Justification of the Media-Linguistic Approach to the Formation of Architecture and Development of Urban Spaces

Mariana Parneta*

Lviv Polytechnic National University, Institute of Architecture and Design, Department of Architectural Design, S. Bandery str., 12, Lviv, Ukraine

Mykola Habrel

Lviv Polytechnic National University, Institute of Architecture and Design, Department of Architectural Design, S. Bandery str., 12, Lviv, Ukraine

Vitalii Kovalchuk

Lviv Polytechnic National University, Institute of Mechanical Engineering and Transport, Department of Railway Transport, S. Bandery str., 12, Lviv, Ukraine

*Corresponding author: **mariana.b.parneta@lpnu.ua**

Abstract

The research object is the media content of architecture and urban spaces, which is important for designing modern architecture and integrating it into the existing environment. It is established that the ability of an architectural environment to transmit information and be a communication element allows considering it as a language. Media architecture includes the whole complex of elements, the relationship of which translates a specific idea or demonstrates its absence. Analyzing the informative essence of a city as its language has a number of advantages. Firstly, in this study, the language of a city is considered as a model of its ability to be a carrier of information. Secondly, this approach depicts the communicative properties of urban space best. Thirdly, speech has a direct connection with a person's consciousness, cognitive skills, and manifests itself through the interpretation of certain information by a person. Given this, it can be argued that this study is relevant in clarifying the issues of limiting and structuring information in the environment of a modern city. The theory of media in the architectural environment is based on the analysis of existing examples of media formation at three hierarchical levels: urban space, an architectural object, and a finishing element. This study is conducted in the example of the city of Lviv. Material and mental aspects of media, which form the informative essence of an object or space and directly affect its perception by a person, are identified. This leads to the division of the essence of media architecture and urban spaces into material and mental components. A methodology for analyzing architecture and spaces using a media-linguistic approach, which includes six stages of analysis, has been developed. The application of this approach in design will allow moving from a chaotic environment to creating a conceptual anthropocentric space.

Keywords: informative architecture, media architecture, media-linguistic approach, the architecture language.

Introduction

Information tools have always been present in one form or another in the architectural environment. First, they appeared in the form of symbols, signs, and text. Technological advances make it possible to diversify facades, thus creating a unique conceptual image that translates certain information (Tomitsch, 2022). Modern architecture performs a variety of roles: from the primary function of protection from external influences to the embodiment of socio-cultural values of humanity. The appearance of a building determines its perception on the scale of a street, district, or even city (Septianingrum et. al., 2022).

More and more means of transmitting information are being integrated into the modern environment of the city, ranging from advertising banners to media facades. Thus, the concept of "media" of architecture and urban spaces appeared as their informative essence, characterized by the ability to be an information carrier and a communication element with a person (Eilouti, 2018).

The media content of the modern environment plays an important role in shaping social behavior due to its ability to broadcast local cultural and social values. Due to its social orientation, the media content of architecture and urban spaces goes beyond its original functions and becomes anthropocentric (Shahlaei and Mohajeri 2015). It has the potential to influence the development of human life in town.

Although the media content of the existing architecture mainly serves commercial, artistic or entertainment purposes, it also has a significant cultural (Mazizmoghadam and Hashemi Toghroljerdi, 2022), social (Nejati et. al. 2018) and technological (Tomitsch, 2022) potential.

The media nature of architecture allows considering it as a language, since it has its own means of expression and rules that help create a holistic image. The building structure can be compared to the structure of a sentence, where each element performs its own informational role. The interaction of space with a person is an especially important aspect, which can be compared to communication, where architecture is a form of communication between the architect and the inhabitants (Foth and Amayo Caldwell, 2018).

The identification of architecture with language occurred during the development of architectural postmodernism. In the 1960s to 1980s, numerous classical semiotic ideas and concepts of architectural communication were created. In the work "The Language of Post-Modern Architecture" (Jencks, 1977), architect and theorist Charles Jencks views architecture as a communicative system in which architecture addresses humans through metaphors and words that are connected by semantic and syntactic rules. The author demonstrates that architectural words and phrases can encompass a building, a complex, or even an entire city (depending on the task at hand). In Michael Graves' work, architectural language is also saturated with metaphors, which he categorizes as unambiguous and multivalent (Graves, 1982). Postmodernist Robert Venturi emphasized the means of visual communication and sought materials for this purpose in the culture of mass kitsch – the aggressive advertising of Las Vegas, the self-built homes of American suburbs' residents (Venturi, 1996). In practice, he employed linguistic tools such as ironic allusions, parodies, and paradoxes.

Analyzing the architecture according to the media-linguistic approach, it is worth considering it as a system of communication tools that has a great impact on people and the environment. This approach allows studying architecture not only as a functional object, but also as a means of expressing culture and identity.

Due to the randomness and redundancy of information in the environment of a modern city, the media architecture should limit and structure it. This determines the urgency of the need for new knowledge, which will allow architects to integrate modern objects competently into the existing environment, making its language understandable for residents.

The paper's object is to substantiate the media-linguistic approach to the formation of media architecture and the development of urban spaces, covering both material and non-material manifestations

of the architectural environment. This makes it possible to develop a theoretical basis that will allow architectural practice of moving from designing chaotic buildings to creating a conceptual space that translates important socio-cultural values.

To achieve this object, the following tasks are to:

_ identify and analyze aspects of the formation of media architecture and spaces on the example of the city of Lviv;

_ consider the structure of media architecture and urban spaces;

_ develop a methodology for analyzing the architecture and urban spaces using a media-linguistic approach.

Methods

The study of material aspects of media was conducted because of design experience in the city of Lviv, which demonstrates various manifestations of media architecture. Each situation was selected and analyzed through observations, familiarization with archival sources, as well as a survey of residents and visitors of places. Each example contains certain features of its information essence, which are highlighted by users of the corresponding places.

Like a language in linguistics, the language of the city is also endowed with semi logical and phenomenological perception. This is due to the media nature of architecture and spaces as their informative essence, namely its intangible manifestations.

The method of phenomenological analysis (Kheirollahi, 2012) makes it possible to identify identifications and intentions in the media architecture, as well as to study the emotional aspects of the observer's experience of these values. According to this method, the same object can be perceived differently in different environments. This can be noted in the example of different parts of the city where the same objects are being built (for example, supermarket chains).

When studying the language of the architectural environment, it is necessary to focus on the informative and communicative nature of architecture. Each object or space, as an information environment, contains its own "language code." Its discovery makes it possible to understand the essence of the authenticity of this place. In architectural phenomenology, there is a concept of "genius loci" (Vecco 2020). This is a special atmosphere inherent in a particular place, which makes it unique. In turn, the media content of the building is directly related to the "spirit of the place," since it is part of its unique essence.

The urban environment as an object for analysis is multi informative. With the development of structural linguistics, many cultural phenomena began to be explored as a "language," in particular architecture. The architectural image of the city provides an opportunity to look at the city through time as a place of residence for people with their specific values and lifestyle. Therefore, semiotic analysis (Shojaee and Saremi, 2018) is relevant in this study, which allows studying how architectural signs can reflect cultural and social values, and be used to convey certain ideas and views. In semiotics, Pierce`s and Frege's triangle are used to interpret a sign (Lavrischeva et. al., 2014). Based on these models, a model for the formation of city language has been developed.

Results

Identification and analysis of aspects of media formation of architecture and spaces on the example of the city of Lviv

To study media content, it is proposed to distinguish three hierarchical levels: the level of urban space, the level of architectural object, and the level of decoration elements. This structuring facilitates the identification of characteristics of media architecture and the formulation of a methodology for analyzing the language of the city, which is appropriate for use at each hierarchical level.

The lowest level of the proposed system includes finishing elements that contain certain content. Examples include memorial plaques, signs, signs, commercial banners, or decorative stucco on

facades. The media content of these elements is based on symbolism (de Jong and Lu, 2022).

The hierarchical level of architectural objects involves analyzing the media content of specific buildings by determining their characteristic features. Public objects, such as sacred and cultural and entertainment structures, are often the most informative. Residential buildings also have certain signs of media content (for example, looking at the facade of a house, we can draw a conclusion about the status of its owner).

At the urban space level, we consider the media content of individual squares, courtyards, and streets. These are the places, which can promote communication between people.

In accordance with certain hierarchical levels of research, it will be advisable to analyze existing experience in designing media architecture and spaces.

Based on observations, it can be identified the main aspects of media formation in modern architecture and urban spaces and trace their application in the example of the city of Lviv.

Material and non-material aspects are involved in creating media content (**Fig.1**). Their action is shown on examples from different hierarchical levels: urban spaces – the Memorial of the Heavenly Hundred and Koliivshchyna Square, architectural objects – the Sheptytsky Center and "Futura Hub," finishing elements – the fountain in front of the Opera House and mosaic on the facade of the store "Ocean."
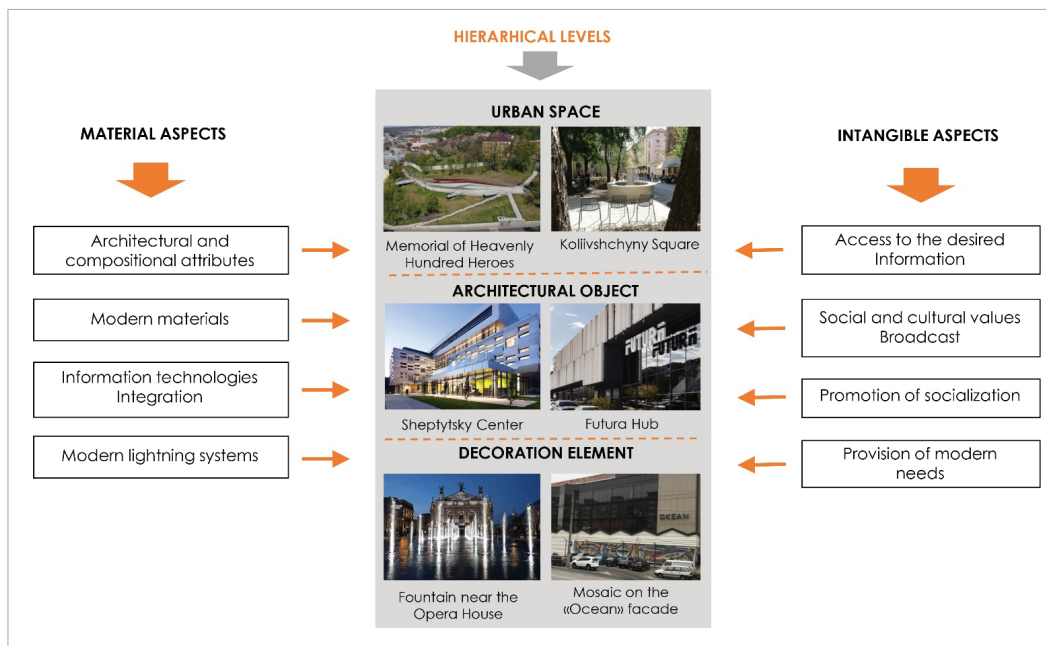
Fig. 1

Aspects of the formation of media architecture and spaces on the example of the city of Lviv (the source: authors)

Among the material ones, architectural and compositional means with which it is possible to express certain information are; modern materials; the latest technologies that allow integrating a much larger amount of information into architecture; modern lighting systems, with which the media content of architecture continues to manifest itself during the dark time of day, are identified.

Non-material aspects of media architecture and spaces are that first, they must broadcast the necessary information in an accessible way without creating discomfort. In addition, media includes in its essence relevant for a given time socio-cultural values, promotes the socialization of a person in space, and provides needs due to the requirements of a particular time (Daugelaite and Grazuleviciute-Vileniske, 2022).

At the urban space level, architectural and compositional tools, such as shapes and scale as well as modern materials, have the greatest impact on media content. Using the example of the Memorial of the Heavenly Hundred Heroes, it is seen how massive complex structures give an understanding of the importance and complexity of the ideology of this space. The textures of concrete and metal, which change their appearance over time, are symbols of strength, struggle, and burning fire. The memorial is supplemented with cereals that resemble wheatears, which is a symbol of the Ukrainian people. Since the task of the Memorial is to honor the memory of the Heavenly Hundred, there are signs with portraits of the Heroes engraved on stainless steel. Therefore, the media content of the Memorial conveys the spirit of modernity and perpetuates the memory of the Heavenly Hundred.

The informative essence of the space can also be improved by restoring it. For example, the media content of Koliivshchyna Square has been improved by using new paving materials, installing modern lighting, installing minimalistic outdoor furniture, and restoring the well fountain that has been preserved since the last century. The names of Jewish families who once lived here are written on the well. The media content of Koliivshchyna Square broadcasts the history of the former Jewish site that was located here, at the same time testifies to the modernity of this space, and contributes to socialization.

An example of a conceptual approach to the formation of media content at the level of an architectural object is the co-working center "Futura Hub." The media content of the object is in embodying the modern needs of society, namely, a place for freelancers to work. Therefore, futuristic forms, materials, and the integration of screen tools in buildings indicate the modernity of this object.

Another object for identifying aspects of media is the Sheptytsky Center. The idea of the building is to encourage the cooperation and self-development of people. Transparent materials promote teamwork and a friendly atmosphere inside the Center. The building's media content also shows concern for the environment. For this purpose, thermal insulation and the latest energy-saving technologies (for example, passive blinds) are used. The media content of the object is complemented by the use of modern lighting systems that add expressiveness to the artistic image of the Center.

At the level of finishing elements, the latest technologies and lighting systems play an important role in the formation of media content, as in the case of a dry (without a bowl) fountain in front of the Opera House, installed in 2020. The fountain is musical, as well as light thanks to RGB and LED lamps. The fountain also has a weather station that tracks wind direction and humidity and adjusts the height of water jets in accordance with these indicators. In addition, the barrier-free fountain format makes it interactive and attracts more public.

The media content of decoration elements can also be in preserving history. An example of this is the use of old mosaics in the reconstruction of the former store "Ocean." The building itself, with its forms, materials, and integrated modern technologies, indicates that it belongs to the architecture of modernity and meets the needs of the current society, but the preservation of the facade finishing element of the former building identifies the history of this object.

Therefore, the interaction of material and non-material aspects makes it possible to form a clear and clear media content.

Justification of the media structure of architecture and urban spaces

According to the study of the informative essence of architecture and urban spaces in the example of the city of Lviv, it can be concluded that the media content of architecture and urban spaces is divided into physical and mental ones (**Fig.2**).

Physical manifestations include those that have physical characteristics in the material environment and that a person can perceive with his senses.
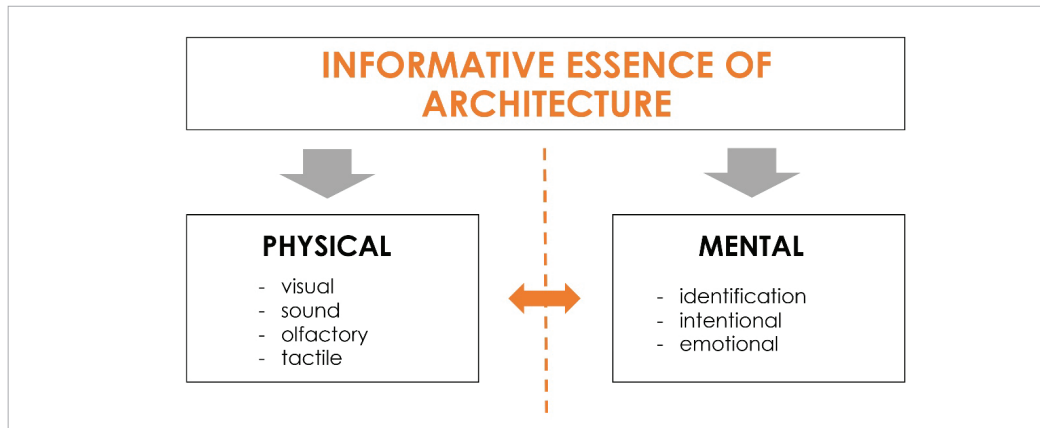
Most of the information is embedded in visual media. The artistic image of architecture, which carries information in its essence, is formed thanks to plastic and dynamics of forms, the use of the latest technologies, and modern materials. The media architecture gives the environment interactivity and declares that the environment in which it is located is focused on moving into the future.

A physical artistic image is an identifier for recognizing an object in space. Therefore, architectural and compositional means of creating a building play a significant role in the formation of visual media of architecture and spaces.

Among compositional factors, form plays an important role in the formation of media content. With the architectural form, the space and material structures of the object are organized, which provides the necessary physical qualities of the environment and symbolically expresses information about these processes and their associated content. The color that creates the appropriate mood in people is important for visual media.

However, it is worth remembering that material media is not limited only to visual manifestations. Sounds and smells in space can also convey certain information. An excellent example is the fountain in front of the Lviv Opera House that attracts passers-by precisely due to the sound addition of its visual image.

Another manifestation of material media is tactility. Touching the surface can also transmit certain information and enhance its other manifestations. In the case of the Memorial of the Heavenly Hundred, the cold, rough textures cause a sense of anxiety, referring to historical memory.

Mental media has no physical manifestations and directly depends on a person as a subject of perception.

Mental media includes its identification, that is, the content itself that is embedded in the object. The material framework of an architectural object is filled with semiotic content during design and operation. Each of the above-mentioned examples has idea inherent notification identification in its physical image. Some objects, such as the "Futura Hub," can identify their media content by their name.

Intentional media coverage highlights the ideas that arise in a person from the information received. It is important to note that intentions may vary depending on the experience of a particular person.

The emotional component of media includes emotions, which are a reaction to identification and intention. The architectural environment evokes certain emotions and creates a mood – an emotional component that affects our decision-making and actions regulating people's behavior. Thus, architectural ensembles and individual objects create an emotional basis for the life of the whole society. Perceiving the architectural environment, a person deciphers the information inherent in it, which causes certain emotions and promotes socialization. This idea leads to solving the
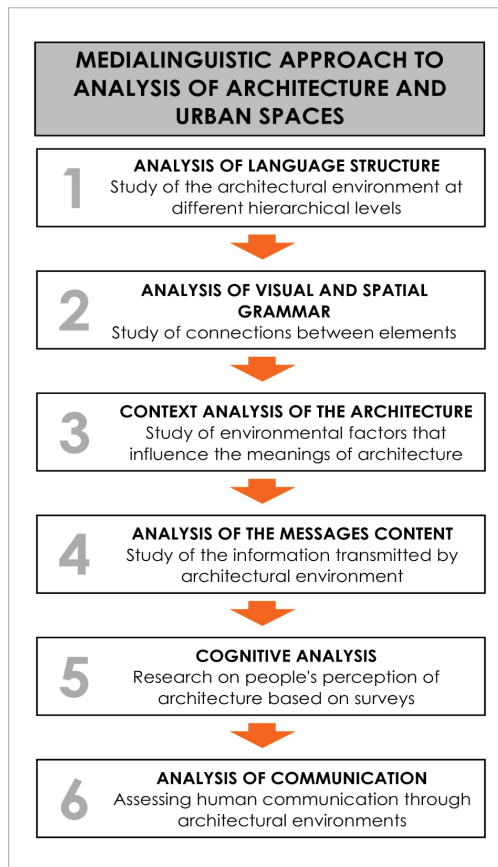
problem of creating a new modern form of architecture.

Objects can evoke positive, negative, or mixed emotions. In the latter case, it is difficult for a person to determine their attitude toward an architectural object or space. The cause of emotions can be either the information contained in objects or the inability to find it.

Methodology for analyzing architecture and spaces using a media-linguistic approach

The media value of architecture lies in its ability to express various ideas, concepts, and messages. Through its material manifestations, architecture can convey various emotions, create an atmosphere, and reflect social, cultural, and historical contexts called mental media.

The media-linguistic approach to architecture analysis is based on the idea that architecture is a language used to interact with people who perceive, understand, and interpret its messages. This is realized by using various multi-sensory means, such as light, sound, images, etc. In addition, the language of architecture is interpreted as a system of signs that contains its own rules for its use and interpretation. These rules depend on environmental factors (Turunen, 2022).

The media-linguistic approach involves considering the architectural environment as a language with its semantics, grammar, and structure. Every architectural element has its content, and it is uniquely perceived by users.

The methodology of the media-linguistic approach to the analysis of architecture and urban spaces is in involving media and Linguistics concepts in the design process. This technique is for uncovering complex concepts conveyed through the city language and helping architects reproduce these ideas in their projects. Systematic analysis of the architecture is shown in **Fig. 3**.

1. Analysis of the structure of the architectural language: the study of architectural units at different hierarchical levels in the architectural language structure (Parneta, 2023) At this stage, such components of the architectural language as an architectural symbol, element, detail, fragment, or object are considered.

2. Analysis of visual-spatial grammar: the study of architectural elements from the point of view of their interrelationships with each other. At this stage, we can consider both the interaction of structural components of an architectural language and the connections between architectural objects on the scale of urban space.

3. Architectural context analysis: a study of contextual environmental factors that influence the architecture language, such as nature, planning and functional structures, history, culture, social and economic factors (Ellery et. al., 2021.)

4. Message content analysis: the study of information provided by the architecture language and urban spaces, and its interpretation from the point of view of semantics. At the same time, it is

worth remembering the general principles of media literacy (Mrisho et. al., 2023). They are in the critical perception of any information and take into account the dynamic nature of messages.

The method of media-linguistic approach in architecture also involves ethical rules in design. The general principle of tolerant architecture is that any space or building must take into account the needs of different user groups. This approach ensures that tolerant spaces are created for everyone interacting with them.

5. Cognitive analysis: the study of how people perceive architecture, and how they interact with it. Research may include surveys, observations, and other methods. This is used to learn how people understand and interpret the language of architecture.

Cognitive analysis involves several stages:

_ At this stage, researchers formulate the questions they want to be answered using cognitive analysis. For example, learn how people understand metaphors in architecture.

_ At this stage, researchers select specific samples that they want to analyze. For example, choose buildings that contain certain metaphors.

_ Sample research: at this stage, the samples are shown to some people, and they are examined using cognitive methods such as association experiments, perception experiments, and recall experiments.

_ Interpretation of results: at this stage, researchers analyze the results and form conclusions from the study. This step may include statistical data analysis, text fragment analysis, and other methods.

6. Communication analysis: the study of the communication in an architectural environment to evaluate it and identify its features. The method consists of asking a series of questions, following the example of Ole Holsti (Zidane and Mehiri, 2021), for each element in the communication model in an architectural environment. For each of these questions, the whole direction of the results obtained in **Table 1** develops.

Analysis of the architecture language and spaces allows applying the results in project practice. In architectural design, this technique focuses on three stages of forming the language of architecture (idea - form - meaning). It resembles the triadic sign model in semiotics. One of the proposed

Table 1

Evaluating communication in architecture)

| Features communications for evaluation	Communication element	Questions	Analysis results
Nature of communication	Message	What?	Detecting messages in an architectural space Describing information in the architecture language
	Architectural tools	How?	Identifying information transmission tools Analyzing the information transmission style Identifying the trends in the formation of media architecture and spaces
	Residents	To whom?	Describing the target audience Comparing the known characteristics of the target audience and messages for it
Reasons for communication	Context	Why?	Relevance and relevance of the information
	Architect	Who?	Establishing the identity of the architect, clarifying his views
Communication effects	Residents	What is the result?	Evaluating people's perception, understanding, and interpreting a message Evaluating the response to a message

models was by C. Peirce (Peirce, 1977). The sign consists of three parts: the representamen - the form that the sign takes (not necessarily material); the interpretant - the meaning that we obtain from the sign; the object - what the sign refers to. Another well-known sign model is the triangle of H. Frege (Frege, 1977). The vertices of the triangle represent the sign, the concept, and the referent. The referent corresponds to Peirce's concept of "object." In Frege's model, the sign corresponds to Peirce's representamen. Another characteristic is the concept, which refers to the meaning, analogous to Peirce's interpretant.

The basis of modern logical semantics is the Frege's triangle (Lavrischeva et al., 2014). Therefore, the Frege's triangle has been adopted as an analogy for the generalized model of the project process using the media-linguistic approach (**Fig.4**).

Fig. 4

Semantic model of media formation of architecture and urban spaces (the source: authors)
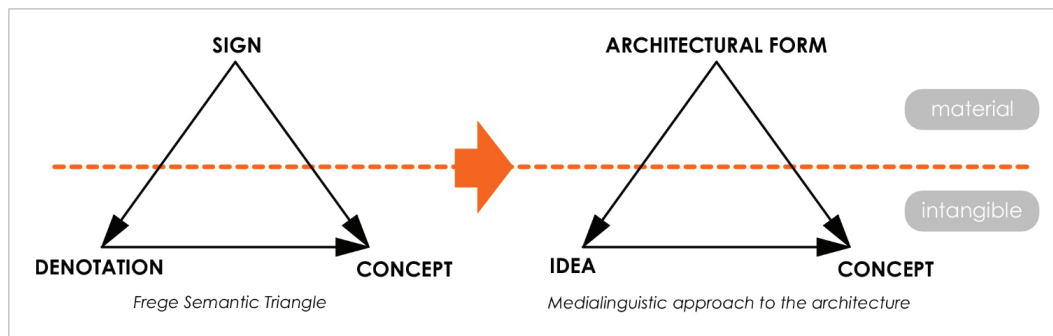
The corresponding sign in architectural design is the form that is perceived by the observer. The denotation in this scheme is an idea laid down in the form by the architect and is an object for understanding. Because of expressing an idea through form, a concept is formed that is interpreted in the mind of the Observer. It is worth noting that the form refers to the material level of media in this scheme, while the idea and its meaning are to the mental.

Discussion

The language of the architectural environment plays an important role in shaping social behavior due to its ability to convey cultural and ethical values. The media-linguistic approach helps to bring architecture to an emotional level, thereby making it closer to people.

Structuring on hierarchical levels is appropriate for this study because it makes it possible to identify the most expressive means for forming media for each hierarchical level, which contributes to a more detailed study of this phenomenon.

Aspects of media formation can change over time under the influence of various factors (Eltarabily, 2022). Therefore, it is worth noting that the identified aspects are relevant for the present.

The structure of media architecture and urban spaces demonstrates the dualism of this concept. The architecture tracks the binary opposition of its tangible and intangible manifestations. From this point of view, physical media is an invariable component, because the architecture is durable. Therefore, physical media can be considered static. Unlike the physical environment, the mental media of an architectural environment can change rapidly over time. The same material objects can be interpreted differently over the years. Therefore, this is a reason to consider the mental component of media architecture and urban spaces dynamic.

The media-linguistic analysis of the informative essence of objects in this article indicates the dynamic complexity of the architectural environment and the need for a thorough understanding of the architectural design process. This is important to consider when designing at any hierarchical level. Accordingly, stakeholders should actively consider how the media content of the projected object will affect the existing environment and the people in it.

Conclusions

The media-linguistic approach to the formation of architecture and development of urban spaces, given in the study, is theoretical and requires further improvement by testing in architectural practice.

Based on the analysis of media at various hierarchical levels, material (architectural and compositional means, modern materials, the latest technologies, and lighting systems) and non-material (access to information, translation of values, providing current needs, and promoting socialization) aspects of the formation of media architecture and spaces were identified. Their interaction is demonstrated in the example of objects and spaces in the city of Lviv.

The structure of media architecture and urban spaces are in their division into the material and mental components. Physical one includes those manifestations having physical characteristics in the environment where a person can perceive with the help of the senses. Thus, physical media can be visual, sound, olfactory, and tactile. Mental media has no physical manifestations and directly depends on a person as a subject of perception. It includes its identification, namely, the content itself, which the observer can interpret for himself. Intentional media covers the ideas that arise in a person from the information received, and the emotional component of media includes emotions that are a reaction to identification and intention.

A methodology for analyzing the architecture and spaces of cities using a media-linguistic approach has been developed, consisting of six stages: analysis of the structure of the language of architecture; analysis of visual-spatial grammar; context analysis; content analysis; cognitive analysis; communication analysis. A media-linguistic model of the formation of architecture and spaces based on the semantic triangle of G. Frege is presented.

References

Daugelaite, A., & Grazuleviciute-Vileniske, I. (2022). Retrospective Analysis of Sustainable Architecture: Mind-Mapping Development of Ideas and Expression. Journal of Sustainable Architecture and Civil Engineering. 30(1), 78-92. https://doi.org/10.5755/j01.sace.30.1.29829

de Jong, M., & Lu, H. (2022). City branding, regional identity and publicspace: What historical and cultural symbols in urban architecturereveal. Global Public Policy and Governance, 2(2), 203-231. https://doi.org/10.1007/s43508-022-00043-0

Eilouti, B. (2018). Concept evolution in architectural design: an octonary framework. Frontiers of Architectural Research, 7, 190-191. https://doi.org/10.1016/j.foar.2018.01.003

Ellery, P., Ellery, J., & Borkowsky, M. (2021). Toward a theoretical understanding of placemaking. International Journal of Community Well-Being, 4(1), 55-76. https://doi.org/10.1007/s42413-020-00078-3

Eltarabily, S. (2022). Toward A Conceptual Framework for Evaluating the Quality of Urban Open Spaces. Journal of Sustainable Architecture and Civil Engineering, 31(2), 58-84. https://doi.org/10.5755/j01.sace.31.2.31311

Foth, M., & Amayo Caldwell, G. (2018). More-than-Human Media Architecture. In Proceedings of the 4th Media Architecture Biennale Conference 2018 (pp. 66-75). https://doi.org/10.1145/3284389.3284495

Frege, G. (1977). Logical investigations (edited with a preface by P. T. Geach). Oxford, UK: Basil Blackwell.

Graves, M. (1982). Buildings and Projects 1966-1981. New York: Rizzoli.

Jencks, C. (1977). The Language of Post-modern Architecture. New York: Rizzoli.

Kheirollahi, M. (2012). The Place and Influence ofIntuition in the Creativity of the Architecture Design Process. International Journal of Architecture and Urban Development, 3(1), 57-62. https://ijaud.srbiau.ac.ir/article_60.html

Lavrischeva, E., Stenyashin, A. & Kolesnyk, A. (2014) Object-Component Development of Application and Systems.Theory and Practice. Journal of Software Engineering and Applications, 7, 756-769. https://doi.org/10.4236/jsea.2014.79070

Mazizmoghadam, M., & Hashemi Toghroljerdi, S. M. (2022). Architecture as culture; an analysis of the visual angle character in the cultural and architectural adaptability in intermediate spaces. Sociology of Culture and Art, 4(2), 109-127. https://doi.org/10.34785/J016.2022.023

Mrisho, D., Bulendu, D., & Dominic, N. (2023). Media Literacy: Concept, Theoretical Explanation, and its Importance in the Digital Age. East African Journal of Arts and Social Sciences, 6(1), 78-85. https://doi.org/10.37284/eajass.6.1.1087

Nejati, F., Habib, F., & Shahcheraghi, A. (2018). The Role of Structure in the Aesthetic Creation of Architectural Space. International Journal of Architecture and Urban Development, 8(2), 5-14. https://ijaud.srbiau.ac.ir/article_13111.html

Parneta, M. (2023). City language as a phenomenon of the media formation of architecture and spaces. Example of Lviv. Space & Form. Przestrzen i Forma, 53, 181-190. http://doi.org/10.21005/pif.2023.53.C-02

Peirce, C. S. (1977). Semiotic and significs: The correspondence between Charles S. Peirce and Victoria Lady Welby, ed. C. S. Hardwick. Bloomington, IN: Indiana University Press.

Septianingrum, I., Irmawati, E., & Mutia, F. (2022). Representation and Meaning of Space According to Metaphysical Architecture. Architectural Research Journal, 2(1), 30-34. https://doi.org/10.22225/arj.2.1.2022.30-34

Shahlaei, A. & Mohajeri, M. (2015). In-between spaces: dialectic of inside and outside in architecture. International Journal of Architecture and Urban Development, 17(5), 73-80. https://ijaud.srbiau.ac.ir/article_8548.html

Shojaee, S. M., & Saremi, S. A. A. (2018). Explaining the Methods of Architecture Representation Using Semiotic Analysis (Umberto Eco's Theory of Architecture Codes). International Journal of Architecture and Urban Development, 8(3), 33-48. https://ijaud.srbiau.ac.ir/article_13132.html

Tomitsch, M. (2022). Interactive media facades - research prototypes, application areas and future directions. Rethinking Building Skins. Transformative Technologies and Research Trajectories, 313-337. https://doi.org/10.1016/B978-0-12-822477-9.00019-X

Turunen H. (2022). Research Dialogue between Materials and Products in Architecture. Journal of Sustainable Architecture and Civil Engineering. 31(2). 5-20. https://doi.org/10.5755/j01.sace.31.2.30963

Venturi, R. (1996). Complexity and contradiction in architecture. New York: Museum of Modern Art.

Vecco, M. (2020). Genius loci as a meta-concept. Journal of Cultural Heritage, 41, 225-231. https://doi.org/10.1016/j.culher.2019.07.001

Zidane, A., & Mehiri, R. (2021). Content Analysis and the Social Sciences: Nature, features and uses. ALTRALANG Journal, 3(3), 169-178. https://doi.org/10.52919/altralang.v3i03.146

About the Authors

MARIANA PARNETA

Ph.D. student and teaching assist

Lviv Polytechnic National University, Institute of Architecture and Design, Department of Architectural Design

Main research area

Media Architecture, Information of Architecture and Urban Spaces

Address

S. Bandery str., 12, Lviv, Ukraine, 79013
Tel. +38(067)1728011
E-mail: mariana.b.parneta@lpnu.ua

MYKOLA HABREL

DScTech., Professor

Lviv Polytechnic National University, Institute of Architecture and Design, Department of Architectural Design

Main research area

Urban Design, Spatial Planning of Territories

Address

S. Bandery str., 12, Lviv, Ukraine, 79013
Tel. +38(097)2074558
E-mail: mykola.m.habrel@lpnu.ua

VITALII KOVALCHUK

Position at the organization

Lviv Polytechnic National University, Institute of Architecture and Design, Department of Architectural Design

Main research area

Urban Design, Building Structures, Transport

Address

S. Bandery str., 12, Lviv, Ukraine, 79013
Tel. +38(097)2237243
E-mail: vitalii.v.kovalchuk@lpnu.ua