

KATARZYNA SŁUCHOCKA<sup>1</sup>

COGNITIVE DUALISM,  
OR THE ART OF ARCHITECTURE INTERPRETATION  
(ARCHITECTURAL OBJECT – WORK OF ART)

---

DUALIZM POZNAWCZY  
CZYLI SZTUKA INTERPRETACJI ARCHITEKTURY  
(OBIEKT ARCHITEKTONICZNY – DZIEŁO SZTUKI)

Abstract

Looking for research methods in the comparative spheres of female psychological complexity and complex architectural structure is aimed at optimizing the design processes and expected to result in a space that is shaped to satisfy requirements, comfortable, safe, up-to-date, iconic and at the same time emanates unquestionable beauty. Verification of similarities is made on two levels: evaluation of form and evaluation of function, with taking hormonal factors into account. In this context, subjectification of architecture to the woman's role allows one to make use, to the widest possible extent, of emotions and senses being an endless source of emerging sensations that often phenomenologically build our experience. Characterological richness of both, supported with construction craftsmanship, reliability of execution, technology, but more importantly by knowledge, imagination and awareness of an architect, points to the possibility of occurrence of cognitive control elements, which implies increased impact on the quality of the reality shaped around us.

*Keywords: Hormones of architecture, cognitive control, existential space*

Streszczenie

Poszukiwanie metod badawczych w porównawczych sferach złożoności psychiki kobiecej ze skomplikowaną strukturą architektury ma na celu optymalizację procesów projektowych, w oczekiwaniach skutkujących przestrzenią kształtowaną na miarę wymagań, wygodną, bezpieczną, kroczącą z duchem czasu, ikoniczną, a przy tym wyrażającą się niekwestionowaną pięknem. Weryfikacja podobieństw zachodzi na dwóch płaszczyznach, ocena funkcji i ocena formy, przy uwzględnieniu czynników hormonalnych. W tym kontekście upodmiotowienie architektury do roli kobiety pozwala w jak najszerszym zakresie korzystać z operowania emocjami i zmysłami, stanowiącymi nieprzebyte źródło rodzących się doznań, często fenomenologicznie budujących nasze doświadczenie. Bogactwo charakterologiczne obu, wsparte rzemiosłem budowlanym, rzetelnością wykonawczą, technologią, a nade wszystko wiedzą, wyobraźnią i świadomością architekta, wskazuje na możliwość pojawienia się elementów kontroli poznawczej, co implikuje zwiększenie wpływu na jakość kształtowanej wokół nas rzeczywistości.

*Słowa kluczowe: Hormony architektury, kontrola poznawcza, przestrzeń egzystencjalna*

---

<sup>1</sup> D.Sc. Ph.D, Arch Katarzyna Słuchocka, Chair of Drawing, Painting, Sculpture and Visual Arts, Faculty of Architecture, Poznan University of Technology, katarzyna.sluchocka@put.poznan.pl; ORCID 0000-0002-0492-2761

## 1. COGNITIVE PROCESS AND THE DEFINITION OF ARCHITECTURE

The archetypal image of the most important space of our life is a house. A house is understood as safety, protection against rain, wind, possible enemy, 'home' in the context of family warmth permeated with its unique fragrance, noise, rhythm of the 24 hours of each day, home as our place on Earth which we gladly return to from the remotest parts of the world. In children's drawings, a house usually has four walls, a double-sloped roof, a chimney, two windows and an entry. In adult visions we come across forms that follow global standards, full of amenities and proofs of technology advancement, yet meeting the same basic requirements that we come across in children's renditions. Space for residential purposes, adjusted in its structural and utility features, often called a „nest', is children's home, a retirement home, a single – or a multi-family house. As understood by a young person, that single term encompasses objects of varied functions, from residential to public utility ones, of smaller or larger size. Home, simply home, with which we form close ties from infancy. That type of specific co-existence is written into human life and usually perceived in the context of interpersonal relations; it guarantees stability, offers the possibility to develop, at the same time respecting individual freedom and not excluding the right to self-determination. Interactions of feelings and attitudes, manifesting themselves in the form of relationships between partners, form the main axes in the process of personal development of each of us – parenthood, companionship, co-operation, friendship, rivalry, etc. The basis, or the common denominator, for maintaining mutual relations is the space within which such reactions can occur, undergo modifications and evolve. Existential space – a house, doubtless the most often used symbol for the grounds and optimization of existence in the cognitive context, is a basic constituent of larger-scale units; those units, while extending their impact zone, annex particular elements into their structure to keep oscillating around the most essential human needs – safety, development, co-creation/belonging/identity. At the level of classification into a specific field of science, the descriptive term 'home' assumes the name of architecture that – examined in the aspect of durability, usefulness and beauty – fits within the canon of the Vitruvius's triad in an almost timeless manner.

Understanding the grounds for co-existence of the two partners – the man and architecture – is a key to more conscious shaping of the latter in the manner that better responds to the user's needs. Treated as a partner, architecture has got its principles, requirements and expectations that need to be respected. Their violation may imply disturbance in positive relations between the two partners and consequently lower the level of quality of the widely understood context in relation to social, material, economic determinants having a direct impact on the conditions in which we live.

The level of partner understanding has a bearing on in the improvement of non-verbal communication taking place on the plane of existential space. Correlations of partners' positions, circumstances in which certain relationships happen and individual predispositions result from their personality types. When the approach is positive, the result may be openness towards the partner, searching for contact with him or her, striving to achieve shared goals. In the aspect of man-architecture relations we find the correlation manifesting itself as greater awareness in the perception of man-dedicated spaces, respect for space, making attempts to understand the architect's message articulated by the realized objects. Partners' mutual relations, related to positive or negative connections between them, are expressed in the form of: anger, personal attractiveness, indifference, hostility, hate, conflicts, emotional distance, attention focus, manipulation, contempt, control, love, intimacy, attachment, habit, etc.

The above-mentioned, vitally important, personality developing throughout one's lifetime with varied dynamics is a structure made up of many elements and dependent on their mutual relations or on spheres created between them. A relatively modest but steady level of development of particular elements of the personality structure is a condition for a healthy and happy life from the point of view of psychological hygiene, and relations that are beneficial for life comfort depend on the degree of development advancement of both partners, which is connected with the requirement of having all senses sharp<sup>2</sup>. Over-exposing some elements to the detriment of others brings about the disturbance of the entire structure. The absence of beneficial results of having acute senses, resulting in the lack of proper memory traces, may ultimately limit the use of selected mental categories describing reality, impair the understanding of reality, the ability to move within its boundaries, as well as processing suited to the needs. Moving the research field to the area of analysing sex differences on the brain level, we discover differences between male and female personality despite the fact that both sexes share almost 99% identical genes. There is a noticeable disproportion in brain size in men and women: male brain is about 9% bigger than female brain (taking into consideration the natural difference in size between the sexes), with the number of brain cells remaining the same but more "compressed" in women. Yet, hormonal balance is of fundamental importance for the female brain, with "vast neurological consequences of different secretion of hormones in subsequent phases of development (...) that have great importance for the woman's desires, the system of values, in short – for her perception of the world"<sup>3</sup>.

Those differences – structural, chemical, genetic, hormonal and functional – between male and female brain have been proven by modern research and non-invasive imaging of the brain structure. Women use different brain areas and different neural circuits in the context of language processing, problem-solving, experiencing and memorizing emotions of similar strength. Women feel stress and conflict differently<sup>4</sup>. A woman can remember the smallest details of how her beloved was dressed several dozen years ago with the same intensity as a failed romantic dinner with him, while none of those will remain long in his memory. As a result of discrepancies in the course of thinking processes, the same tasks are carried out with the employment of different mechanisms. The female brain and the male brain process differently the stimuli that reach them, the outcome being different perception of reality. Men and women see differently, hear differently, and interpret human feelings in a different manner. When carrying out spatial tasks related to composition and rotation of solids, women use paths connected with visual identification, devoting more time to imagining those forms in their minds. They are better at showing emotions and at memorizing emotional details of events<sup>5</sup>, they also have "exceptional verbal skills and ability to enter into deep relationships, a fascinating talent for reading emotions and mind states of other people from their facial expressions or tone of voice"<sup>6</sup>. Women's inborn interest in emotional expression and their specific sensitivity widens the scope of evaluation of the outer world; assisted by most senses and the emotional power of the brain, women become

---

<sup>2</sup> J. Młodkowski, *Aktywność wizualna człowieka*, Wydawnictwo Naukowe PWN, Warszawa – Łódź 1998, pp. 53–57.

<sup>3</sup> L. Brizendine, *Mózg kobiety*, VM GROUP, Gdańsk 2006, p. 3.

<sup>4</sup> T.J. Shors, *Estrogen and learning: strategy over parsimony*, *Learning & Memory*, 2005, no. 2, p. 84–85.

<sup>5</sup> D. Tranel, H. Damasio, *Does gender play a role in functional asymmetry of ventromedial prefrontal cortex?*, *Brain*, 2005, no. 12, pp. 2872–2881.

<sup>6</sup> A. Azurmandi, F. Braza, *Cognitive abilities, androgen levels, and body mass index in 5-year-old children*, *Hormones and Behavior*, 2005, Vol. 48, no. 2, pp. 187–195.

more insightful, realistic and effective. Predispositions for effective use of the senses and prognostics for possibly attainable effects of the operation of collecting data about the environment (imaging and visual identification) imply the reciprocity of reaction.

In women, multilateral perception – understanding the message, transmission, reception – takes place on the high level of detail, which optimizes the process of evaluation of objects, phenomena and events subject to verification or in-depth analysis. This entails increased projection of stimuli, facilitating external evaluation. Therefore, effective recognition takes place due to multilevel cognitive sphere consisting of emotional cognitive factors (ECP) – the senses – as well as reaction-provoking controlled and uncontrolled stimuli. The female brain's concentration on reading (recognizing) information coded in the (partner's) image, i.e. on communicating with him, causes the emission of subsequent stimuli. The process of dialogue continuation results in deeper ties between the partners, allowing for wider and wider recognition and the resulting strengthening of the relation.

Intentional activation of stimuli, i.e. sensitive areas susceptible to effective recognition by the receiving party, activates the process of perception which, as a defining one, must take place with the co-operation of the stimuli activating the senses.

#### **activation ↔ action ↔ recognition**

The emitted stimulus or a set of stimuli triggers a reaction occurring on the same operational plane. The sender of stimuli is at the same time the recipient, as the one that recognizes knows the mechanism of recognition, having been subject to such recognition before. Sensory cognitive channels are subject to free disposition, implying the construction of an image or a definition. This results from the natural need of openness and declaration of willingness to participate in the cognitive communication process.

The female personality is conducive to optimization of the processes of feedback reaction of emission and reception of stimuli, causing fuller reception and perception of the complicated matter of architecture which, in its complexity, richness and unpredictability of forms, materials and solutions, also aspires to be termed as SHE, and more precisely speaking, as Woman. The somatic reference to architecture, understood mainly as a complex compositional-functional structure, together with transferring her descriptive definitions into the sphere of a lengthy design process during which the architect combines particular threads into a single image of durability, usefulness and beauty, complement one another, offering a fuller picture.

**Architecture, just like a woman, due to its ability to recognize predicted reactions ascribed to it at the design stage preceding its “birth”, stimulates many senses and can consciously manipulate the reaction of a prospective partner – recipient.**

„Whether the appearance that touches me really is beautiful cannot be properly judged by the form itself because the depth of feeling that belongs to the sensation of beauty is not ignited by the form as such but rather by the spark that jumps from it to me.”<sup>7</sup>

There is no doubt that the womanly nature of architecture is manifested by omnipresence, usefulness, coquetry, ability to infatuate, not excluding negative reactions – reluctance, lack of acceptance, hate, etc. Architecture is, after all, a frequent subject of literary writing, it plays at least supporting roles in movies, it is depicted in paintings, drawings, photography. It generates feelings, stays in human memory, awakens reminiscences, helps us survive. Help-

---

<sup>7</sup> P. Zumthor, *Myślenie architekturą [Thinking Architecture]*, Karakter, Kraków 2010, pp. 77–78.

ful – if functional, inspiring pride and jealousy – if outstanding, offering support and sense of safety – if durable.

The diversity of Architecture's creations may be depicted by referring to the influence of hormones on the woman's brain and by attempting to formulate definitions that would treat Architecture in a similar way. That specific characterization (external and internal) leads to



- III. 1. Meaningful and Sinister – the Jewish Museum in Berlin, Berlin, 2016, photo by K. Śluchocka
- III. 2. 2-A\_Permanent – Captivating and Beautiful, Vorarlberg Museum, Bregenz, photo by K. Śluchocka
- III. 3. Untouched and Caring – neolithic epoch, Gozo, 2018, photo by K. Śluchocka

classification of its various forms recognized in the Vitruvian Triad. In the formulation of each definition, two threads are always present, one addressing the specific nature of the design process, i.e. optimization of Architecture shaping, and one devoted to the question of direct and indirect evaluation of its quality.

## 2. DURABILITY, USEFULNESS, BEAUTY

### 2.1. DURABILITY

In the aspect of durability we may point to the authenticity and sincerity of materials and safe structure, which offer architecture the chance to last for centuries. The involvement of *testosterone* (its deficiency may cause depression, apathy, inactivity, loss of appetite for life, low self-esteem, memory problems, lower libido, frequent feeling of fatigue), with the participation of awareness, restraint and good organization of the design work, we will finally obtain architecture that is attractive for the eye and efficient in many years of reliable functioning. With its participation, architecture will display with lightness all its power resulting from solid background of science and technological activity. Additionally, *androstenedione* (precursor of the occurrence of strong androgens – testosterone and dihydrotestosterone – DHT) helps put through the right design idea and leads to achieving the desired results analysed in the context of form and structure. It is responsible for the proportionate presence of both, in order for the design controllability to proceed according to the expectations of all the interested parties. In the aspect of connections with the psyche of the recipient (direct and indirect recipient), when translating it into the characteristics of Architecture, we may make use of two categories: transparent space and identical space<sup>8</sup>. Separately portraying the designed spaces or mutually complementing one another, those categories will be guarantors of quality produced of properly selected materials within the framework of meticulously performed calculations.

### 2.2. USEFULNESS

Referring to the second rule, that of usefulness, viewed from the perspective of meeting all the conditions necessary for existence, we are going to analyse first of all the presence and activity of *progesterone* (in the natural environment it is required for embryo implantation in the mucous membrane of the uterus and for maintaining pregnancy) and *allopregnanolone* (derivative of progesterone that neutralizes the consequences of stress) revealing themselves in the created spaces by answering the following needs: comfort, physical and psychological safety, sense of stability, maintaining and enhancing life comfort, qualifying a given space to the group of transparent spaces where the focus is on providing an individual user or various

---

<sup>8</sup> K. Śluchocka, classification of space presented in the publication *Przestrzeń toksyczna, przestrzeń transparentna, przestrzeń tożsama* [in:] M. Głowacka, R. Rosińska (eds.), *Architektura a styl życia*, Polskie Towarzystwo Nauk o Zdrowiu, Poznań 2014, pp. 227–238. In the article, the author distinguishes three types of space, each of which responds to the needs of specific groups of users or identifies the type that discredits certain space as comfortable or safe (toxic space). Transparent space guarantees comfort and safety to all users; identical space allows for the transfer of individual, often controversial tastes to spaces intended to be used by selected individuals, depending on the scale of the project, determining the character of its interiors or exterior.

groups of users optimum conditions in a selected time interval. Also *oxytocin* will play quite a significant role in shaping the environment in which we are destined to pursue our life goals (as it can stimulate – depending on our mood – docility and trust, jealousy, generosity, protectionism, co-operation) by giving a special character to the designed spaces that guarantees the sense of calm, contentment, certainty and balance. Being responsible for building the emotional bond, a user-dedicated targeted form of space will consequently encourage mutual positive contacts through the expression of that form, its external manifestation and connection with the context – friendly, comfortable, suitable. Also cortisol, with its calming effect in stressful situations, will regulate the level of rational and emotional response in terms of character of the external visual aspect and adjusting the adequateness of the function to the needs, striving for an image of perfection.

In order to be able to attain the assumed goal – an ideal architectural form – comprehensive shaping of human-friendly spaces is necessary, and this calls for sensitivity, empathy, openness to contact and readiness for a constructive dialogue on the part of the designer.

### 2.3. BEAUTY

*Estrogen* (the proper level of estrogen is important for the correct functioning of both male and female organism, affecting many of its features and functions, such as physical constitution, shaping of psychological traits and sexual desire) is a key factor that conditions the creation of architecture dedicated to a specific recipient in all aspects of perception. Directly translating into structural logic and form of the designed spaces, it implies the image of thrilling sensuous beauty in the attire of exceptionality, proportion and harmony. Estrogen influences the quality of the composition, balance and hierarchy of value of the details, the relation between colours and chiaroscuro sculpting the facades, offering architecture the role of an icon, a landmark of a given place. Estrogen is a condition for the presence and effective activation of stimuli and ultimately the overall reception of Architecture that is sometimes designated to be a work of art and at other times, sadly, condemned as the “greatest macabre ever”.

Another hormone active in cognitive processes, *vasopressin* (participates in the regulation of social behaviour) opens the door and encourages proximity, contact, helps users domesticate a given space, applying a pinch of mystery in the process. Tempting and provoking, it introduces us into the labyrinths of sensations, It entails further personalized creations of own spaces that are interpretations of existing spaces. It oscillates in the direction of classification of the designed spaces to the group of identical spaces – individualized, dedicated to a specific user who will experience them subjectively, deriving satisfaction from being inside them. Architecture is like a loving wife who knows her partner’s tastes: tender, understanding and always the most beautiful in his eyes.

### 2.4. HOLISTIC NATURE

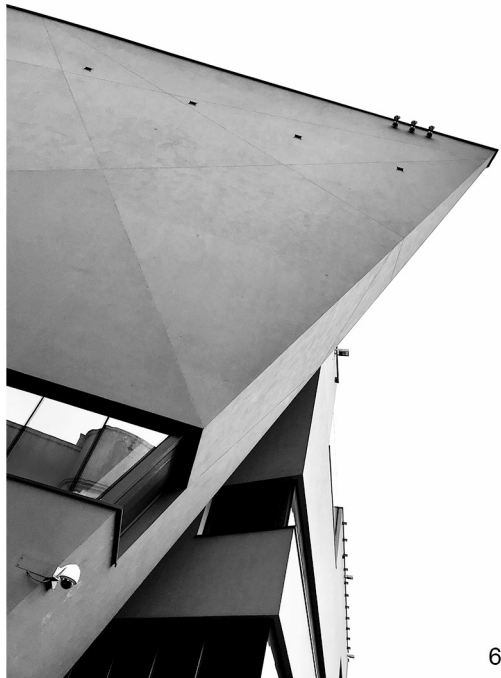
In the terms of the hormonal analysis, the image of architecture as something that builds the urban tissue, offers a good continuation in rural landscape contexts, blends with the ecosystem and the natural environment, is expressed with *DHEA*. It is a natural steroid hormone, the so-called ‘hormone of youth’, sustaining life, giving positive energy, stimulating the production of testosterone and estrogens, with beneficial impact on human intellectual and physical



4



5



6

shape. An attempt to view the issue from the angle of the complex female psychology, the analogies to which we can find in architectural structures, widens our perceptive abilities opening the so far unexplored paths. The *DHEA* can almost perfectly facilitate interdisciplinary combination of sociology, philosophy, law, politics, rhetoric and engineering with the author's methods of *designing space, managing, running a company, PR, drawing, empathy*. (...) *The sense of detail down to the smallest bolt, ability to strategically control a considerable piece of the planet*<sup>9</sup>.

### 3. CONCLUSIONS

The sensory quality of architecture, present in the perception of the richness of its creation, complexity of systems that generate ultimately simple answers to the articulated needs of the user and wisdom contained in the structure, leads to the depth of the meanders of unexpected solutions and surprising answers to questions about the methods of proper understanding of the nature and phenomenon of woman-architecture. Architecture, equipped with all the sensory receptors the operation range of which depends on the frequency of multi-faceted activity, affects the direct and indirect recipient entering into a dialogue with him. The model 'architecture-recipient' and 'recipient-architecture' feedback takes place with full functioning of the entire system – mutual activation of stimuli, symptomatic of the woman's nature. We often describe architecture with adjectives most often associated with describing the woman's personality. Subtle in its expression, shining with inner light, slender and upward, light and ephemeral, elegantly independent. ...*Sinful and saint forever (...) the summit above the clouds and the endless chasm. The beginning and the end*<sup>10</sup>. Just like a woman, it is full of contrasts and surprises and awakens passions. Helpful – if functional, inspiring pride and jealousy – if outstanding, offering support and sense of safety – if durable. The Vitruvian triad, for centuries perfectly summarizing the values of architecture, still remains valid with regard to the manner of its perception and creation despite contradictory theories, and durability, usefulness and beauty are timeless values that may contain a joint characteristic of woman and architecture. *It is evident that 'life-enhancing' architecture has to address all the senses simultaneously and fuse our image of self with our experience of the world*<sup>11</sup>; it is equally evident that both Architecture and Woman require special treatment, and in exchange they offer satisfactory articulation of the experience of being in the world.

---

<sup>9</sup> T. Dyckhoff, *Epoka spektaklu [The Age of Spectacle]*, Karakter, Kraków 2018, pp. 239–243.

<sup>10</sup> J. Tuwim, *Poezje*, 1934.

<sup>11</sup> J. Pallasmaa, *Oczy skóry – Architektura i zmysły*, Instytut Architektury, Kraków 2012, pp. 15–16.

Ill. 4. Dainty – Spain, 2007, photo by K. Słuchocka

Ill. 5. Intelligent and Attractive – Sagrada Familia, Barcelona, 2007, photo by K. Słuchocka

Ill. 6. ASP Katowice\_Safe and caring, Katowice, 2018, photo by K. Słuchocka

## References

- [1] Azurmandi A., Braza F., *Cognitive abilities, androgen levels, and body mass index in 5-year-old children*, *Hormones and Behavior*, 2005, Vol. 48, no. 2.
- [2] Brizendine L., *Mózg kobiety*, VM GROUP, Gdańsk 2006.
- [3] Dyckhoff T., *Epoka spektaklu*, Karakter, Kraków 2018.
- [4] Młodkowski J., *Aktywność wizualna człowieka*, Wydawnictwo Naukowe PWN, Warszawa – Łódź 1998.
- [5] Pallasmaa J., *Oczy skóry – Architektura i zmysły*, Instytut Architektury, Kraków 2012.
- [6] Shors T.J., *Estrogen and learning: strategy over parsimony*, *Learning & Memory*, 2005, no. 2.
- [7] Słuchocka K., *Przestrzeń toksyczna, przestrzeń transparentna, przestrzeń tożsama* [in:] M. Głowacka, R. Rosińska (eds.), *Architektura a styl życia*, Polskie Towarzystwo Nauk o Zdrowiu, Poznań 2014.
- [8] Tranel D., Damasio H., *Does gender play a role in functional asymmetry of ventromedial prefrontal cortex?*, *Brain*, 2005, no. 12.
- [9] Tuwim J., *Poezje*, 1934.
- [10] Zumthor P., *Myślenie architekturą*, Karakter, Kraków 2010.

### Author's note:

Katarzyna Słuchocka was born in 1967 in Poznań. She is a graduate of Poznań University of Technology where she was awarded Master's degree with Honours. She completed doctoral studies in 2001. Habilitation in 2016. She has been an academic teacher at the Faculty of Architecture of Poznań University of Technology in the Department of Drawing, Painting, Sculpture and Visual Arts.

Organiser of exhibitions, displays, competitions, participation in interdisciplinary research projects, creative work contributing to personal development, participation in conferences, scientific symposia, outdoor artistic workshops, active participation in organisational works, educational duties related to the educational process, research activities.

Her creative work includes the fields of designing, painting, drawing and photography. Her artwork has been displayed on numerous group and solo exhibitions in Poland and abroad.