Perception of architecture in the context of an extended-spectrum of cognitive factors. Selected issues

Introduction

The basic problem that all analysis of perception undertakes is the way in which the image of an object appearing in consciousness is related to reality [1, p. 20]. We find similar doubts in relation to architectural forms that ambiguously fill the environment in which we live. Architecture, which is an inseparable component of our everyday context, accompanies man in the aspects of physical, biological and psychological life, satisfying the need for security, property, sometimes luxury or vanity. It evokes admiration, envy, laughter, and is sometimes the object of mockery, although most often it is simply the background of existence. In our considerations we attempt to answer the question whether everyone perceives architecture in the same way and how to get to know it effectively. James Fitch claimed that [...] in architecture there are no spectators: there are only participants [2, p. 706]. We are therefore elements of a spatial composition created by designers and years of history. Entangled in a complicated network of mutual relations with the remaining components of the puzzle [3, p. 85], we can influence its shape by reacting to stimuli that are generated in the processes of direct and indirect contact with given architectural forms. The register of changes taking place within the observed architectural spaces, details, colors, proportions, selection of finishing materials, etc. by each participant-recipient occurs individually, evoking various reactions. The selected research method (image-semantic analysis) consisting in observation, evaluation and interpretation expressed in the written word is an attempt to expand the cognitive area of architectural spaces. In this article, a selection of architectural realizations from Poland and the world was used for the analysis. The research was carried out in accordance with the topic: “Architectural object – a work of art in the context of perception processes” (2019–2021). The results of individual stages of the research process were presented in scientific publications and delivered papers. The results of the work were also presented in the form of the organization of original exhibitions and multimedia shows as well as participation in collective exhibitions, thanks to which the group of interested parties was increased and the adopted research method was popularized.

Purpose and methods of research

The aim of the study is an attempt to indicate the possibility of a complementary use of the ambiguity of stimuli and their interpretative reception in cognitive processes related to the form and architectural space in the context of perception processes. An attempt was also made to answer the question whether the use of the essence of the image, which is a data carrier (information on the newly designed and put into use spaces), supported by verbal extension, may translate into an expansion of the cognitive field and an increase in the group of people potentially participating directly or indirectly in shaping architecture. In order to deepen the processes of perception in the conducted research, sensory cognitive methods were used in conjunction with the analytical, conscious selection of given architectural forms, in this case their recording in the form of photographs and verbal commentary. The presented examples of architectural structures are an original selection supported by a preliminary exploratory analysis in the field (assessment of the character, function, degree of connection with the context). Bearing in mind that [...] thinking with pictures is one of the recognized forms of
non-verbal thinking in contemporary cognitive psychology [4, p. 1], the factor enriching the interpretative understanding of reality, conscious frames and compositions of verbal comments (graphic poem) was taken into account, to emphasize the importance of the image in the processes of perception of architecture. An important group of factors influencing the quality of the cognitive process may be word systems, composed on the basis of the assessment of the character of an architectural object and analyzed in the form of an image (graphic poem). The research was conducted on the assumption that it may imply increased involvement of people trying to understand and recognize the external environment and encourage participation in its indirect shaping (indirect participation).

The whole discussion was set in the framework of the observational method, comparative and heuristic analysis, case study and the original method of image-semantic analysis, which were to confirm the purposefulness of applying the principles of extensive perception in the processes of learning and defining architecture.

Perception of architecture – image and word. The state of research

The research includes a picture-semantic analysis of architectural forms perceived as a frame of a larger whole and treated as an image (author’s frame in a photographic record) and supplemented with poetic comments. Therefore, referring to the image, usually associated with the concept of artistic activity, including the sphere of author’s expression, it is worth referring to Erwin Panofsky [5], an art historian and essayist, who in 1932 found an interpretative meaning for the encoded content in paintings-works of art, thus providing a theoretical basis for the research method. Another important point in the changing definition of a painting was the manifesto of Joseph Beuys, the creator of an extended definition of art, who in 1973 proclaimed that […] art is currently the only evolutionary and revolutionary force (after: [6, p. 48]). Thinking about the image has changed significantly under the influence of the digital revolution, which has also expanded the offer of new tools for creating images, accessible and reaching us from all media. In many spheres of activity, the image began to be treated mainly as a carrier of information. In response to the increasing popularity of images, which prioritize graphic usefulness in the transmission of information, adequate skills of their perception have been developed, which are increasingly related to the perception and presentation of existing and newly designed architecture. Opening the history of art to other research disciplines, in order to deepen the reflection on the theory of the image, was postulated by Gottfried Boehm [7, pp. 11–13] in the article Return of Images. He emphasized that in the search for a relationship between the field of art and the shaping of new definitions of the exterior, it is worth paying attention to the image of phenomena, because it will translate into a better understanding and improvement of the users’ quality of life. Boehm convinced readers that the image is an important means of communication, conveying emotions and ideas. He believed that the images in their honesty of presenting thoughts or the world are closely related to reality, that they constitute a specific interpretation and continuation of the author’s message [8, p. 106].

The image, reaching a wide audience, can initiate a non-verbal bond with the work of art and initiate the process of interpreting an architectural form through the prism of its depicted form. Juhani Pallasmaa commented on the images of architecture, saying that they contain non-obvious guidelines regarding the reception of a given space, that they represent the designer’s thinking about architecture and, on his behalf, invite you to the interior, confirming the truth and value of dependencies resulting from direct contact with architecture and feelings taking place in its company [9, p. 75]. In turn, Jean-Jacques Wunenburger in his publication emphasized, referring to the philosophical way of perceiving and analyzing images, that they combine a sensual and logical approach to the world, that they present a specific cognitive dualism, complementing each other [10, p. 46]. Rainer Mausfeld raised the topic of image perception and the ability to use metaphors and allegories [11, pp. 19–54]. Agnieszka Kłopotowska in the article Niewidzialna architektura – status piękna w pozawzroczowej percepcji przestrzeni architektonicznej [Invisible architecture – the status of beauty in the extra-visual perception of architectural space], drew attention to the importance of sensuality in the reception of architectural spaces [12, pp. 269–274]. The issue of feeling and the aesthetic reaction related to the sensory emotions generated through the cognitive process was also discussed by Ali Aumran Lattif Al-Thahab [13, pp. 327–352]. In his monograph, Marco Frascari [14] described the issue of cognitive activity carried out by architects while working on professional projects, pointing to the legitimacy of reusing earlier successful episodes of architectural understanding, i.e., references to drawings-images of architecture, also taking place at the level of aesthetic reception of images.

In the process of perception, the use – apart from the sense of sight, touch, hearing, and neuroceptional experience of the world [15, pp. 105–116] – of an additional element, which is a verbal type of commentary-interpretation, can effectively deepen the cognitive process of architectural spaces. An extended set of cognitive processes may provide a person with a better contact with reality, and thus a more conscious and reliable perception of it, as Kazimierz Wolny-Znorzyński wrote about in his work [16, p. 116]. Emotionally expressed opinions about a given architecture strengthen its perception, which was mentioned by Wojciech Biatus in the publication Efekt wizualności [The Visibility Effect] [17]. The author performs formal analysis of texts that directly affect specific

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1 In the monograph Gottfried Boehm considers issues related to the theory of the image in the context of seeing, looking and verbalizing these actions, talking about the “iconic sense of images” [8]. It refers to the iconic turn that took place at the turn of the 20th and 21st centuries and called for the opening of art history to other research disciplines in order to deepen the reflection on the theory of image.

2 Kłopotowska draws attention to the essence of sensuality in the perception of architectural spaces. In her study, she addresses selected issues necessary for the perception of architecture by people whose perception is not based on the main role of the vision analyser [12].
images, confirming the legitimacy of combining various means of expression to optimize cognitive processes.

A comparative analysis relating to the recognition of architectural forms through the prism of a poem combines the literary field with the construction of given pictorial representations, completing the process of perception. The attention devoted to the interpretation of the description of architecture generates further symbolism of reflective insights. In these symbolic representations, words play an important role. Anna Cymer, focusing on the work of Zbigniew Herbert [18], [19], noted that the poet had a sensual and emotional experience for the poet, which is probably why his notes on architecture remain relevant and fascinating to this day [20]. In the case of expanded perception, the poetic commentary touches an image (a reference to painting or photography), which may be a work of art or an architectural form. Poetry related to the subject of architecture was also thoroughly discussed by Bogdan Zeler [21, pp. 129, 130], paying attention to the valuable information about objects contained in poetic verses.

One can refer to the perception of architecture in Polish and European literature, for example, through the works of Józef Czechowicz (Kościół Świętej Trójcy na Zamku [Church of the Holy Trinity at the Castle]), Julian Przyboś (Katedra w Lozannie [Cathedral in Lausanne]), Miłosz Kamil Manasterski (Arkitektura [Architecture]), Rainer Maria Rilke (Cathedral), Tadeusz Różewicz (Godtys 1954 [Gothic 1954]) and many others. By analyzing the examples of selected poetic interpretations, it can be concluded that each time they constitute an emotional comment caused by contact with a given architectural space, holding attention and distinguishing it.

The research discussed in the article broadens the cognitive spectrum by combining a verbal commentary with its graphic composition, which implies another form of the image. Image perception enriches your thinking and deepens your imagination. It also translates into the development of the ability to visualize reality, complementing the cognitive process. The interference of the mind with the state of the primary image is based precisely on semantics. Words tame the subject with content and reveal the meaning. It should be borne in mind that there may be cognitive discrepancies between the word and the picture, generating doubts about the accuracy of the word. However, this is within the limits of error, as are the discrepancies in the results of interpretations carried out by various recipients - observers of architectural spaces. Marcin Jażyński, referring to David Hume [22], noted that [...] mental activities consist in manipulating the empirical material accumulated in impressions and ideas, [...] that ideas are associated in the mind. If the first appears, it entails the occurrence of the second [23, pp. 393–406]. It uses the theory of connectionists [24] stating that the attempt to replace a computer metaphor with a brain metaphor is based on the functional state of processes that store data for a very short time, and knowledge influences the course of information processing. Interestingly, in this aspect, phenomenological research is carried out by Robert Schwartz [25, pp. 707–719], who presents his position on the tradition of openness, which can be referred to when perceiving and understood architecture using images and words. Gunilla Jive’n and Peter Larkham, in their study [26, pp. 67–81], focused on the general experience of architecture, saying that the genius loci of a given space is related to the feelings of people experiencing it, not the designers’ intentions. Thus, they adhere to the assumptions linking the perception of architectural spaces, its in-depth knowledge with the extended cognitive process, each time based on human feelings.

**Form, image, word – a case study**

The images covered by the eyesight, as part of the daily recording of the outside, are processed individually by everyone and build the reality that surrounds us. Additionally, enriched with verbal commentary, they broaden the field of cognitive perception, giving the possibility of a fuller understanding of the selected spatial form. Understanding the world takes place through images that constitute its components, and the verbal forms of expression used to describe events and elements complete the communication.

The article presents complementary systems of selected architectural forms presented in the form of images (photographic record) and verbal commentary, using mechanisms known from cognitive psychology, where vision plays an important role in the study of images and gives sense to express the observed reality. In the course of the research, each time a set was considered, which consisted of a selected architectural object and its interpretation, i.e., an individual photographic arrangement and a graphic arrangement of verbal supplements adequate to it [27]. The study uses original poetry comments configured for the needs of the research and photographs taken during previously conducted field inquiries. Each of the selected objects was treated autonomously, bearing in mind that in the process of visual perception, the mind creates an image that is analogous and directly related to a given object, and exteroceptive stimuli (neuronal information) evoke an individual vision of an object, phenomenon or situation.

In the course of the perception of architecture taking place through verbal and photographic interpretation of given architectural forms, we use pictorial thinking. We identify the architectural form through the prism of the photographic frame, i.e., the image. Adding literary comments to an image (photographic record) implies new configurations, deepening the recognition of a given space.

The composition of forms presented in the illustration (Fig. 1) and the accompanying poetic commentary concern fragments of the body of Stary Browar in Poznań [27, pp. 34, 35]. It is no coincidence that the discussed object was chosen, as it is an intentional operation of combining history with elements of contemporary design trends. Contrasting combinations of authentic materials used in the construction of the municipal brewery and the reconstruction carried out by ADS Studio resulted in an interesting
The image of architecture and functionality. The typographic arrangement (image and poem) is to emphasize the procedures employed by architects, based largely on formal contrasts. The irregular rhythm of the lines also intensifies the idea of combining “old and new”.

Another example of illustrating the architectural space is the building of the Academy of Fine Arts in Katowice, by An Archi Group, which as a body situated in the context of residential buildings is distinguished by its character and function (Fig. 2). In its original performance, it intrigues and invites you to enter the interior like a work of art for interpretation and dialogue with the artist. A verbal and pictorial composition [27, pp. 40, 41] supplements the description with a graphic designed to imitate a puzzle of blocks, which, like the tasks performed, can combine both work (didactic function) and play (a work of art has informational and decorative functions).

The building, colloquially named Bałtyk, located at the Kaponiera roundabout in Poznań, designed by the MVRDV studio, subjected to an interpretative analysis, is its iconic showcase for some of the city’s residents, while others believe that it does not fit the context of its surroundings.
(Fig. 3). Fascinations with its form are presented by the arrangement of lines characteristic of the building [27, p. 55], which is supposed to build tension and attract attention, just like the architectural creation itself.

The image completed with a word in the verbal and pictorial commentary adequate to the architectural structure is also the Chapel of St. Benedict in Switzerland (designed by P. Zumthor). The photographic record in its central, symmetrical composition draws the attention of the observer towards the sky, and the reflection is shown in the arrangement of the poem (Fig. 4), also configured as a central, vertical composition [27, pp. 48, 49].
In the company of modest, wooden architecture, which is only a background for spiritual tranquility, man finds the purpose of his journey, the justification for coming, and this is also the verbal construction. The vertical, synthetic notation is to complement the senses of feeling without disturbing the perception of the whole, i.e., the typographic arrangement of pages in the monograph.

The composition, which consists of a photographic record of a frame from the Jewish Museum in Berlin, designed by Daniel Libeskind (Fig. 5), also gives a feeling of tranquility. However, the procedure of maximum separation of the photographed space from the verbal comment was used here [27, pp. 72, 73], which is supposed to evoke associations with isolation, exclusion, and the tragedy of thousands of lives lost in concentration camps. It is supposed to intensify the feelings acquired while visiting the museum. Steen Eiler Rasmussen’s words regarding “the building as a composition of only voids” [28, p. 48] accurately fit one of the functions of architecture. We are dealing here with the phenomenon of design effectiveness [29, pp. 179, 189], which means that the creation of a given space meets the designer’s intentions. In this case, the architect’s message is a synthesis of a sensory experience encompassing all perceptual impressions, enclosed in concrete walls equipped with small openings through which light seeps through. The creation of voids, ascetic spaces devoid of excessive detail, without museum exhibits is [...] a sensitive container for the rhythm of footsteps on the floor, for the concentration of work, for the silence of sleep [30, p. 12]. It awakens emotions deeply moving people, painful associations with events and places. Without words, we become participants in a situational simulation, where the form outlines a feeling that remains in our memory for a long time.

Results

The architectural form perceived in a pictorial way and supplemented with a verbal comment, which is an extension of the external characteristic, gains another starting point in the cognitive process. The portrayed, selected architectural objects or their fragments examined without a complementary verbal commentary constitute only a collection of original frames of reality. A given image (in this case a photo), without the possibility of naming individual elements, remains undeciphered until its components are included in the linguistic sphere of the cognitive process. The introduction of a poetic supplement to the composition is an impulse that is to influence more precise building of a secondary – symbolic image in the mind, thus deepening the process of giving sense to reality. The picture can be treated as an aid in comprehending meanings and reality, as an interpretation of words, which is supposed to bring the recipient closer to the expressed design idea which, apart from purely logical basics, also contains an emotional charge [10, p. 70]. In this process, words can effectively mediate the mind’s interference with the state of the primary image, and verbal communication can be considered essential here.
Table 1. List of potential components participating in the in-depth cognitive process of architectural forms with the use of the image-semantic analysis method (elaborated by K. Słuchocka)

Table 1. Zestawienie potencjalnych elementów składowych biorących udział w pogłębionym procesie poznanym form architektonicznych z wykorzystaniem metody analizy obrazowo-semantycznej (oprac. K. Słuchocka)

<table>
<thead>
<tr>
<th>Architectural structure</th>
<th>Process of perception in the context of photographic register (cognitive direction)</th>
<th>Process of perception in the context of verbal commentary (cognitive efficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>the general nature of an architectural form or its fragment</td>
<td>emotional attitude towards an architectural form</td>
</tr>
<tr>
<td>2.</td>
<td>material characteristics and colour of materials</td>
<td>associations and an extensive situational narrative</td>
</tr>
<tr>
<td>3.</td>
<td>dimensions of the architectural form</td>
<td>references to the internal experiences of a process participant</td>
</tr>
<tr>
<td>4.</td>
<td>compositional dependencies</td>
<td>private commentary</td>
</tr>
<tr>
<td>5.</td>
<td>relations with the external context</td>
<td>abstract polemic</td>
</tr>
</tbody>
</table>

The applied method of image-semantic analysis

1. Deepening sensitivity and imagination
2. Building a secondary – symbolic image in the mind
3. Deepening of emotional attitude towards a given architectural form
4. The possibility of initiating the process of reinterpretation
5. Expansion of the cognitive process related to the architectural form
6. Extension of the group of people who can actively participate in the cognitive process of the architectural form
7. Possibility of fuller recognition of a given architectural form (detail, composition, genius loci, etc.)
8. Possibility of deepening the ability to visualise reality

Table 1 lists the potential components involved in the in-depth cognitive process of architectural forms, using the image-semantic analysis method. Expanding the perception process with additionally used verbal commentary (recognition, description, reception, interpretation) activates subsequent senses to recognize and generates new associations built in the mind, thus increasing the area and possibilities of a more complete experience and identification of architecture.

It can be assumed that the author’s interpretations contained in the reception of the compilation of the form, image and words stimulate reaction, dialogue, and ultimately reinterpretation, which plays a key role in the cognitive process of architecture. The process of reinterpretation takes place on the levels of intimacy and depends on the sensitivity, and indirectly on the way of portraying architecture or its fragments:

image of architecture ↔ verbal comment
↔ graphic-verbal form of interpretation

As a consequence, opinions which are based on emotional perception are strengthened and at the same time activate and familiarize them with the often foreign architectural form. Semantic transfers of meanings and broadening the field of reception, thanks to the combination of individual components of the final version of the image-composition into the intended composition, strengthen the message and broaden the spectrum of perception. The sensuality that arises from the depth of feelings becomes more realistic and allows the use of another opening in the cognitive process. It is worth returning to the way architecture was perceived by Zbigniew Herbert, who, as Cymer describes in an interesting way, saw traces of the development of our civilization in [...] architecture, but he perceived it not analytically, but emotionally and sensually [20]. The specificity of the approach to the perception of the outside world, the sensitivity as well as compositional and verbal inclinations give a different meaning to the experience of architecture. In an original way, they pay attention to detail, details and genius loci, which perhaps go unnoticed by the majority of recipients. This implies the claim that expanding the way of perceiving architecture, apart from its pictorial presentation, also through the prism of verbal commentary, may be an effective tool in the cognitive process of architecture.

The applied image-semantic analysis gives grounds to argue that the conducted research may contribute to the consideration of the above-mentioned method as a tool for in-depth recognition of architectural forms from the sensual and behavioural side.

**Conclusions**

The study highlights the possibility of deepening the sensitivity and imagination, as well as broadening the field of perception with the use of pictorial (author’s photographic record) and verbal (poetic commentary) interpretation. An image, in this case a photographic register of architectural spaces, becomes a gateway to associations emerging in the course of cognitive processes and to new meanings of the observed space being built. The search for relationships between the areas of pure art, design arts and verbal poetic commentaries can complement the sensual perception of architectural space. They also confirm the legitimacy of the complementary use of the ambiguity of
stimuli deepening perception and originating in the basic senses, as well as additional elements important in the observation process: analysis and interpretation (analysis of verbal interpretation). This in-depth analysis and reception of architectural space, taking place with the help of the interpretation of an architectural form (an interpretive image and a verbal comment), can effectively increase the sensitivity and awareness of users of architectural spaces, strengthening the social identity and individuals. Expanding the field of interpretation and reception of architectural space with the sphere of sensual perception opens up new possibilities of interpretation and tightens distant areas of research, giving a new dimension to articulations and semantics, treated as opinion-forming factors. It also implies further sets of data necessary for a factual assessment of mantics, treated as opinion-forming factors. It also implies that sensual reception and interpretative representation, may facilitate the identification of the right way of creating architecture, ultimately consciously implicating the space intended for humans. As Rasmussen [28, pp. 225–237] argued in his study, referring to the issues of acoustics in architecture, that architecture can be heard, it can also be assumed that poetic comments, which are a graphic complement to the image-photograph of architecture, are a cognitive tool helpful in its understanding and comprehending while the provoked reinterpretation plays a key role in the cognitive process of architecture.

In the presented research process, taking into account the method of image and semantic analysis, other forms, events or phenomena may also be the subject of studies. The above-discussed thematic research entitled “An architectural object – a work of art, in the context of perception processes” concerned only selected architectural forms. The survey and opinion-forming method planned for implementation will enable us to fully confirm the validity of the applied method.

References

Abstract

Perception of architecture in the context of an extended-spectrum of cognitive factors. Selected issues

Perception of architectural forms takes place in the processes of conscious and unconscious reception of architecture, during the observation or use of architectural spaces. Deepened perception as a result of sensory interpretation and reinterpretation may be of great importance in the processes of shaping the architectural environment, which is the context of our existence. The article discusses the problem of recognizing and categorizing architecture and the possibility of broadening the cognitive spectrum for the optimization of design processes.

An architectural object perceived as an image remains a multi-format commentary also in its written form, accompanying people at every stage of their life, often having an impact on its quality. By careful observation and comparative analysis, based on selected examples from both the country and the world, referring to the author’s artistic interpretations and semantics, an attempt was made to indicate a new opening in the procedures of recognizing architecture. The aim is to confirm the thesis that the choice of observations, according to the existing, specific conditions of shaping architectural forms, relates to the sphere of sensory experience and may constitute another element facilitating the understanding and shaping of architecture. It is also important to show the relationship and links between the data obtained during the analysis and interpretation of images as well as their influence on the shaping of architectural spaces.

Key words: architectural form, remark, image, perception

Streszczenie

Percepcja architektury w kontekście poszerzonego zakresu czynników poznawczych. Wybrane zagadnienia

Percepcja form architektonicznych zachodzi w procesach świadomego i nieświadomego jej odbioru, w trakcie obserwacji lub użytkowania przestrzeni architektonicznych. Pogłębiona percepcja, odbywająca się w wyniku sensorycznej interpretacji oraz reinterpretacji może mieć duże znaczenie w procesach kształtowania środowiska architekturnego, stanowiącego kontekst naszej egzystencji. W artykule poruszono problem rozpoznawania i kategorizacji architektury oraz możliwości poszerzenia spektrum poznawczego dla optymalizacji procesów projektowych.

Obiekt architektoniczny, postrzegany jako obraz, pozostaje wieloformatowym komentarzem także w zapisie słownym, towarzysząc człowiekowi na każdym etapie życia, mając często wpływ na jego jakość. Drogą wnikliwej obserwacji, analizy porównawczej, na podstawie wybranych przykładów z kraju i ze świata, odnoszących się do autorskich interpretacji plastycznych i semantyki, podjęto próbę wskazania nowego otwarcia w procedurach rozpoznawania architektury. Celem jest potwierdzenie tezy, że wybór spostrzeżeń według zastanych, określonych warunków kształtowania form architektonicznych odnosi się do sfery doznań zmysłowych i może stanowić kolejny element ułatwiający zrozumienie i kształtowanie architektury. Istotne jest także wykazanie zależności i związków zachodzących między danymi pozyskiwanymi w trakcie analizy i interpretacji obrazów oraz ich wpływem na rozumienie przestrzeni architektonicznych.

Słowa kluczowe: forma architektoniczna, komentarz słowny, obraz, percepcja