian working in the 20th century, viewed as a co-creator of the iconology concept; developed the epistemological principle which has elevated art to the rank of objective knowledge on the condition that the iconological method is used. Its theoretical foundations were worked up in 1932 for the first time. E. Panofsky presented a three level model of art-historical understanding, which when modified has eventually made a long-term impact.

situation of a given epoch or region. The approach to a painting as to an independent being has been evolving for more than 30,000 years. As of the beginning of the 20th century art has been adopting a form of a laboratory, where the application of various forms of expressions binding distant disciplines with one common denominator has been possible. The status of a painting has dramatically changed from easel painting to abstract activities in public space. We must not forget the manifesto of Joseph Beuys² of the 1970s, in which he stated that “Everybody can be an artist and everything the artist creates” is a work of art. The digital revolution has also revolutionised the way a painting is perceived because it has enabled us to use new tools of artistic creation. As a result we are able to create images that reach us from all possible media types. In order to be able to perceive such images properly we need to develop adequate skills, where the graphically-oriented usability is deemed a top priority.

In design processes, where assessment of the designed visual communication is of key importance, nature and quality of the message imply successful reception of the transmitted information. Illustrations, typography, infographics, photography, film or cartoons lay the foundations for our daily visual communication. Other components of the group, i.e. press, books, posters, television, the Internet, multimedia presentations etc. are to a lesser extent based on artistic or aesthetic pre-requisites, as they largely stress that the message should successfully reach its target. Colour, compositional layout, legibility of ideas are all subordinated to the formation of the right image of the contents sold. The omnipresent advertisements and commercials designed to optimise the processes of marketing and sales can be also identified in the media that present the architect’s visions expressed in the pictorial form, where - apart from marketing efficiency - another important issue arises, namely the design efficiency. This type of non-verbal communication allows for the mutual use of technological innovations and research results in multidisciplinary fields that in overall form a unique data cloud.

The research studies in the area of the quality of architectural space in the broad meaning thereof could focus more on the interrelations between sensuality and visuality of the image of architecture, as these are the active factors defining the nature of a given usable space. The image of space is perceived and verified through the processes of perception and depends on the understanding of the design, nature and quality of the pictorial representation thereof which integrates the data evoking various degrees of emotions and carrying substantive meaning³.

² Joseph Beuys (1921–1986), a German artist, art theorist, educator, activist, social and political reformer. He created sculptures and drawings, only to incorporate in them the later coined concept of supremacy of thought over an object (the 1940s and 1950s). In his works he used quickly perishable materials: oil, honey, felt, objects of daily use; he developed the theory of sculpture, structured as the transition from chaos to order and the theory of social sculpture. He was of the opinion that man shapes his environment by participating in historical events and being his life’s artist. Sculpture was meant to have a therapeutic effect.

³ The issue of design efficiency was presented in detail in the article *Świadomość i intuicja w procesie projektowym [Awareness and intuition in the design process]*, published in *Architektura wobec wyzwań zrównoważonego rozwoju [Architecture in view of sustainable development]*, Człowiek - Ekologia - Architektura, Volume 2, p. 179–189;

Collective work, edited by Anna Januchta-Szostak and Marzena Banach, The Faculty of Architecture, Poznan University of Technology, Poznań 2016, ISBN 978–83-7775–438-2.

2 Factors Underlying the Perception Processes

In accordance with “Słownik języka polskiego” [Lexicon of the Polish Language] [1], perception is a conscious reaction of sense organs to an external stimulus; impression”. In accordance with M. Merleau-Ponty: “perception is always a collection cognitive processes initiated to ensure that man is contact with reality; it is an active interpretation of sensory data, which uses contextual clues and prior acquired knowledge” [own translation] [2]. Thus, supporting one’s judgement with design experience, in full awareness of the needs of a future user and having carried out an in-depth analysis and verification of usable space, it seems fully justified to state that a painting can be one of the basic diagnostic factors. A painting is more than just a collection of various data or a plane for analytical observations, it is also an accumulation of impressions resulting from observations of reality and logical operations that underlie the creation of these impressions. “*It facilitates the reality perception [...], at the same time creates the perception of space, thus it is used, literally, to make [objects] visible and to improve what the vision has arrived at* [own translation]” [3]. In many situations visual thinking largely based on modern visualisation systems VR proves more effective than the thinking of computer scientists based on algorithms [4].

In cognitive psychology vision plays a significant role in recording the images and makes the representations of the observed space meaningful. The process of visual perception, an analogous image of the external surroundings, is created in the human brain in response to the exteroceptive stimuli. As the information processed by neurons, these stimuli will induce the vision of an object, a phenomenon or a situation. However, sight is not a sole human sense. Its effective work is conditioned with the collaboration with the other senses. The symbiotic cooperation of the tactile sense, auditory sense and the neuroceptive experience of the world will initiate in the human nervous system the process of the external data downloading and processing. The autonomously working nervous system works as a detector of the surrounding world, which then identifies the findings and assesses the safety level of a person or a situation. If a person or space is not identified, the visual impression gets supplemented with the assessment of the context. At the neuroceptive level, the brain as a rule activates a number of neural processes that warn the man about a hypothetical danger or prepare him for what might follow to finally make him take the ‘fight or flight’ decision.

Should this process be transposed onto cognitive layers pertaining to the cognition of the architectural environment, we could arrive at the so-called preliminary identification data of how we perceive architecture at the sensual level [5]. We assume that the design visualisations and the already erected buildings can - for individual viewers - each time represent *the new*, i.e. the unknown space-phenomenon. The use of the neuroceptive identification in the process of perception of VR images or images of completed buildings can optimise the way we conduct comparative studies of given architectural forms in the context of their quality and perception.

However, how can we rely on the information that is a collection of subjective data? What are the factors underlying the basic differences in perception? The fact that

different individuals will largely differently perceive the world, in this architecture, is conditioned on a set of factors involved in the process of external perception, namely:

1. the surrounding context combined with external aura (rain, sun), seasons and day hour;
2. sex and age of the viewer/user;
3. emotional state of the viewer/user
4. affiliation to a given social group;
5. prevailing trends and popular directions dictating the way we live.

The body seems to feel (our neuroception) largely differently from what the head thinks. The perception mechanism would be simpler if it were correlated with the attention concentration and efficiency of human senses only. Such an assumption would support the statement that the information received by different people objectively represents the object seen and that similar level of attention concentration and efficiency of senses will translate into one and the same situation being perceived identically. In her research, Magdalena Ratalewska⁴ [6] contradicts the foregoing statement, confirming that every individual will differently interpret, describe and memorise the situation/phenomenon observed. She, further, underlies the importance of the potential of evoking emotions and forming expectations that always accompany the processes of perception. The identified differences in the assessment made by various individuals do not preclude, however, the purposefulness of the proposed method.

3 Space, Image and Emotions or in Other Words the Imaged Architecture

The often used term the ‘imaged architecture’ is in other words a frame of reality, a selected section of a given fragment, typically embodied in the form of a photographic record, a sketch, a drawing, digital elaboration, visual communication, which represents a set of subjectively selected data. In the process of interpretation, it directs the attention of the viewer to the correlations and details inherent in respective spaces being their partial interpretative images. It, furthermore, defines the nature of a given facility, a complex of facilities via their formal structure triggering a given emotional response. Inspired with architectural space, the imaged architecture is assessed as an eloquent, moderate, balanced and optimistic expression thereof or as an expression otherwise narrowing down the interpretative range of the actual architectural facility, directing the viewer to the right cognitive and analytical track. A collection of interpretative images, or in other words a cycle of interpretative images, is composed of the data set that in the process of analysis may represent a source of objective information on the researched space. The assessment of the composition, means of expression, colour scheme, gesture of model interpretative images constitutes a specific medium

⁴ M. Ratalewska in her work *Spostrzeganie społeczne i jego znaczenie w procesie komunikacji międzyludzkiej* [2013] discusses the significance of the understanding of one’s own perceptual processes in the context of establishing constructive relations with other people.

separating the main ideas of design intent. The fine language of expression opens up a wide interpretative range of architectural perception and, thus, predetermines its assessment. Subjected to a sensual interpretation, a selected object implies the transfer of its characteristic features into the nature of the artistic expression. An inclusive approach of art history towards other research disciplines to allow for a deeper reflection on theory of painting was postulated by Gottfried Boehm [7] in the article 'Pictorial/iconic turn'. He stressed that focusing on the image of architecture in the search for the interdependencies between a discipline of art and new coined definitions of architecture was fully grounded because it translated into better understanding and improvement of the living comfort of its users. The said iconic turn did happen at the turn of the 19th and 20th century.

Viewing a picture as a zone of a semantic recording of objective reality and adhering to the interpretative activity in the course of the processes of perception, it can be stated that empirical experience of architecture leads to a more precise analysis of the nature of the architectural space presented.

As an example of architectural facilities subjected to the interpretative analysis, we can refer to the penitentiary facility in Rawicz. The prison complex located in the centre of the town inhabited by 20 thousand people is an island of social isolation, visually exposed by an enclosing wall, in sharp contrast with beautiful green areas and open space of arable land spreading just behind the wall to be enjoyed by all those that are free. The contrast between the busy city life and the autonomous life of the prisoners in the detention centre longing for the life outside the wall is presented in the paintings entitled *Unopened* and *A Residential Unit*. Strong orange with fragments of rusted steel bars are intended to express the pain and scream of individual prisoners muffled with restrictions, deeply hidden to mitigate the penalty imposed. Architecture backs up emotions. If it is ruthless and equally rationed as bread and a uniform in the army, it does not stimulate any positive feelings. It then imposes rigid discipline. It is not "tailored to the individual needs". It only offers shelter for those either inside or outside of the prison. It is a facility with the doors closed to the daily world of routine hassle, spontaneous joy and love. Behind these doors and bars certain emotions remain hidden, which the impasto technique is to represent. Rust is meant to symbolise the personal burnout, emotional baggage and broken conscience. Toxic space in its painted expression also shows the design efficiency of the facility. The very nature of space dedicated to prisoners was prior intended to remind them of their guilt and to reinforce their feeling of subordination (Figs. 1 and 2).



Fig. 1. K. Słuchocka, Unopened, acrylic, steel, 130 cm × 50 cm



Fig. 2. K. Słuchocka, A Residential Unit, acrylic, steel, 130 cm × 40 cm

Perception of paintings and space underlies the definition of another type of space, namely identical space, which can be viewed as the business card of the user, an external representation of his/her preferences as this space can be freely arranged by the user.

The metaphoric language of paintings voiced by a cycle of works entitled *Logical space* shows individual preferences as to a modern, simple and pure form. Like steel surgical tools, the paintings enforce certain top imposed order into the interior design they are part of. They refer to the privacy zone of a user, where he/she is free to express their own personality without trespassing the limits of someone else's freedom. Direct reception of space creates a certain emotional relation with the viewer, the quality of expression is preconditioned with the emotional state of the author and his/her attitude towards the architectural context. "Architecture has its own realm. It has a special physical relationship with life, it is an envelope and background for life which goes in and around it, a sensitive container of the rhythm of footsteps on the floor, for concentration of work and for silence of sleep" [9] (Figs. 3, 4, 5 and 6).



Fig. 3. K. Słuchocka, BiElles, acrylic, steel, MDF, 157 cm × 55 cm

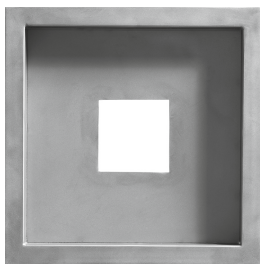


Fig. 4. K. Słuchocka Logical space 1, steel, 25 cm × 25 cm

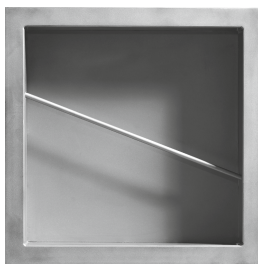


Fig. 5. K. Słuchocka, Logical space 2, steel, 25 cm × 25 cm

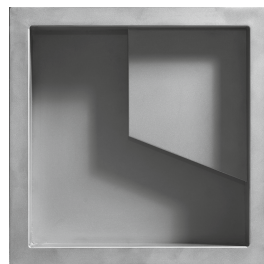


Fig. 6. K. Słuchocka, Logical space 3, steel, 25 cm × 25 cm

Whereas, the sensory and emotional perception of the Sydney Opera House building, erected in the modern expressionism style, will stand in contrast with the foregoing. Built in the years from 1959 to 1973, owing to its light structure and timeless shape of the form, it continues to be the object of admiration of the users. Compilation of steel, concrete and glass, like music and a woman, intertwine, inviting the audience inside the composition of vitality, symbiosis and glamour.

The painting entitled *BiElles* spins the story of transparent (user-friendly) spaces expressed through the combination of strongly expressive steel and lightness of whiteness of light. It also symbolises strong structural foundations underlying an ephemeral material creation of Jorn Utzon.

This architecture is intended to accommodate various users' tastes, their intended functions and different aspirations. The paths of the working staff and the visitors cross smoothly. The pictorial presentation of the building seems to be pleasing for the majority. It is an iconic design that also fosters the feeling of identity with the place.

4 Summary - Conclusions

The ideological structure of a painting is based on the correlations between space, its impact and the response triggered. Not every painting contains a full range of symbols, yet the ability to understand the sense of the interpretative image may result in an added value. Active participation in the activities of professional societies of artists and architects, reinforced with analytical relativism resulting from prior comparative research and studies will affect a widened range and options of perception of architecture. It offers new methods of perception of the factual context and can make us feel more familiar with the architectural facilities, which have been never encountered before. Design processes, supported with precision technologies and meticulously made calculations, can, in their final stage, appeal to the client - who most often is a capricious ordering party, prone to changing their decisions, and on top of that - a party that tends to pursue his/her unique and individual tastes. Owing to digital data, supported with visual thinking based on the image and the neuroceptive system of identification, we will in effect be able to work up a set of relevant design guidelines that stand a chance of meeting the expectations of the most demanding clients. The following quotation may confirm that what Juhani Pallasmaa said about direct contact with architecture is true: "Images of architecture contain an inherent suggestion of activities, a moment of an interactive meeting or "a promise of function and purpose [9]. Attempts to find a common denominator to efficiently combine the assets of an autonomous nervous system and subjective perception of the world will optimise the process of designing architecture resulting in improved living comfort of the users. This shall be understood as the resulting architecture will not only meet the physical human needs but also the Vitruvian Triad (rules of harmony).

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