MULTIFACETED RESEARCH IN ARCHITECTURE

Editor **Beata Komar**

VOLUME IV

[INTERFERENCES] design+art+science

Editors
Natalia Bąba-Ciosek
Beata Kucharczyk-Brus

WYDAWNICTWO POLITECHNIKI ŚLĄSKIEJ
GLIWICE 2022

MONOGRAFIA

MULTIFACETED RESEARCH IN ARCHITECTURE

Editor **Beata Komar**

VOLUME IV

[INTERFERENCES]
design + art + science

Editors
Natalia Bąba-Ciosek
Beata Kucharczyk-Brus

WYDAWNICTWO POLITECHNIKI ŚLĄSKIEJ
GLIWICE 2022
UIW 48600

Wydano za zgodą
Rektora Politechniki Śląskiej

Publikacja współfinansowana ze środków budżetu Województwa Śląskiego
Publication co-financed by budget of the Silesian Voivodeship

Silesian
Voivodeship

The honorary patronage
of the Marshal of the Silesian Voivodeship
Jakub Chełstowski

Redakcja techniczna
Ewa TENEROWICZ

Projekt okładki
Karolina CHODURA

ISBN 978-83-7880-843-5

TABLE OF CONTENTS

SPIS TREŚCI

PREFACE

[INTERFERENCES] design+art+science is a monograph with contributions from multiple authors, the third volume of a series begun in 2016. The idea for the first publication, and then the entire series of publications [INTERFERENCE], came about following a series of art exhibitions [INTEGRALITY], which staged spheres of the fine arts and architecture that completed each other. Exhibitions and accompanying events have become an arena for meetings and dialogue between architects, designers, and artists who represent a wide variety of creative interests, and these provide inspiration for subsequent publications.

The titular [INTERFERENCES] illustrate the mutual interactions, co-existence and pervasion of the disciplines and domains in science and art. This multithreading of cross-references has become the subject of special research and attempts to study and familiarise ourselves with the space around us, where art and science fulfil the same objectives. The need to experience, expand the limits of creative possibility, and constantly seek answers in mindful interdisciplinary activities is a means of constructing common research instrumentation, creating new canons and aesthetic references. The integration of the titular spheres of design, art, and science seems to be a sign of the times and a modern standard in conducting research.

[INTERFERENCES] design+art+science is a collection of studies, problem-oriented in the spheres of architecture and art in its broadest sense. These studies produce independent chapters in which the authors present the results of their research, art and design works, and often relate to teaching activities.

Architecture, as a broadly defined cultural phenomenon, combines activities at the interface between engineering (science and technology) and art, in other words: human activities which are normally perceived as being distinct from one another.

Yet when, to a greater or lesser degree, it consciously affects a person it becomes an area of integrated knowledge spanning both these spheres. An architectural structure, as a form characterised by a composition of shapes, colours, textures, or as a complex of buildings, in other words an urban layout, is on each occasion an expression of creative activities characteristic also of art. A constructed environment, as a place for human life, becomes concurrently an area for creative activities resulting from the need for expression, providing opinions, emotions, stimulating the imagination, and denoting social and cultural belonging. The relationship between art and architecture in this area is and will be irrefutable. Such activities, witnessed over the centuries, are inextricably linked with the functioning of people in public spaces, creating in them art that is decorative or that stimulates social reflection and discussion. As Anda Rottenberg writes: *"we must make a distinction between art in public spaces and public art. If an artist paints flowers on a mural, he creates art in a public space. He creates decoration. Public art takes a stand, enters the social sphere."*

There is no doubt that works of art and all manner of different projects are needed in public spaces. Thanks to these, cities become more interesting, more diverse, and full of life. Many such achievements have not only gone down in the history of art, but have simultaneously become hallmarks in their cities, sites that attract tourists, building a sense of identity among residents.

Murals, large-format graphics or painting projects which appear in the architectural and urban environment, are one example of artistic creativity in cities, appearing more and more frequently on the walls of buildings, pavements, roadways or features of small scale architecture. Owing to the explosion of street art activity in Poland in the last decade, this topic has become the subject of consideration for many researchers. These include Beata Komar, Joanna Zabawa-Krzypkowska, Krzysztof Groń, Katarzyna Słuchocka, Jacek Kwiatkowski and Anna Szalwa. The creations of the artists producing the murals are in many cases examples of public art, original statements on a specific theme, and the views expressed by these means, which reach a wide audience, can form the nucleus of a broad public discourse. Therefore, some of the deliberations of Joanna Zabawa-Krzypkowska and Krzysztof Groń comprise studies on the assessment of the perception of randomly selected artwork. The research task undertaken was to examine the impact of murals on their audience. The audience is not always able to correctly interpret a work and enter into a discussion on the given theme, but the lack of understanding of the message conveyed by the mural does not necessarily mean that the mural will be negatively

received. In such cases, the image becomes a form of decoration that the audience tries to interpret in its own way.

Another example of artistic activity in urban space is the use of audio-visual projections, light illuminations and other such artistic shows in the form of a permanent exhibition or as a response to a given theme or specific issue. Katarzyna Słuchocka provides examples of such activities in Poznań. Supported and sustained artistic activities in the city serve to strengthen a sense of identity, build social bonds, and nurture young talent.

Unhampered artistic creativity cannot always be conducted in all public spaces, nor can innovative, avant-garde compositional or formal solutions be always implemented. Citing Venice as an example, Piotr Fiuk points out that the creation of new aesthetics in cities with historic layouts and ancient building structures is often undesirable and is even prohibited. Remarkable avant-garde solutions, surpassing the standard perception of the principles of shaping space, have not been implemented owing to an (unjustified) fear of violating the unique character of the city. Spontaneous creative activity appearing in such places is treated as an act of vandalism, a scandalous violation of the continuity of these places, and an insult against traditional values.

The features of small-scale architecture to be found in an urbanized space are, without doubt, an expression of artistic creativity. They serve as decorations in the space, specific landmarks for better orientation in the space, or to serve as a utilitarian feature of the urban landscape: a bench, a table, a lamp, a flowerpot, a fence, etc. These are made of various materials, to a greater or lesser extent resistant to the destructive acts of nature or man. Concrete is an excellent medium for making such features, so the workshop activities in this sphere by students of architecture, as described by Tomasz Kozłowski and Anna Mielnik, constitute an interesting research area for the possibilities of fashioning utilitarian designs out of concrete with the intention of siting them in an urban environment.

In an urbanised environment filled with synthetic materials and products one must never overlook the importance of the relationship between man and nature. It not only meets human behavioral needs, but also shapes creativity and an open mind. Katarzyna Janicka-Świerguła's objective in her essay is to present the ideas and principles behind biophilic design in the modern world. The author provides a comparative analysis of selected architectural buildings and interior solutions designed in the spirit of biophilic design. Nature and its forms and structures also

have enormous potential as a source of inspiration for the field of construction and building materials, as it is pointed by Anna Stefańska and Marta Cygan.

The last of the essays references interior design, but design relating to the funerary industry, subject matter which has been devalued and tabooed over the years. As Katarzyna Rosłon-Mazgaj writes, a well-designed space can significantly minimise stress and not intensify the feeling of bereavement and loss. Necropolises, associated structures, and their interiors are an integral part of urbanised space even though we may not pay much attention to them on a day-to-day basis.

All studies in the [INTERFERENCE] design+art+science collection present new approaches to the issues being addressed, as well as innovative approaches to the research being conducted in the peripheries or in the communal areas of the titular domains and disciplines.

Beata KOMAR*

MURALS AS A TOOL FOR SPATIAL AND IDEOLOGICAL ACTIVITIES IN THE ARCHITECTURAL AND URBAN ENVIRONMENT – SELECTED EXAMPLES

1. INTRODUCTION

Murals are large-format painting projects that occur in the architectural and urban environment. Contemporary murals depend among others on social demand, the creative imagination of the author, and the material from which they are made, because currently the mural technique goes beyond its traditional frames, to mention here only 3D murals, scratched murals, which can be considered a variety of sgraffito, glass, wooden and even ecological realizations. They can be created in an individual way or as part of larger artistic actions – such as mural festivals – or come from other, smaller local projects. Given these insights, murals can currently be defined as large-format graphics on the walls of buildings. The aim of the article is to present selected contemporary murals divided into the technique in which they were made, the form, and the ideological message, as well as to determine their role in the space in which they were created.

The methods that have been used to conduct research in this field are: literature analyses, the author's own observations, in situ research, as well as analyses obtained as part of the author's didactic seminar Fine Arts in Public Space, held for second-cycle students of the Faculty of Architecture of the Silesian University of Technology. For such undertaken research, the time range was set for the XX-XXI centuries, but the strict territorial scope was not defined in order to be able to analyze projects from different cultural spaces.

* Silesian University of Technology, Faculty of Architecture (POLAND), beata.komar@polsl.pl

2. HISTORY OF THE CREATION OF MURALS

Wall painting is a plastic technique used in architecture for several centuries and is associated with many styles. However, it was only the twentieth century that brought its actual release from the architectural interior and transfer to the facades of buildings. In the history of the creation of murals, three phases can be distinguished.

The first phase was an abstract and expressionist phase in form, and was derived from experimental easel painting, practiced by groups of Cubists and Fauvists in Paris. Her characteristic examples are large-format productions by Pablo Picasso (UNESCO, Paris), Henri Matisse (chapel in Vence, France), Fernand Léger, Joan Miró, and Marc Chagall (decorations at the Paris Opera House and Lincoln Center in New York).

The second phase developed from the revolutionary movement in Mexico with an unusual series of frescoes made by José Clemente Orozco, Diego Rivera, David Alfaro Siqueiros, and Rufino Tamayo. It is from this movement that contemporary murals and the world's largest mural entitled The March of Humanity (8,000 m², 1971) and designed and made by David Alfaro Siqueiros for the Polyforum Cultural Siqueiros in Mexico derive to a large extent.

The third phase was the short-lived American mural movement of the 1930s of the twentieth century, created as part of the so-called Federal Art Project (1935-45) working for the development of visual art in the United States, financed by the Works Progress Administration (WPA). This program not only assumed cultural activities, but also provided assistance in employing artists and craftsmen to perform works of art. The subject matter of the works focused on the interpretation of social and political problems.

Currently, murals are created primarily during specially organized cyclical festivals, in which artists from all over the world participate. In Poland, such events took place in Gdańsk Zaspa (in the years 2009-2016) [4] and in Katowice. In Katowice and other cities of the Silesia region, native artists also create, reviving unattractive, empty and even dangerous places [3].

3. MURALS AS A TOOL FOR SPATIAL ACTIVITIES

Traditional murals are created primarily on the empty facades of urban buildings, enriching the space with a plastic message that contributes to its attractiveness. Often, large-format graphics also carry a verbal message, e.g. advertising of

a product, event, or phenomenon, but most often this technique refers to symbolic and figural messages. Nowadays, murals exceed their frames and are located in places with a more complicated and extensive form or in themselves – due to the technique used – they go beyond the traditional façade. Therefore, the spatial impact of murals can be divided according to their location or the technique used.

3.1. Location of murals – as a tool for spatial activities – selected examples

As the first example of the spatial activities of murals due to their location, one can give the world's largest mural, which is considered to be The March of Humanity, designed and made by David Alfaro Siqueiros for the Polyforum Cultural Siqueiros in Mexico. The work, which was created in 1971 and measures 8,000 m², was planned in an extensive architectural form and can be seen both on its facades and in the interior. Currently, the mural is in rather poor technical condition; therefore, it is proposed to build a high glass tower with a commercial function next to it and rent the space obtained, which would allow one to collect funds for the renovation of the painting [6]… In this way, the mural could be additionally visible as a reflection in the glass façade of the building and when viewed from its upper floors.

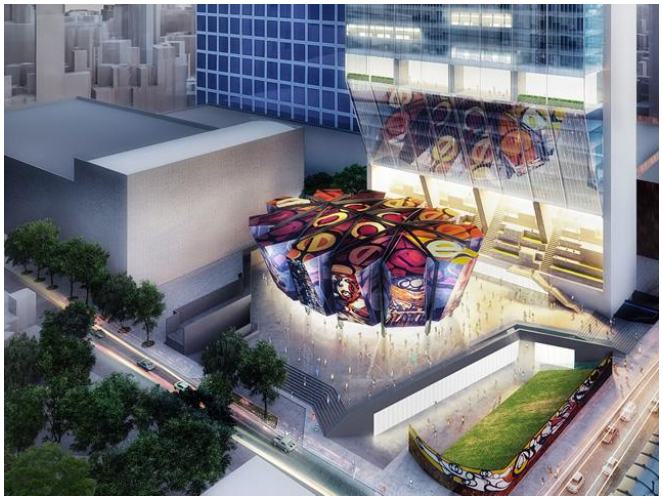

Fig. 1. The world's largest mural – The March of Humanity, renovation project, Mexico, 1971
Source: Adapted from [6]
Rys. 1. Największy na świecie mural – Marsz Ludzkości, projekt renowacji, Meksyk, 1971
Źródło: Przyjęto z [6]

Other examples of spatial activities are those that can be found in Polish housing estates. As an example of a holistic approach to the issue, we can present the already mentioned Festival of Monumental Painting in Gdańsk Zaspa, which had its first edition in 1997 thanks to Marcin Rutkiewicz and Maciej Nowak [4] from the

Municipal Office. As Marcin Rutkiewicz recalls ..." The inspiration was the views that I remember from the times of the famous papal mass in 1987, when on the local blocks of flats hung huge, made by residents banners and applications with religious and anti-communist slogans or with naïve figures of saints. Watching these views as a student, for the first time, I understood how this great format, regardless of whether it is good or bad, works extremely strongly. In the 90s. Zaspa was still terribly grey and introducing color there seemed to me a great idea, it was just the perfect stretcher for large-scale painting"...[2].

Fig. 2. Homage to Polish painting, Gdańsk School of Mural, Gdańsk Osiedle Zaspa, 2012
Source: Adapted from [2]
Rys. 2. Hołd dla polskiego malarstwa, gdańska szkoła muralu, Gdańsk, osiedle Zaspa, 2012
Źródło: Przyjęto z [2]

The festival in 1997 was an individual event, subsequent editions took place only in the years 2009-2016 and they were as follows: 2009, 2010 – Freedom in times of crisis, 2011 – Love is a temptation, 2012 – Is everything for sale?, 2013 – Where did we come from? Who are we? Where are we going?, 2014 – The road is happiness, 2015 – Every day is important, 2016 – Waiting. Currently, there are 54 murals in Zaspa. They decorate the facades of buildings, the entrance zones of blocks, and visually close interblock spaces. Among these great works of art there is also a diptych (Bajana 9A and 11C), which visually merges the space between the two buildings and gives the urban environment a whole new dimension. It is the result of the work of artists working under the banner of the Gdańsk School of Mural: Wojciech Woźniak, Justyna Posiecz-Polkowska, Anna Taut, Agata Kędra, Natalia Buza, Alicja Czarna, Anna Wrona, Alicja Piskorz, Michał Węgrzyn and Emil Goś [7].

The mural is entitled "Homage to Polish painting"…We decided to pay tribute to abstract painting. We have woven quotes from paintings by Tomasz Tatarczyk, Jan Tarasin, Stefan Gierowski and Jan Dombkowski into the general space of the mural.

The mural on Bajana Street is the result of combining our ideas and quotes from works that are important to us"… [7]. The artists also provided a special observation point from which the mural is best visible.

Another type of spatial undertaking, which balances on the border of traditional mural and new technologies, is the activity of Felice Varini [5], a Swiss artist who does not use canvas as a primer for his works, but architectural landscapes, groups of objects, or individual objects.

At these selected locations, Varini creates its objects using the projector-template technique. In this way, illusionistic images are created in the form of bands, circles, squares, triangles, etc., the visual perception of which is complete only from one vantage point. Moving beyond this point, the viewer will see a fragmentary, broken image [9]. The artist creates such works for both outside and inside objects. Varini's most famous projects include the 2018 Concentric, Eccentric in Carcassonne and the 5 Open Ellipses in Metz in 2009.

Fig. 3. Concentric, eccentric, Carcassonne, Felice Varini, 2018
Source: Adapted from Wikipedia
Rys. 3. Koncentryczne, ekscentryczne, Carcassone, Felice Varini, 2018
Źródło: Przyjęto z Wikipedii

3.2. 3D technique – as a tool for spatial actions – selected examples

The projects created by Felice Varini fit into both subgroups of the described murals: those strictly related to the location and those dependent on the technique used or rather going beyond its traditional framework. Another example of works that belong to this group are the realizations of the New Zealand artist Gina Kiel. Kiel creates using flowing lines and forms and bold minimalist compositions with a psychedelic palette, which often spill out of the image, creating new spaces and illusions. In her works, the artist refers to femininity and sensuality, explores human

experiences through the ideas of life, death, spirituality, and pop culture [10], [5]. Her works can be found in her native New Zealand, as well as in Hawaii, Mexico, Australia and many other places.

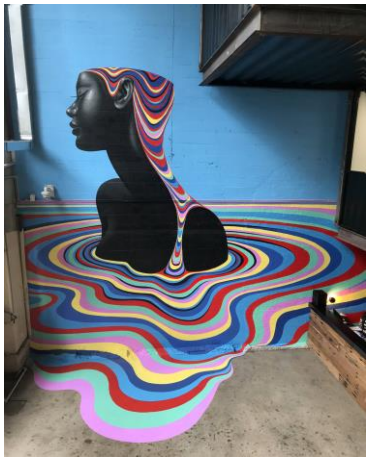

Fig. 4. Fountain, Work Inc, Sydney, Gina Kiel
Source: Adapted from [10]
Rys. 4. Fontanna, Work Inc, Sydney, Gina Kiel
Źródło: Przyjęto z [10]

A similar cross-border approach and the creation of 3D vision is involved in the Russian artist Danila Shmelev, known as Shozy [11]. His works are characterized by a characteristic style, between figural art and abstractionism. The artist studied for 4 years at the Moscow Institute of Art and Industry, where he attended the studio of classical Russian painters. Later, however, he began to analyse the lighting effects on plastics, which led him to create very realistic works on the walls of many urban objects. He has created, among others, in Dubai, the Netherlands, Russia, England, Germany and Belgium, where he created the largest 3D mural in this country to date [12]. It is worth noting also that a painting on one of the block of flats in a housing estate in Solnechnogorsk creates the illusion of additional cubic capacity of the building. These examples clearly show going beyond traditional thinking about the mural, searching for new techniques, and creating new spaces within the framework of emerging works.

4. MURALS AS A TOOL OF IDEOLOGICAL ACTIVITIES

Analysing the history of the creation of murals, and especially the Mexican and American trends, it can be concluded that from the beginning the murals carried an ideological message. It can even be assumed that the need for this message, the need

to transmit thoughts and ideas, became the impulse for the emergence of these currents. Contemporary murals are also often created for similar reasons. Their ideological messages refer, for example, to the issue of memory, the desire to draw attention to a problem, for example, ecology. They can also be a kind of urban advertising.

4.1. Ecology

The ecological trend in mural technology increases with increasing levels of various types of threats related to, for example, the natural environment. It is a trend that, with its message, wants to draw social attention to the problems that affect all of us and on which our health and even life often depend. Such murals include the Warsaw example entitled Do not throw e-waste into the garbage can, or the Gdańsk one entitled Gdańsk without plastic.

Fig. 5. Ecological mural Sacred Tree, Bielsko-Biała, Ewa Ciepielewska, 2020
Source: Adapted from [1]
Rys. 5. Mural ekologiczny Święte Drzewo, Bielsko-Biała, Ewa Ciepielewska, 2020
Źródło: Przyjęto z [1]

However, among this type of murals, special attention should be paid to those that not only promote ecological ideas with their artistic expression, but are ecological in themselves and, for example, purify the air. The first mural of this type appeared in 2020 in Bielsko-Biała and was created on the initiative of Aldi, Gaja Club and BWA Gallery. The author of the mural was the Wrocław artist Ewa Ciepielewska from the Luxus Group. The mural was created as part of the Gaja Club's Sacred Tree program, which aims to educate about climate change and tree protection.

Airlite anti-smog paints, used by the artist, work on a principle comparable to the process of photosynthesis in plants, with the difference that titanium dioxide is present in the paints, producing reactive molecules that neutralize air pollution into inert compounds [1]. The painted mural is called Sacred Tree and for more than a

decade it will purify the air, just like a real forest with an area equal to that of over 100 m².

Further murals of this type were created in many other Polish cities, m.in Katowice, Chorzów, Poznań and Warsaw. This trend is becoming very fashionable and by the way very useful. Its importance increases with the start of the winter months, when the state of air pollution in the country exceeds the accepted standards many times. It is also worth noting that murals of this type are created from social initiatives or their initiators are various types of company, such as the aforementioned Aldi or Converse as part of the City Forest project.

4.2. Memory

Memory in urban space is associated primarily with a traditional monument. Meanwhile, as it turns out, the mural can also pay homage to this issue.

In this aspect, local events, figures important for cities and towns, historical events, and the identity of the place play an important role. Large-format painting created for the benefit of memory, due to its modern message, has a chance to reach younger generations of recipients, and thus can play a significant role in their historical education.

An example of a mural that fits into this trend is, for example, a work that was created in Zabrze on the wall of a tenement house at Bolesława Wallek-Walewskiego Street and depicts one of the fathers of Polish independence – Wojciech Korfanty. In addition, the mural was made using anti-smog paints, so it will also play an ecological role. The work was created thanks to the Tauron group.

Murals that fit into the trend of memory include, m.in, a great portrait of Zofia Stryjeńska in Warsaw's Ursynów district, an image of Janusz Korczak with children in Rzeszów, a mural by Dejn in Warsaw, a work on Solidarity ‘80s. in Szczecin and many others.

4.3. Social activities

Ideas related to social activities, leaving their mark on large-format painting, can be very different and concern local, national, and even universal problems. One of the latest works from this trend is the Mysłowice mural Poland Crying, by Krzysztof Grzondziel, who since the ‘70s of the twentieth century has been keeping a plastic record of our reality.

Actually, it can be said that all the murals mentioned above are connected to social activities, but now it is worth mentioning those that support local communities

in some way. Such activities include a series of murals entitled Folk Stops, i.e. large-format paintings at bus stops. ... The paintings created at rural bus stops are not one-to-one copies of well-known works. These are reproductions based on the main motifs of the original integrated into the body of the carport, which also show the character of the artist who creates this reproduction… [13].

The first Folk stop was created in Nowy Pudłów (Łódź Voivodeship) in 2015 and presented The Indian summer of Józef Chełmoński, its author was Sylwester Stabryła. Subsequent stops were created in Pudłówek, Góra Bałdrzychowska, Busin, Anusin, Wólka, Sędów, Jeżewo, Brudnów, Drużbin, Chropy. The idea for this project was born primarily from the mediocrity of rural public space, and its originator is the Tu brzoza Foundation. Folk stops – in the field gallery are not only an idea for the development of the stop itself, but also create an extremely picturesque tourist route.

Fig. 6. Examples of a Folk stops, 2020
Source: Adapted from [13]
Rys. 6. Przykłady Przystanków Ludowych, 2020
Źródło: Przyjęto z [13]

5. RESULTS

The obtained results of the research showed that the use of murals in the architectural and urban environment is currently very wide and goes beyond the traditionally accepted definition of this decorative technique. In terms of space, the operation of murals can focus on a single wall of the building, on two adjacent walls, on all facades of one object, or on complexes of buildings and urban spaces. In addition, murals in themselves, due to the technique used, can carry an optical illusion, 3D.

In terms of ideological transmission, their action is also broad and may refer to the aspect of memory in a local, regional, or national context, or even a universal one, which can be educational in nature. In addition, their message may be related to ecology and social issues.

Contemporary murals go not only beyond the boundaries of buildings but also beyond the boundaries of cities, reaching smaller locations and communities, which is extremely important in terms of creating a contemporary narrative of art in spaces that have not been able to do so far.

Increasingly, it is also observed that their initiators and founders may be local foundations and national tycoons such as chain stores, clothing brands, or various types of companies.

BIBLIOGRAPHY

1. Aldi's eco-friendly mural will purify the air, 14.10.2020, https://interaktywnie.com/biznes/newsy/biznes/ekologiczny-mural-aldi-bedzie-oczyszczal-powietrze-260546, accessed: 19.10.2021.
2. Festival for the millennium of Gdańsk, https://muralegdanskzaspa.pl/festiwal-monumental-art/1997-2/, accessed: 13.09.2021.
3. Komar B.: On the fine arts in architecture. Selected issues, Publishing House Faculty of Architecture of the SUT, Gliwice 2021, p. 234.
4. Monumental Painting Festival, https://muralegdanskzaspa.pl/festiwal-monumental-art/, accessed: 13.09.2021.
5. Nagel J.: Mural, PDF presentation, as part of the subject Fine Arts in Public Space, 2021.
6. Public Art Rehab, ODS https://www.outdoordesign.com.au/news-info/public-art-rehab/5633.htm, accessed: 13.09.2021.
7. Rudziński Ł.: A new mural in Zaspa for abstractionists,
8. https://kultura.trojmiasto.pl/Nowy-mural-na-Zaspie-dla-abstrakcjonistow-n61543.html, accessed: 13.09.2021.
9. Rutkiewicz M.: Self-portrait with mural, Institute of Urban Culture, Gdańsk 2013.
10. Varini F., Dekel G.: I am a painter, perspective- localized painter interviewed by Gli Dekel, Paris, 26.05.2008.
11. http://www.poeticmind.co.uk/2_Questions/Interview_Felice_Varini.shtm, accessed: 12.10.2021.
12. https://www.ginakiel.com/about, accessed: 12.10.2021.
13. https://urbaneez.art/artists/shozy, accessed: 12.10.2021.
14. https://www.boredpanda.com/treepack-and-shozy-create-biggest-3d-mural-in-belgium-for-xpand-event-and-meeting-center/?utm_source=google&utm_medium=organic&utm_campaign=organic, accessed: 12.10.2021.
15. Works of art at rural bus stops. Folk stops are the only such gallery in Poland, 09/11/2020, https://www.bryla.pl/dziela-sztuki-na-wiejskich-przystankach-pks-folkowe-przystanki-to-jedyna-taka-galeria-w-polsce,accessed: 19.10.20.

Joanna ZABAWA-KRZYPKOWSKA*

THE PERCEPTION OF MURALS AND THEIR IMPACT ON SURROUNDINGS, PART I

1. MURALS IN THE CITY

Murals have become an important feature of public spaces, revitalizing and complementing the urban landscape. The surroundings in which they arise establishes their context. Over the last few years, we have witnessed artistic activity in our cities with the appearance of many such new murals. Thus, a public gallery is created, subject to immediate appraisal and criticism. Large-scale paintings are created using a variety of techniques and materials. Their creators are graphic designers, painters, directors, artists, and people who are professionally unconnected with the world of visual arts. It is noticeable that this type of activity has gained in importance recently, and the works of some artists such as Banksy and Haring reach incredible prices at auctions and are displayed in galleries around the world.

The first murals were painted in Latin America and communicated traditional subjects, depicting holy days and religious customs. They also presented themes of war, poverty, and human misery. Of these works, Mexican murals are the best known and include the vivid creations of Diego Rivera, which are brimming with symbolism.

Artists in the second half of the twentieth century most often expressed rebellion against the authorities and regimes, communicating dissent against the social inequalities of the time. The Berlin Wall in Germany and the Belfast "peace wall" in Northern Ireland are examples of such works. The Orange Alternative campaign, during the era of the Polish People's Republic, is an illustration of similar artistic activity in Poland. This movement was something of a battle against the authorities, against the communist system, with signs being painted on the walls of buildings. Waldemar "Major" Fydrych, the founder of the Orange Alternative, used dwarf stencils in his work [1].

* Silesian University of Technology, Faculty of Architecture (POLAND), joanna.zabawa-krzypkowska@polsl.pl

The works of Jean-Michel Basquiat and Keith Haring, America's foremost street artists, began to appear during the 1970s and 1980s in the USA or, to be more specific, in Manhattan, New York. The output of these artists coincided with the times of the Cold War during the presidential terms of Reagan and Carter. Haring believed that art should be accessible to everyone, even if it was only to last for a little while. He discussed difficult topics such as the issues of AIDS, a pressing social problem, that affected many people and was widely feared. His most famous mural bears the title 'Crack is wack'. The artist's hallmark is a stick figure with a black outline.

The cradle of British street art for many years was England and cities such as London, Sheffield, Brighton, and Bristol. Stencils are the most frequently used artistic medium, owing to legal regulations in force in Great Britain. Stencils are employed by one of the most famous artists in the world, the British artist Banksy, whose works represent extremely accurate commentaries on the problems of the modern world. The artist tackles themes relating to politics, social problems, ecology, etc. His works fuse graffiti with stencils, and the locations he chooses to display his work are often unassuming, unexpected spaces such as walls and fencing .

1.1. The educational and community role of murals

The educational and community roles of murals are important. The themes tackled by the artists are diverse. They commemorate important social occasions, recall historical events and present images of famous people - musicians, footballers, writers and scientists. They play an educational role, referencing ecology, human rights, etc. Because they reach a mass audience, they act as propaganda. They express the views and outlooks of their creators.

By reaching a mass audience, they can commemorate important social events and play a promotional and popularizing role. When referring to historical events, they build a sense of national pride. When depicting images of famous people, they remind us of their merits and contributions.

The murals reach a diverse and extremely large audience because an image is the simplest form of communication.

The first works in the Collection of Contemporary Art were created in 1997 during an international festival organised as part of the celebrations to commemorate the millennium of the city of Gdańsk. The idea of expanding the collection was revisited in 2009 when the Monumental Art Festival was held for the first time. Seven editions of this festival later, the Collection has acquired thirty-eight works by artists from all over the world.

Murals are often associated with the identity of a place and sometimes help to reidentify with a location anew, for example, the mural on Pszczyńska Street in Gliwice invoking an event from history, or the mural in Katowice with its image of Polish prewar activist and politician Wojciech Korfanty. The paintings bring a space alive and add a little warmth to the image that comes to mind of some districts. They also bring in people who wish to see the artwork. The murals engage in a dialogue with their surroundings. Sometimes they become tourist attractions, an example of which are the organised trips to the Zaspa estate in Gdańsk. They force you to pay attention to a building, turning it into a symbol. They introduce colour, make the surroundings more attractive, raise the aesthetics and build the atmosphere of a place. They allow one to experience art, and they send a message to their spectators, inspiring them, making them think and react. Every day they take care of each person who sees them.

The engagement of artists in social problems has become visible over the years in almost all European cities. Street artists participate in public debate ever more frequently, and the ideas they express form the beginning of a broader dialogue, not limited to local discourse. The most common medium of their artwork is graffiti and murals, which have often been, and still are, an expression of anxiety, dissatisfaction, and a response to social threats.

1.2. The role of murals in city spaces

The increasingly frequent appearance of murals, which as an art form fall into the mainstream of street art, is of great importance to the image of a city. The main theme of this essay will be conveyed using examples of murals, usually large-format wall paintings that, as such, have a huge impact on the visual aspect of the space they occupy. As far as living in the city is concerned and the spatial functioning of the space – especially public space – and considering the city from a social dimension, the paintings that are created in neglected city districts, in housing estates, and blocks of flats embellish the plain walls of the buildings and give them new life. They constitute an important feature of spatial revitalization because they contribute towards an increase in the aesthetic value of the surroundings. The work undertaken in Kreuzberg in Berlin can be cited as an example. Currently in Poland many new artworks are being created in cities, in residential districts and in housing estates.

The main seat of the Polish mural is without doubt to be found in the Tri-City – Gdańsk, Gdynia and Sopot – where the community of street artists there has been very active since the mid-1990s. Murals have been painted for many years on the

Zaspa estate in Gdańsk as part of the Monumental Art festival. The first festival took place in 1997 where eight murals were created, among which was the famous *Koloseum* (Colosseum) mural by Paweł Karczewski, referencing the monumentality of the estate. In Zaspa we can find classical wall painting, figurative and graphic painting, conceptual art, historical painting, as well as purely decorative painting. The works have been created by artists from many cultures and from across generations.

The Zaspa housing estate in Gdańsk, like many others, was built according to modernist principles and was intended to be a friendly and functional place for its residents. However, for many years, it was considered a collection of grey and overcrowded blocks of flats. Its image changed after the Monumental Painting Festival was organised there. Since then, several dozen large-format works have appeared here, created by both Polish and foreign artists [5].

The Katowice Street Art 2019 URBAN SOUND event has been held in the city for several years and is responsible for changing the character of the city. On the streets we find works created by the most interesting representatives of global street art. This event for the most part maintains the regional vibe. Familiarising oneself with the history of local murals allows one not only to learn more about the state of contemporary art, but also to learn about the history and traditions of Silesia [2] [3].

However, not all murals are well received by local residents. Instances of poor reception of murals do exist. An example of such a negative reception is, or rather was, the Dudziarska estate in Warsaw. The estate was not a good place to live in from the outset. Poor transport links, isolation and the poverty of the residents contributed towards this. Inspired by modern art, artists painted murals on the walls of the blocks. On the side of one building, colourful compositions inspired by the art of Piet Mondrian were created. On the other hand, Malevich's 'black square' was reproduced. It was this black square that was very badly received by the residents. In this particular case, the artwork did not evoke positive emotions, but rather invoked the unhappiness of the people living on the estate. It was probably not the image itself that was the problem, but the discontent that was emerged among residents, associated with their living under such challenging conditions. Problems relating to the estate were so deep that the estate was abandoned in the end. In 2015, following many assurances, the city found alternate accommodation for these estate tenants [4]. One should remember that demands of higher order (beauty) can only be perceived and implemented when basic demands are first satisfied.

Since the mural is a large-scale form and often remains in situ for many years, it seems important therefore to analyse this phenomenon and to conduct surveys on

the reception of a given mural in a given location, especially among the people living in the district, who have to interact with the artwork on a daily basis.

2. A STUDY OF THE RECEPTION OF MURALS

As part of a Psychophysiology of Vision theme for a degree in Architecture at the Faculty of Interior Design, students during their first academic year in 2010/2011 conducted a survey relating to an assessment of the perception of murals selected by them. The murals were selected at random. Students were allowed to choose a mural of interest to them in close proximity in their city. The aim of the project was to examine the impact of the murals on its audience. In view of the large number of murals all around, it seemed reasonable to ask the residents, especially those in neighbouring buildings, how they feel about this large-scale art by which they are surrounded every day. Apart from the fundamental question of whether they like the mural, the research attempted to determine, for instance, whether time spent in the presence of the mural was important in terms of its evaluation. This is why questions were posed to both residents and passers-by. In the opinion of those conducting the study, the former group may have more in-depth perceptions, observations, and feelings than the ordinary passer-by. It would also be deemed essential to glean information about the mural from people who connect with the painting on a daily basis, for example, those who look at it from their apartment window or pass it every day.

Efforts were also made to determine whether the assessment of a painting is influenced by age, sex and comprehension of the painting's content, in other words, its message.

2.1. Participants in the study

The respondents were selected in accordance with the suppositions made above. The following people took part in the study:

- residents,
- passers-by,
- students.

These are pilot studies, with random testing, constituting a starting point for further research.

2.2. Time frame for the study

The research of the students was carried out during the winter semester in the academic year 2020/2021. The research was conducted by 32 students of Interior Design.

The subject matter of the selected murals was very diverse, from patriotic, local content to fantastical, multi-threaded works full of meaning. They touched on historical events as well as problems of a social nature. Some of the mural artworks being studied were very colourful and some were subdued, some abstract, some realistic, or figurative. They were usually painted on the walls of municipal buildings. Students described the surroundings in which these works play a role. They shared their own interpretations of the murals, and also tried to understand the message being conveyed by the artist.

2.3. Overview of the study findings

113 people took part in the study. The largest majority were women (sixty-nine), and forty-two men participated. Two people did not disclose their sex. Half of the respondents were under the age of twenty-three. One person did not state her age. The average age among the respondents was 23.5. The youngest respondent was six years old and the oldest was sixty-seven years old.

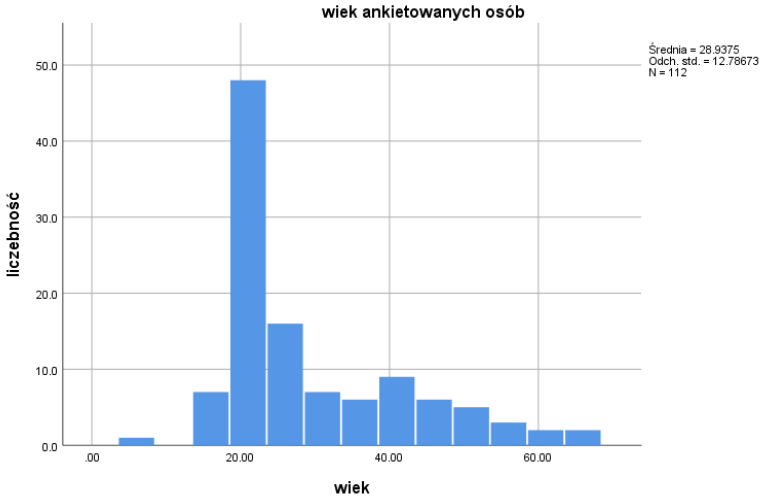

Fig. 1. Age structure of respondents
Source: Own elaboration
Rys. 1. Struktura wiekowa respondentów
Źródło: Opracowanie własne

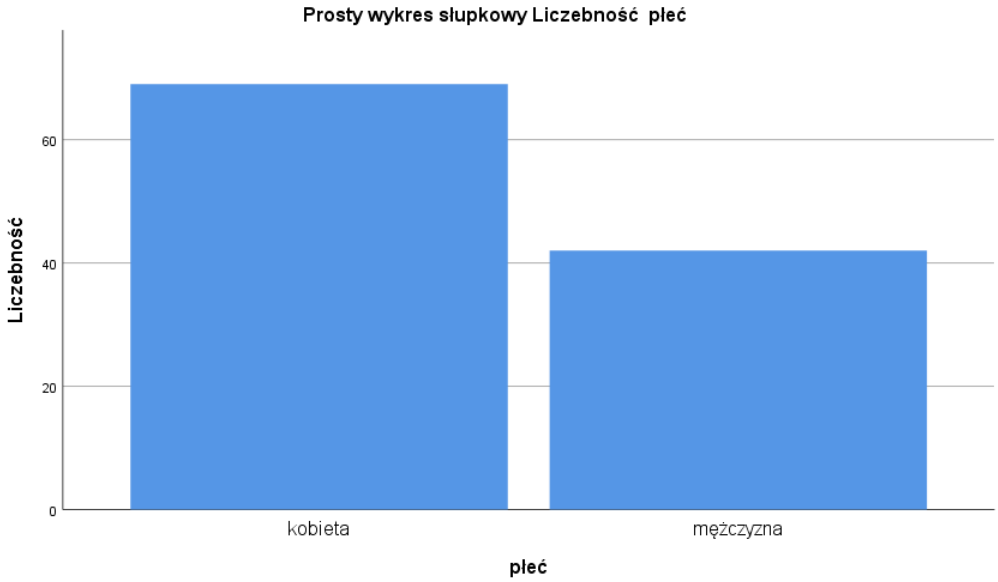

Fig. 2. Gender structure of the respondents
Source: Own elaboration
Rys. 2. Struktura płci respondentów
Źródło: Opracowanie własne

When asked whether they like the mural, the most common answer was in the affirmative – eighty-nine people, or 78.8% of the respondents.

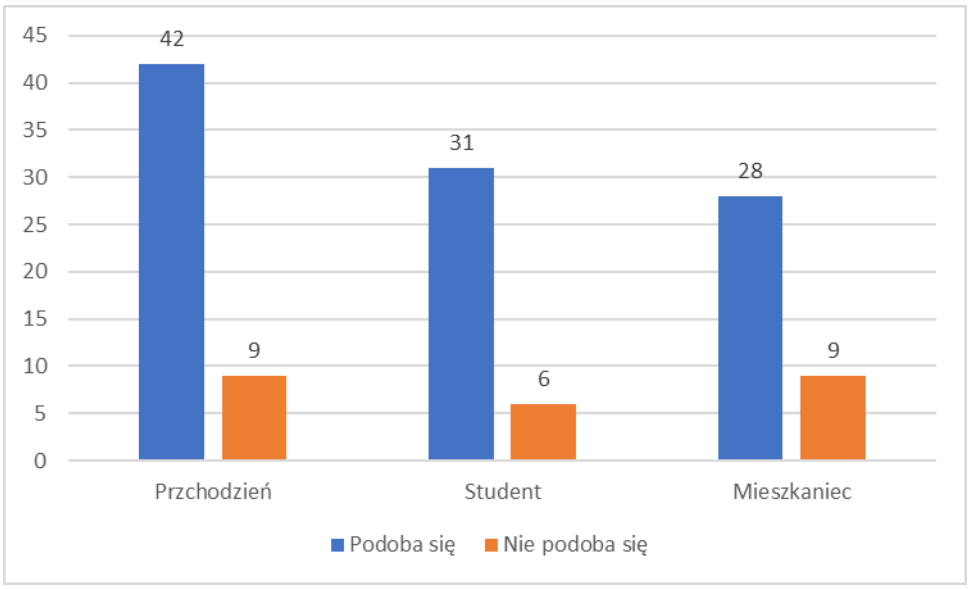

Fig. 3. Differences in the reception of the murals among students, passers-by and residents
Source: Own elaboration
Rys. 3. Różnice w odbiorze murali przez studentów, przechodniów, mieszkańców
Źródło: Opracowanie własne

Some of the positive emotions evoke feelings of curiosity, delight, pride, reflection, nostalgia, hope, joy, happiness, and excitement. The murals make people

aware, educate, sensitise, awaken patriotic feelings, reverie, and calm, and they entertain.

On the other hand, the negative emotions evoked were uncertainty, anxiety, aggression, aversion, fear and sadness.

Fig. 4. Katowice, intersection of ul. Drzymały and PCK. The mural was created as part of the Katowice Street Art Festival event, author Sepe & Chazme 718
Source: photo – Kamil Buffi
Rys. 4. Katowice, skrzyżowanie ul. Drzymały i PCK. Mural powstał w ramach imprezy Katowice Street Art Festival
Źródło: fotografia – Kamil Buffi

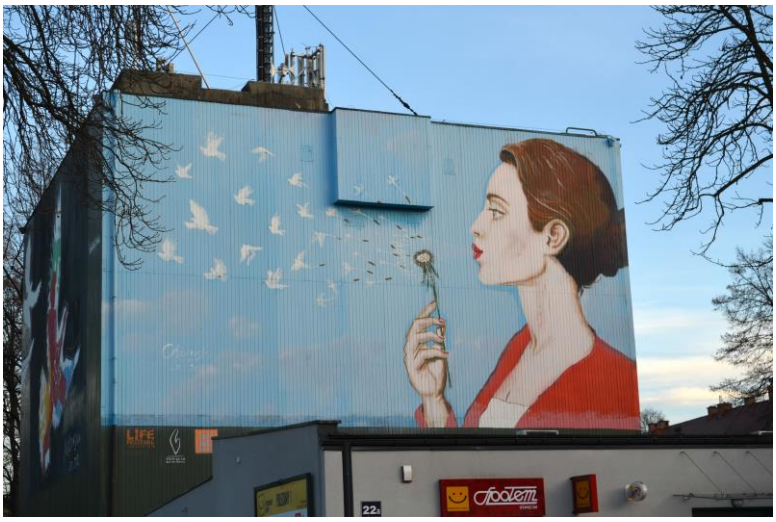

Fig. 5. Oświęcim, 22 Śniadeckiego Street, the artist: R. Olbiński. The mural was created as part of the Life Festival Oświęcim 2013
Source: photo – Magdalena Szklarz
Rys. 5. Oświęcim, ul. Śniadeckiego 22, artysta: R. Olbiński. Mural powstał w ramach Life Festival Oświęcim 2013
Źródło: fotografia – Magdalena Szklarz

3. SUMMARY

The murals selected for the study were from Katowice, Gliwice, Częstochowa, Dąbrowa Górnicza, Bielsko-Biała, Chorzów, Mikołów, Zabrze, Jaworzno, Oświęcim, Czeladź, Rybnik, Cieszyn, Bytom, Rybnik, and Piekary Śląskie.

The artworks studied feature classical wall painting, figurative and graphic painting, conceptual art, historical painting, as well as purely decorative painting. The method of application and the colours used have an impact on the evaluation of the murals being studied. Some, as in Cieszyn, Mikołów and Dąbrowa Górnicza, are linked directly with the context of the location in which they were created, commemorating facts or persons; others are purely abstract.

In conclusion, the reception of murals within their surroundings was positive. Most people like the murals, and they stir mainly positive emotions. Respondents stressed the positive impact on surroundings, especially with respect to the colours that appear in an otherwise sad space. The respondents point out that the paintings distract from the ugly, neglected places, hence the assertion: "Better a mural than a grey wall".

Fig. 6. Katowice, 58 Gliwicka Street, the artist: Tamara Djurovic-Hyuro [Argentina] "Woman with a weapon", 2012
Source: photo – Agnieszka Wuła
Rys. 6. Katowice, ul. Gliwicka 58, artysta: Tamara Djurovic-Hyuro [Argentyna] „Kobieta z bronią”, 2012
Źródło: fotografia – Agnieszka Wuła

This finding draws attention to another significant problem in Polish cities, namely the drabness and sadness of their surroundings. Therefore, it would be interesting to assess murals also in a beautiful and positive environment.

BIBLIOGRAPHY

1. Pałys J.: Sztuka uliczna jako medium komunikacji społecznej w Europie. Analiza materiałów źródłowych z Wielkiej Brytanii, Niemiec i Polski z lat 1970-2012, Uniwersytet Warszawski, Wydział Dziennikarstwa i Nauk Politycznych, Warszawa, 2014.
2. Zabawa-Krzypkowska J., Groń K.: Architectural and artistic action meaning for public space in the city – creative teaching for students of architecture. Murals, ICERI 2019, Conference proceedings. Ed. by L. Gomez Chova, A. Lopez Martinez, I. Candel Torres. [B. m.] : IATED Academy, 2019, pp. 2898-2906.
3. Zabawa-Krzypkowska J., Groń K.: Art in the public space, different aspects of artistic activities in architecture, 5th World Multidisciplinary Civil Engineering – Architecture – Urban Planning Symposium. WMCAUS 2020, Bristol : Institute of Physics, 2020, pp. 1-10.
4. https://www.architekturaibiznes.pl/opuszczone-getto-i-pomnik-zlej-polityki.-osiedle-dudziarska,7067.html
5. https://muralegdanskzaspa.pl/aktualnosci/

Joanna ZABAWA-KRZYPKOWSKA*, Krzysztof GROŃ**

THE PERCEPTION OF MURALS AND THEIR IMPACT ON SURROUNDINGS, PART II

1. INTRODUCTION

Perception of the surrounding world is an important factor when getting a feel for architecture, a place, or a city. The murals created in them are multi-format works and have a great impact on their audience and the surroundings in which they appear.

As part of a Psychophysiology of Vision theme for a degree in Architecture at the Faculty of Interior Design, students during their first academic year in 2010/2011 conducted a survey relating to an assessment of the perception of murals selected by them. The murals were selected at random. Students were allowed to choose a mural of interest to them in close proximity in their city.

The aim of the project was to examine the impact of the murals on its audience. In view of the large number of murals all around, it seemed reasonable to ask the residents, especially those in neighbouring buildings, how they feel about this large-scale art by which they are surrounded every day. Apart from the fundamental question of whether they like the mural, the research attempted to determine, for instance, whether time spent in the presence of the mural was important in terms of its evaluation. This is why questions were posed to both residents and passers-by. In the opinion of those conducting the study, the former group might have more in-depth perceptions, observations, and feelings than the ordinary passer-by. It would also be essential to glean information about the mural from people who connect with the painting on a daily basis, for example, those who look at it from their apartment window or pass it every day.

* Silesian University of Technology, Faculty of Architecture (POLAND), joanna.zabawa-krzypkowska@polsl.pl
** Silesian University of Technology, Faculty of Architecture (POLAND), krzysztof.gron@polsl.pl

Efforts were also made to determine whether the assessment of a painting is influenced by age, sex and comprehension of the painting's content, in other words, its message.

2. A STUDY OF THE MURALS

2.1. Participants in the study

Respondents were duly selected according to the suppositions made above. The following people took part in the study:

- residents,
- passers-by,
- students.

These are pilot studies with random testing, constituting a starting point for further research.

2.2. Time frame for the study

Students' research was carried out during the winter semester in the academic year 2020/2021.

The research was conducted by 32 students of Interior Design. Each student surveyed at least five people. The subject matter of the selected murals was very diverse, from patriotic, local content to fantastical, multi-threaded works full of meaning. Some of the murals are very colourful and some are subdued, some are abstract, realistic, or figurative. The murals touch on historical events and problems of a social nature and commemorate famous people.

2.3. Locations

The murals selected for the study were from Katowice, Gliwice, Częstochowa, Dąbrowa Górnicza, Bielsko-Biała, Chorzów, Mikołów, Zabrze, Jaworzno, Oświęcim, Czeladź, Rybnik, Cieszyn, Bytom, Rybnik, and Piekary Śląskie.

The artworks studied were most often painted on the walls of municipal buildings. There was also a mural painted in a passage under the viaduct in Zabrze, a mural surrounded by greenery in Żabie Doły, a nature reserve near Bytom, and a mural located on the transformer station building in Mysłowice. One of the elements of the study card or questionnaire pertained to a description of the

surroundings in which the murals are located. Photographic documentation of the surroundings was germane because it was important to learn the context of the place.

The students described the murals in their own words and also tried to understand the message conveyed by the artists.

2.4. Themes

Some of the murals referenced historical events such as the Silesian Uprisings. One commemorated the 100th anniversary of Dąbrowa Górnicza acquiring town rights, another depicted Mikołów as it once looked. Some, like the one in Zabrze, referred to local features. Some raised social problems, for example, the fight against cancer. Some commemorated famous people. Others, like the *Guardian of Time* in Częstochowa created fantastical scenery full of meaning. They depicted human figures, animals and architecture.

113 respondents participated in the study, among them 32 students. The students themselves also answered the survey questions, becoming interviewees and interviewers. Therefore, 32 evaluations of individual paintings are the assessments of young people responding to the questions posed in the survey. Of these thirty-two, two were male, the remainder female.

3. EXAMPLES OF THE MURALS BEING STUDIED

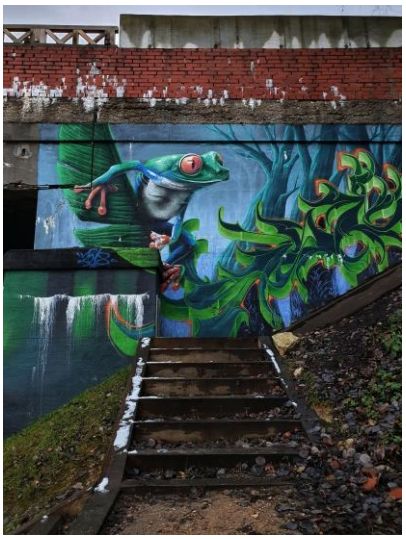

Fig. 1. The mural created on the border of Chorzów, Bytom and Piekary Śląskie was painted during the revitalization of Żabie Doły (the respondents liked the mural)
Source: N. Wójtowicz
Rys. 1. Mural na pograniczu Chorzowa, Bytomia i Piekar Śląskich powstał podczas rewitalizacji Żabich Dołów (obraz spodobał się respondentom)
Źródło: N. Wójtowicz

Fig. 2. Mikołów, the mural showing former Mikołów (the respondents liked the mural)
Source: Z. Knieżyk
Rys. 2. Mikołów, mural ukazujący dawny Mikołów (obraz spodobał się respondentom)
Źródło: Z. Knieżyk

Fig. 3. Dąbrowa Górnicza, the mural with a social theme - *Let's beat cancer* (the respondents liked the mural but the student did not)
Source: A. Kamińska
Rys. 3. Dąbrowa Górnicza, mural z przesłaniem społecznym – *pokonajmy raka* (obraz spodobał się respondentom, ale studentce nie)
Źródło: A. Kamińska

Fig. 4. Dąbrowa Górnicza, the mural was created in the centenary year of Dąbrowa Górnicza acquiring town rights
Source: A. Dzienis
Rys. 4. Dąbrowa Górnicza, mural powstał w stulecie nabycia praw miejskich
Źródło: A. Dzienis

Fig. 5. Sosnowiec. The mural together with its surroundings
Source: K. Niebrzydowska
Rys. 5. Sosnowiec. Mural i jego otoczenie
Źródło: K. Niebrzydowska

Fig. 6. Bytom - Rozbark, *Superhero without a cape*. An example of a mural whosemessage was incomprehensible to the respondents
Source: W. Baranowska
Rys. 6. Bytom - Rozbark, Superbohater bez peleryny. Przykład muralu, którego przekaz był niezrozumiały dla badanych
Źródło: W. Baranowska

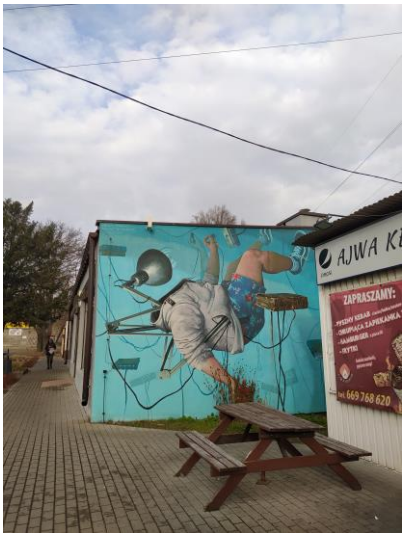

Fig. 7. Czeladź, mural on the wall of the municipal Library. An example of a mural whose message was incomprehensible to the respondents
Source: N. Kuliś
Rys. 7. Czeladź, mural na ścianie Biblioteki Miejskiej. Przykład muralu, którego przesłanie było niezrozumiałe dla badanych
Źródło: N. Kuliś

Fig. 8. Częstochowa, artist: Tomasz Setowski *Guardian of Time*. An example of a mural whose message was incomprehensible to the respondents
Source: N. Wystup
Rys. 8. Częstochowa, artysta: Tomasz Setowski *Strażnik Czasu*. Przykład muralu, którego przekaz był niezrozumiały dla badanych
Źródło: N. Wystup

4. AN ILLUSTRATION OF A SURVEY SUMMARY SUBMITTED BY STUDENT NATALIA GACH

Fig. 9. Zabrze, 3 Maja Street. A mural promoting the town, painted on the wall of the viaduct of cross-city route 920
Source: N. Gach
Rys. 9. Zabrze, ulica 3 Maja. Mural promujący miasto, namalowany na ścianie wiaduktu trasy średnicowej 920
Źródło: N. Gach

4.1. Description of the mural

The mural presents people of various professions – a miner, a doctor, a football player, a teacher and a musician – all inhabitants of Zabrze who contribute to the formation of this town. The inscription 'My City' appears alongside the figures. In the background we can see pigeons and features of buildings synonymous with Zabrze, 'familok' (small multi-family buildings) with characteristic red around the windows, Guido Mine, and the Water Tower.

The aim of the artist's mural design was primarily to demonstrate that the city of Zabrze is developing. It is not exclusively associated with mining and heavy industry, but it is also a city of medicine, sport, science, and culture. There are also features referencing the history of the city.

The figure of a Miner is a reference to the Guido Mine, also shown in the background, which is a distinctive landmark in Zabrze and a current tourist destination. The Miner also reflects the mining and heavy industry in general, for which Zabrze was well known.

The figure of a Doctor / Cardiologist holding a heart is a representation of Professor Zbigniew Religa, the first doctor in Poland to perform a heart transplant which took place in Zabrze. The figure also references the Silesian Centre for Heart Diseases, one of the best such centres in Poland.

The figure of a Footballer reflects football, in particular the Górnik Zabrze club and the Ernest Pohl stadium, one of the most modern football arenas in Poland.

The figure of a Teacher references the Education Centre in Zabrze, the Faculties of the Silesian University of Technology in Zabrze, and all school teachers in Zabrze.

The figure of a Musician references the people of culture associated with Zabrze, primarily the Zabrze Philharmonic, the Music and Dance Centre and the New Theater in Zabrze.

The mural is very graphic in form, the characters are simply painted, and red, blue and yellow colours dominate. This is not a random combination but reflects the colours of the city's flag.

4.2. Summary

The student surveyed twelve people. Most of the respondents (82%) like the mural. The mural adds colour to the urban space, lights it up and arouses the interest of passers-by. People with an artistic background emphasised the artistic values of the work, composition, reference to cubism, simplicity, and aesthetics. The message of the mural was clear to everyone. There was no doubt that it was a mural aimed at promoting the city as a good place to live. Almost all respondents indicated that the mural evokes positive emotions and is pleasing to the eye.

Respondents were of the opinion that due to the mural, the location was now more attractive and even safer. The mural is unconventional because it is located under the viaduct. There were suggestions that there should be more such initiatives in the city. The respondents stated that the only problem with the location of the mural is that there is no work on the opposite wall. It is blank or covered with graffiti by local street artists, marring the general reception of the main artwork.

5. CONCLUSIONS

93.75% of the students liked the murals and two (6.25%) did not. Their reasoning for not liking the painting itself were twofold. For one student the human anatomy was poorly painted. For the other, the painting was infantile and kitsch. However,

these two negative opinions about the painting itself did not affect their assessment of the mural's impact on the area. Their view was that the surroundings benefited from murals.

Some of the most frequent statements in reflecting the positive effect of paintings on the area were that:

- they distract from car parks, the greyness and depressing areas
- they introduce colour, sometimes a bit of an illusion
- they light up the surroundings,
- they have a positive impact on safety (like the mural under the viaduct in Zabrze)

It was stressed that the works make one think. Some people declared a willingness to further broaden their knowledge. This statement related to historical events, namely the history of the Silesian Uprisings. In some cases, the murals evoke a feeling of pride among those surveyed.

Young people pointed out the beauty, style and execution of the painting. They often highlighted the colours, the simplicity, the succinctness, and the interesting messages.

The study demonstrates that the lack of comprehension of the message conveyed by a mural does not necessarily have a negative impact on its reception. When this was the case, attempts were made to interpret the image in a different way. For some respondents, too simple a message was an obstacle, for others the difficulty in understanding "what was going on in this work" proved to be a negative feature in its reception.

At the same time, the people who conduct the study are happy to declare that the students really committed themselves to the task. They collected information about the murals, noting when they were created and by whom they were created. They collated all the comments, provided their own photographic documentation, and all gave a lot of themselves to the work, often providing their own comments. They stressed that this exercise was a pretext for them to further their knowledge about the murals. They began to pay more attention to their own surroundings and the role of art in urban spaces.

Katarzyna SŁUCHOCKA*

THE CITY – A CREATIVE SPACE / SELECTED CASES

1. INTRODUCTION

"The city is commonly perceived as a space clearly associated with broadly understood creativity" [Kinal 2015: 21]. It is sometimes an inspiration for creative activities, an excuse for interpretation, for creative and scientific articulations in the form of paintings, drawings, photography, films, literature, research, and scientific publications. It is also a field for investment, technology development, and design topics. It opens the books of history and writes new pages. Creativity is understood as a mental process implying new ideas, concepts, associations, the ability to create something new, original, a creative attitude aimed at creating something new, original [sjp].

The term creative city has gained popularity in recent years [Poszobiś 2015: 9]. Creative cities occupy high positions in the rankings, which additionally increases their attractiveness and competitiveness, and consequently contributes to their further development and success. A synonym for the word success when considered in relation to creativity can be viewed in many ways. In terms of creativity, the urban space metropolisization process can be considered, understood as participation of the city community (companies and people) in international cooperation, interdisciplinary research, exchange of experiences related to science, education, culture, and economy [Klasik 2008: 44]. The term creative cities is used to describe cities that are among the leaders of the economy and are treated as centres of innovation, entrepreneurship, and productivity [Majer 2014: 112].

The city, as a complex organism, evolves and develops. In terms of creativity, it is more and more often perceived through the prism of culture and art, as well as activities taking place on both levels [Raszkowski 2013: 67]. An important role in shaping the character of a given city is played by the community of dialogue and rich positive relations between various cultural and linguistic groups with different traditions or value systems. These are the factors that give colour and strengthen

* Poznan University of Technology, Faculty of Architecture (POLAND), katarzyna.sluchocka@put.poznan.pl

identity at the same time [Karwińska 2009: 13]. They can also be treated as the advantages of uniqueness of given spaces or places, which are at the same time an important element of the creative economy. They focus on the quality of life, issues of ecology and sustainable development, oscillating around the area of culture and the aesthetics of the city's image [Błaszczyk 2013: 101]. "The city is not only a functional unit with separate areas for work and leisure, as in Le Corbusier's concept, but creative cities seen through the prism of specific, characteristic symbols and signs, which attract the creative class, using their endogenous potential" [Rogowska 2013: 156-165]. According to Ch. Landry's characteristics of a creative city include: political framework encouraging creative attitudes, uniqueness, diversity, openness and tolerance, entrepreneurship and innovation, strategic leadership and vision, landscape favourable to learning and talent development (including appropriate infrastructure), communication, ease of access, networking, adequate quality of life (including high quality of public services), professionalism, and efficiency [Landry 2008: 21]. Creative attitudes, uniqueness, diversity, openness and tolerance, entrepreneurship and innovation, vision, an appropriate landscape, conducive to learning and talent development (including appropriate infrastructure), are the most favourable conditions for activities in the field of articulation of art.

The following study presents an attempt at the basic assumptions of the concept of a creative city and the importance of such elements as activities in the field of fine arts and design, and the relationship between social creativity and the image of a creative city.

2. THE IMAGE OF THE CITY

The image of the city is subject to multidirectional evaluation, as well as evaluation and criticism (positive and negative image) [Glińska et al., 2009: 32]. Many factors influence the quality of the city's image. These include the character of the city, for example, industrial, tourist, academic, as well as the date of location and economic opportunities which translate into its development. The element strongly determining the image of the city is also emotions, which are the driving force that stimulates the city to live, change, function in a given direction, and develop. Emotions are a factor that motivates a given community to act, developing a multi-level system of creativity - grassroots, institutional and systemic [Kinal: 2015], translating into the overall image of the city. These are mutually driving processes, based on technological possibilities, supported by tools, that generate images of

cities composed of multi-layered versions of creativity. The city becomes a palette for expressing ideas in a design, art, and engineering medium of varying degrees of individuality and quality of workmanship. This collection also includes literary articulations, which are often cited in city spaces, as fragments of murals or light illuminations, video mapping, as mentioned in the work by B. Fraticelli [Fraticelli 2015: 150-162]. The dialogue undertaken with space, starting from grassroots activities, perceived positively and serving as a stimulus to engage institutional and systemic initiatives, builds its image, which is confirmed by Junghart's words: “the image is related to the real and abstract elements of the city. Real elements are the physical properties of a given place that can be rationally captured, e.g. its size, location, spatial structure, condition of urban infrastructure, type of development. The abstract (emotional) elements are the emotional attitude and the level of people's liking of a specific place ”[Junghart 1995: 35]. The possibility of social activity at various levels, including the processes of architectural and urban design taking place in city spaces, can be an example of a coupled, focused on the needs of the recipient - future user - creative activity. The list of activities related to creativity and classified into individual sectors and their characteristics is presented in the following list [Rogowska 2013: 159]. It was created on the basis of the KEA report "Economy of Culture in Europe", in which the authors point out that the creative industries overlap with the cultural industries. Dependencies are based on the production of noncultural goods based on culture by the creative industries and the production of cultural goods by the cultural industries.

Table 1

Characteristics of the creative and culture sector

	Specification	Sector	Features
Cultural sector	area of arts	visual arts (painting, sculpting, photography) performing arts (theatre, dance) heritage (museums, libraries)	non-industrial activity, works potentially protected by copyright (they qualify, but are not systematically reported for proprietary protection)
	culture industries	film, television, radio, computer games, music (record companies, live concerts), books and the press	activity similar to industrial production, aimed at mass reproduction, results protected by copyright

Creative sector	creative industries	design, architecture, advertising	copyright-based results can also use other forms of protection, e.g. trademark use of creative skills of people from cultural industries necessary in this sector
	related industries	production of electronic equipment used to receive culture (MP3, PC, mobile phones)	

Source: by M. Rogowska, 2013, based on: The Economy of Culture in Europe (2006)

Based on the source study, an extension was made, supplementing the table with other components. In the creative sector group, one can successfully add the field of science – visual arts, including design, but also all activities related to the development of new branches of the creative industry in the creative sector, e.g. various projection techniques, including video mapping, used to use the facade of objects or even entire objects, as a surface for displaying video projections or video games, which are a rapidly growing industry. Computer games can be included in the cultural sector and in the creative sector, as more and more often game engines and the whole idea are directed to the sphere of artistic productions and are starting to be used in architecture and urban planning as the plane of agreement between the investor and the client [Szot 2020: 97-109]. Also visualizations of, for example, designed objects, custom-made, constitute a separate group of creative work related to architecture.

In the group of related industries, in addition to the production of electronic equipment used for the reception of culture (MP3, PC, mobile phones), it is worth paying attention to digital productions - equipment used in video projections (professional projectors, sound system, infrastructure - construction facilities, equipment for light illumination (artistic shows or permanent lighting of facilities). The proximity of companies, cooperation with various science centers [Gorzelak 2008: 92], help from the city authorities, all this influences the creativity of the city and its development. The creative industry, as a richly shaped sector of economy, produces goods and services of an artistic and creative nature for a wide audience, influencing, among others, the quality of life, the sense of identity, and the development of tourism [Matusik 2009: 50].

3. SITE IDENTIFICATION FACTOR

The activities of street artists, generally classified as grassroots initiatives, fit the scope of the creative and cultural industries. Along with the growing popularity of a given artist, the audience often expands and changes, and signs painted on the walls at night become a part of regular projects and the result of cooperation with design offices. An example of such an attitude is the artist using the nickname NORIAKI. As a Poznań resident, he is already active throughout the country and abroad, annexing city spaces for the purpose of leaving his graphic symbol identified by the figure of "Watcher" and a given place. These activities, which began as small icons left on scraps of walls, are now recognized as covering entire facades (see Fig. 1), lighting installations, including traffic lights at one of the intersections in Poznań, arrangements of residential and commercial interiors, to all kinds of utility items, jewellery and prints on clothing (see Fig. 2) and even paintings and drawings in a classic form, where the carrier is canvas or paper.

Noriaki is already an industry and an advertisement of the city of Poznań, it is also a recognizable brand in many European cities.

Fig. 1. The facade of the Animal Shelter, Kobylepole street in Poznań
Source: K. Słuchocka
Rys. 1. Fasada schroniska dla zwierząt, ulica Kobylepole w Poznaniu
Źródło: fotografia – K. Słuchocka

In response to the question whether this is an act of vandalism, associated with the creation of graphics in spaces not intended for it, it can be shown that the extensive activities of the author of Watchers, as characteristic and associated with Poznań, have already acquired the status of legal activities promoting the city.

Fig. 2. a)

Fig. 2. b)

Fig. 2. The Watcher by NORIAKI; a) Watcher – a drawing on a wall, Szewska street, Poznań; b) NORIAKI in large format
Source: Fig. 2. a) K. Słuchocka; 2. b) kulturapoznan.pl, https://noizz.pl/lifestyle/noriaki-lubie-jak-rysunek-ewoluuje-praca-ktora-powstaje-na-ulicy-powinna-sie-zmieniac/0rl0cs5
Rys. 2. Obserwator, autor: NORIAKI; a) Obserwator – rysunek na ścianie, ulica Szewska, Poznań; b) NORIAKI w dużym formacie
Źródło: Rys. 2. a) K. Słuchocka; 2. b) kulturapoznan.pl, https://noizz.pl/lifestyle/noriaki-lubie-jak-rysunek-ewoluuje-praca-ktora-powstaje-na-ulicy-powinna-sie-zmieniac/0rl0cs5

Their effect is a processed space, redefined in a way, by giving it a new meaning. It finds a place on the city map as a tool for building the image of the city and a contemporary element that crystallizes selected fragments in the city plan. A legible, distinctive, and easily recognizable graphic symbol is treated as a place marker. In Poznań, there are more than 25 points described and illustrated by Noriaki – specific streets, squares or housing estates in which "Mr Periscope" appears. They form a "tourist" trail (see Fig. 3). Additionally, following the map of the points where the Watcher appears, one can find the way to a specific goal, use it as a basis for a city game or physical activity related to the search for drawings in city spaces.

Fig. 3. Mural on the wall of the Muza cinema in Poznań by NORIAKI
Source: Adapted from [17]
Rys. 3. Mural na ścianie kina Muza w Poznaniu, autor: NORIAKI
Źródło: Przyjęto z [17]

Watcher figures (11 figures), made using a combination of 3D printing and resin casting, also appeared in city spaces, placed on the cornices of buildings. They constitute a spatial element of the place's identification and perhaps in the future they will be a recognizable souvenir from Poznań, available at retail outlets.

Iamsomeart, a graphic artist whose works can be bought in an art gallery, is also recognizable in the city and abroad, and his trademark is, above all, stickers with characteristic facial drawings distributed on the walls. This artist also had a significant impact on the image of the Wilda district, where on one of the gable walls, in order to avoid it being used for advertising, a mural was made showing the figure of Krzysztof Krawczyk (see Fig. 4). The event, entitled: "Let's save the wall from another mayonnaise ad", was initiated by the residents of the district themselves, mainly by the owner of the nearby restaurant. He was supposed to appeal to the city earlier to save the wall from being covered with mayonnaise advertisements, and he was helped by a street artist.

Fig. 4.a)

Fig. 4.b)

Fig. 4. An example of the work of the artist Iamsomeart; a) Mural depicting a portrait of Krzysztof Krawczyk by Iamsomeart; 4.b) A characteristic slap tag by Iamsomeart
Source: K. Słuchocka
Rys. 4. Przykład pracy artysty Iamsomeart; a) Mural przedstawiający portret Krzysztofa Krawczyka autorstwa Iamsomeart; 4.b) Charakterystyczny slap tag autorstwa Iamsomeart
Źródło: fotografia – K. Słuchocka

By delving into the secret life of street art activists and other street activists who show initiative and create public installations, one can find the hidden agenda of the undertaken actions. Often these are social protests, manifestos aimed at ecology,

which are noticed by the city authorities, whether they like it or not, and they are forced to react by supporting the voices of the inhabitants. Consistency in the actions of the creators, friendly attitude of the environment, and support of the art industry help to maintain many of the social campaigns at the appropriate level, thus making a positive mark in the history of the city.

Similar activities are visible in other cities all over the country and abroad, for many people who are its aim, not only because of historical or landscape values, but precisely because of the artistic arrangements, building the image of the city, giving the city its colour, special character, and sociocultural value. Such tourism supports the development of the economy, contributing to the creation of new jobs, to the revival of trade, and, above all, to the deepening of social dialogue. It also teaches tolerance, opens the horizons, and invites to action all social groups that do not always have the courage to publicly present their achievements. A young man running with paint, leaving clumsy, first marks on the wall, may in the future become one of the artists whose works are an object of desire or a social activist whose noble goal is to protect the space, for example, from the destructive actions of developers.

4. CREATIVE SPACE

The city space can be a provocation. As the context of our existence, filled with events, vibrant with life, taking over the echoes of everyday worries, it also becomes a carrier of emotions, confirming the legitimacy of using urban spaces in a way that opens up to dialogue, enriching the process of cognitive perception and creativity, and building the image of the city.

The recent months, during which the entire world has been struggling with the problems resulting from the threat of the SARS CoV2 pandemic, created many inconveniences directly affecting our existence. Restrictions, fortifications, prohibitions and imposed restrictions negatively affected the psyche of many people or contributed to the creation of defence mechanisms. An example of a defensive reaction resulting from too frequent and too close contact with the infrastructure of the dedicated infectious disease hospital in Poznań is the project "Covid city – scream and hope", video mapping, which took place on the night of 30/06/2021 to 01/07/2021. The screen for the projection of the film was the front wall of the Multidisciplinary City Hospital. Of J. Struś in Poznań, at Szwajcarska street. The symbolism of the event was related to the date when the functions of the unit changed, from infectious to returning to full-scale service for patients with various

diseases. It's a transition date, a wishful vision of returning to normal. The presented project was the result of the emotional experiences of the author, who is a direct neighbour of the hospital facilities (see Fig. 5).

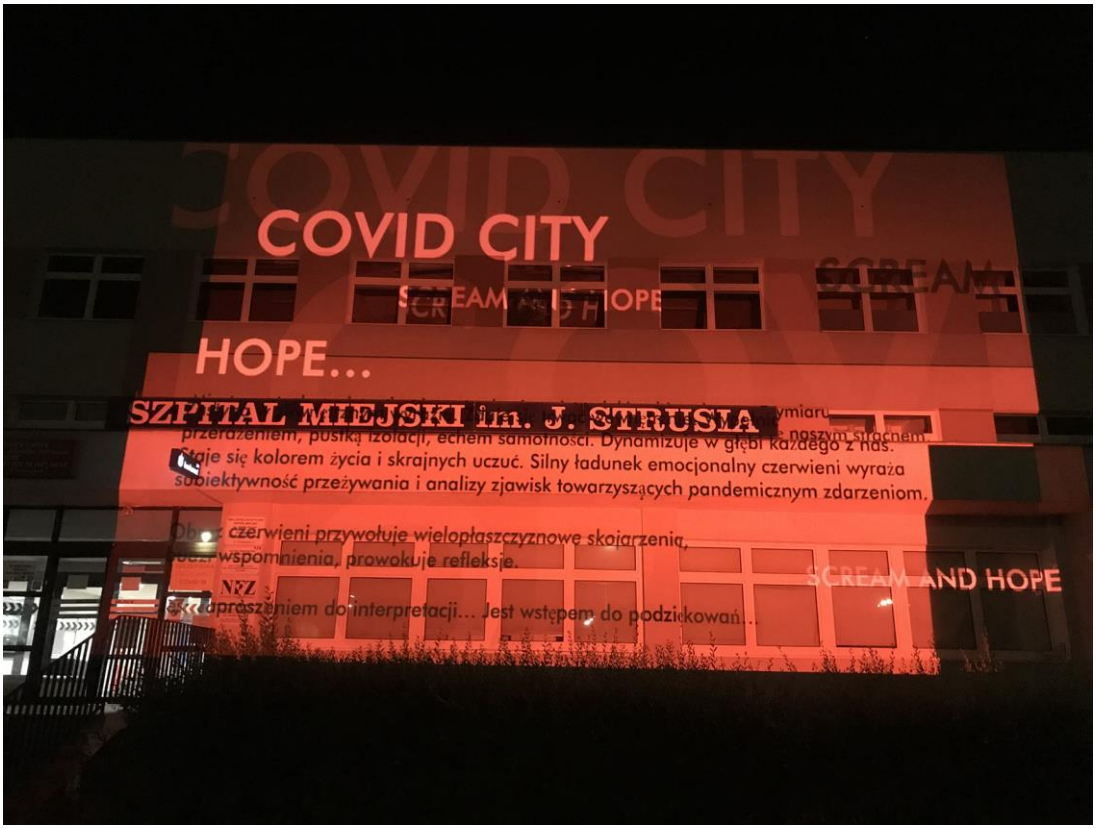

Fig. 5. Covid city – scream and hope, video mapping on the façade of City Hospital of J. Struś in Poznań
Source: K. Słuchocka
Rys. 5. Covid city – krzyk i nadzieja, video mapping na elewacji Szpitala Miejskiego im. J. Strusia w Poznaniu
Źródło: fotografia – K. Słuchocka

It was the city space that indirectly generated feelings of fear, the fear of being infected. Intensified by the sounds of ambulance sirens rushing to help and the views of nameless, white-wrapped protective suits of health care workers, feelings of helplessness and terror, as well as unlimited gratitude for devotion and sacrifice, provoked the creation of a video presentation. A dead city, without people bustling carelessly, the voices of children, without everyday rituals, is an everyday image of a covid city. The perception of such a space, so far unknown, can be compared to a mock-up city, prepared for a human being but without a human being. The result is a register of sounds, echoes bouncing off walls of buildings, circulating in empty spaces. The human being a natural acoustic element was absent, which intensified the emission of sirens emanating from ambulances and warning signals or warnings.

The resulting situation gives information on how to shape spaces so that they can play the role of invitation and not repulsiveness.

5. CONCLUSIONS

The city space is a common basis for expressing ideas, messages and emotions in the matter of artistic activities. As P. Zumthor said, comparing architecture to "a sensitive vessel for the rhythm of footsteps, for concentration at work and the silence of sleep" [Zumthor 2010: 12], we can successfully apply these words to a city that is capacious and with respect to diverse culture , awareness, needs and age of the community. The smooth flow of road traffic may be accompanied by openness to grassroots activities of local communities, which often turn into deliberate, large, useful projects. Therefore, the city space should be shaped in a way that allows access, not only physical, to common places, squares, but also multi-level accessibility, opening up to the activities of representatives of active local communities. Spaces beaming with life and provoking creative activities can be compared to a dialogue sustained by natural, spontaneous activity, understanding and respect for the work of others. Supported and sustained artistic activities in city spaces serve to strengthen the sense of identity, build social bonds, and develop young talents. They create a multi-level system of identifying a place, become a strong base for building the image of the city, positively influencing the revival of small trade, tourism development and city promotion.

BIBLIOGRAPHY

1. Błaszczyk M.: W poszukiwaniu socjologicznej teorii rozwoju miast. Meandry ekonomii politycznej, Wydawnictwo Naukowe SCHOLAR, Warszawa 2013, s. 101.
2. Fraticelli B.: The image of the city in literature and art., Romance Quarterly 62(3), 2015, pp. 150-162.
3. Glińska E.: Florek M., Kowalewska A.: Wizerunek miasta. Od koncepcji do wdrożenia, ABC, Warszawa 2009, s. 32.
4. Gorzelak G.: Miasto jako przedmiot badań ekonomii, [w:] Miasto jako przedmiot badań naukowych w początkach XXI wieku, red. B. Jałowiecki, Wydawnictwo Naukowe Scholar, Warszawa 2008, s. 92.
5. Junghart R.: ABC promocji gmin, miast i regionów, Fundacja Friedricha Eberta, Gliwice 1995.

6. Karwińska A.: Społeczno-kulturowe uwarunkowania cech miasta kreatywnego. Możliwości budowania lokalnego „kapitału kreatywności" [w:] Kreatywne miasto – kreatywna aglomeracja, red. A. Klasik, Wydawnictwo Akademii Ekonomicznej im. Karola Adamieckiego w Katowicach, Katowice 2009, pp.11-29.
7. Kinal A.: Miasto: przestrzeń kreatywność i kreatywność przestrzeni, [w:] Wybrane problemy współczesnych miast. Kultura, symbolika, promocja, Uniwersytet Rzeszowski, Rzeszów 2015, s. 19-29.
8. Klasik A.: Kreatywne i atrakcyjne miasta. Koncepcje i mechanizmy restrukturyzacji aglomeracji miejskich [w:] Kreatywna aglomeracja – potencjały, mechanizmy, aktywności. Podejścia metodologiczne, red. A. Klasik, Wydawnictwo Akademii Ekonomicznej im. Karola Adamieckiego w Katowicach, Katowice 2008, s. 41-65.
9. Kulturapoznan.pl; 31.08.2021; https://kultura.poznan.pl/mim/kultura/news/wystawy,c,5/noriaki-w-wielkim-formacie,169067.html, access: 29.10.2021.
10. Landry Ch.: The creative city. A toolkit for urban innovators, Earthscan, London 2008, p. 21.
11. Matusik M.: Potencjał gospodarczy, innowacyjny i kreatywny wybranych metropolii europejskich, [w:] Kreatywne miasto – kreatywna aglomeracja, red. A. Klasik, Wydawnictwo AE w Katowicach, Katowice 2009, s. 50.
12. Majer A.: Odrodzenie miast, Wydawnictwo Naukowe SCHOLAR, Łódź – Warszawa 2014, s. 112.
13. Raszkowski A.: Znaczenie kreatywności opartej na kulturze (Culture-based Creativity) w rozwoju gospodarczym na przykładzie strategii biznesowych [w:] Rozwój gospodarki kreatywnej na obszarach metropolitarnych, red. A. Klasik, Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice 2013, s. 67-81.
14. Rogowska M.: Koncepcja kreatywnego miasta w teorii i praktyce, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, 2013, s. 156-165.
15. Szot J.: Application of live-link solutions in the architect's practice and the Bauhaus heritage, Architectus, No. 4 (64), Wydział Architektury Politechniki Wrocławskiej, 2020, pp. 97-109.
16. Szymkowiak M.: Nowy mural w Poznaniu. Zobacz malunek Noriakiego na ścianie kina Muza. Powstał z okazji festiwalu animacji "Animator", 9.07.2021, https://gloswielkopolski.pl/nowy-mural-w-poznaniu-zobacz-malunek-noriakiego-na-scianie-kina-muza-powstal-z-okazji-festiwalu-animacji-animator/ar/c13-15703670, access: 29.10.2021.
17. *The Economy of Culture in Europe*, study prepared for the European Commission (Directo-rate-General for Education and Culture), October 2006; https://ec.europa.eu/assets/eac/culture/library/studies/cultural-economy_en.pdf, access: 5.10.2021.
18. Słownik języka polskiego sjp; www.sjp.pl, access: 17.10.2021.

19. Zgłobiś M.: Richard Florida a Charles Landry. Dwie wizje – koncepcje miasta kreatywnego, [w:] Wybrane problemy współczesnych miast. Kultura, symbolika, promocja, Uniwersytet Rzeszowski, Rzeszów 2015, s. 7-19.
20. Zumthor P.: Myślenie architekturą, Karakter, Kraków 2010, s. 12.

Jacek KWIATKOWSKI*, Anna SZALWA**

STREET ART AND ART STREET DESIGN URBAN CONCEPT: IN SEARCH OF A NEW PLACE FOR ART IN THE CITY SPACE

I really dislike a painting when it is logical. It loses its spontaneity… [1]
Peter Phillips (Pop artist)

1. INTRODUCTION

Contemporary art present in urban space is undergoing a profound metamorphosis. Recent years marked by the pandemic have strengthened the emotionality of the message of art, which has gradually grown over many years in place of the former narrative dialogue and in place of contextual or symbolic content [2].

Art in city space is at a crossroads today. It is the result of many factors and processes, among which the most important and strongest is the influence of the Internet and the intertwining of cultural models from the Internet [3].

2. THE MANIFESTATION OF ART IN THE PUBLIC SPACE AS A PROCESS

In Roman times, the first graffiti could be found on columns and buildings. It presented content related to identity, power, money, games, sex. The authors of these inscriptions addressed intriguing topics in their work, common to the whole society, while being aware that it is a form of expressing emotions only temporarily, similar to the news today [4].

The modern beginning of ideological proclamation in the city space is associated with the birth of futurism at the beginning of the 20th century. The futurism movement stemmed from fascination with the city as the center of new inventions and technologies (cars, electric trams, electric street lighting, telephones, elevators,

* University of Warsaw, Faculty of Geography and Regional Studies (POLAND); jacek.kwiatkowski@uw.edu.pl
** Warsaw University of Technology (POLAND), anna.szalwa.dokt@pw.edu.pl

and planes), which, according to futurists, had a huge impact on people [5]. We can already imagine a certain announcement of revenues in Umberto Boccioni's urban, frantic, simultaneous painting [6]. Futurism was supposed to be a proclamation of a technical society arising out of a sudden change in the living conditions surrounding it. This new artistic proclamation had to have new means of expression. In those days, it was the press – as we know, Filippo Tommaso Marinetti's futuristic manifesto was published in *Le Figaro* in 1909 [6]. However, the essence of this publication is very similar to the contemporary activities of graffiti artists. We have here the apotheosis of a new society of revolution and war, as a kind of *catharsis* purifying the old lie of art and the deception of the world [6] – point 10 of the manifesto proclaimed: *We want to destroy museums, libraries, academies of all kinds, we want to fight moralism, feminism and all opportunistic and utilitarian vileness* [7]. Since the time of the futurists, art has spoken through public demonstrations, as well as the media. Shortly after Marinetti's manifesto, the Russian avant-garde in the second half of the 1920s used a proclamation disseminated throughout Europe by its emissaries (El Lissitzky). One of the most prominent representatives of the avant-garde, K. Malewicz, went even further, stating publicly that it was *New Art* that was the driving force of the revolution (1919), and not the other way around [8], which did not win him the sympathy of the new government.

Constructivists (1924), who unambiguously associated *New Art* with the necessity of access to the media as a publisher of its manifestos, took the opposite path to K. Malewicz. Thus, they became hostages to the authorities[8] which, as we know, controlled the press (USSR).

The atmosphere of conspiracy, so similar to the present-day speeches of street art creators, accompanied the first articles by Ch.E. Jeanneret in the journal *L'esprit Nouveau* (1920). It was precisely for the purpose of proclaiming new forms in architecture that he invented and hid himself under the pseudonym Le Corbusier, appearing not as a person by name or surname, but as an object-type, in the third person, as if fearing social infamy. There was something pathetic and casual in this pseudonym, such as the name of the new prophet, whose voice must be quoted because he speaks on behalf of the whole people [9]. Is not that similar to Banksy? Soon thereafter (1933), the Athenian Charter, constructed in a closed group of innovators, was born as a kind of ideological manifesto. The Modernists were followed by supporters of the return to extensive cities modelled after *garden cities,* adopting the Charter of New Urbanism at their 4th Congress in Charleston in 1996. Already at the beginning of this Charter we can find radical, revolutionary calls in the

form of a manifesto starting with the words: *We postulate the restructuring of social policy* and *We demand that social policy, real estate development, urban planning and design processes be guided by the following principles…*[10].

Ending with modernity this search for the proclamation and ideological manifestation of new directions in art, also in urban planning, we can notice with astonishment that elements of this narrative have been regularly present in city art for nearly 100 years.

3. THE BIRTH OF *STREET ART.* BETWEEN *STREET ART* AND *GRAFFITI*

Pop art has revealed the axis of post-art from which *street art* developed. A. Warhol was the first to omit the structural substance of an art work, moving it to its radical simplification [11].

Street art, that is, art in public spaces of cities, has its roots in the illegal activities of youth subcultures in the United States in the period 1967-1970 and in the early 1970s. It grew out of the anti-war demonstrations against the Vietnam War [12]. In its anti-war rhetoric, it was more closely related to the hippie movement and the moral revolution of 1968 – hence its beginnings should also be associated with the birth of the hippie movement [13]. The inscriptions on the walls that appeared on the streets of New York for the first time in the early 1970s were to be, as the organizers called it, an *insurrection by signs* [14]. The term *street art* was first formally introduced in the pages of the book titled "Street Art" by Allan Schwartzman in 1985, published in New York [15].

Street art was first appreciated in San Francisco during the *Aesthetics of Graffiti* exhibition in 1978, where the works of street artists were presented at the gallery forum. It was a turning point for street art in future collecting and auctioning [16]. The term itself was created to separate artistic activities in public space from acts of pure vandalism [17].

Fig. 1. Graffiti on a mobile object – a car parked in the streets of Warsaw (Płatowcowa street, no 17 – 30/10/21)

Source: own photography – J. Kwiatkowski

Rys. 1. Graffiti na obiekcie mobilnym – samochód parkujący na ulicach Warszawy (ul. Płatowcowa 17 – 30.10.2021)

Źródło: fotografia – J. Kwiatkowski

Today, *street art* is seen not only as the younger brother of graffiti, whose works end up in the most expensive auction halls, galleries, and museums, but also as a tool of demonstration; the way the city and the life in it speak for themselves [18].

Some authors strongly differentiate *street art* from *graffiti* [19]. Others consider both categories to be self-limiting classifications that simplify and limit these forms [20]. However, there is almost universal agreement among art critics that *graffiti* and *street art* are not easy to define, categorize, or interpret, but an attempt has been made to do so [18]. Therefore, according to this definition, *graffiti* in the public space consists only of drawings that are created in order to mark the presence of the artist in a given area and are dedicated to a specific group of recipients. Created with a spray can or paint, they are spontaneous and usually do not convey a deeper meaning [21].

A little later than in America, at the beginning of the 1980s, *graffiti* and *street art* reached France.

Karim Madani, one of the precursors of this art trend in France [22], notes that there are two types of artists in this country. *On the one hand, we have "veterans" who have not adapted to the current reality and stay in their corner, where they*

constantly contest everything and proclaim that the world is a fraud. On the other hand, we have those who exhibit their work in art galleries, such as André and Wane. (...) They used to do graffiti on the Parisian and New York subways and now sell their work for hundreds of thousands of euros [22].

According to the authors, the ambivalence of attitudes presented by artists plays a significant role in the whole phenomenon of *street art*. This ambivalence balances between megalothymia and isotype, which pushes artists to publicly demonstrate their work [23].

4. STREET ART AND URBAN DESIGN – AN ATTEMPT TO TRANSFORM THE MOVEMENT INTO A SYSTEM SOLUTION AS ART STREET DESIGN CONCEPT

On the foundations of changes in architecture and urban planning in the mid-1980s and the popularity of *street art*, attempts were made to diffuse both trends in the systemic process of shaping space by urban planners and architects. This is how the idea of *art street design concept* was born. The community of urban planners and architects, however, placed significant limitations on the artistic message of new projects [24].

The key assumption is to reach the broadest possible audience so that the criteria of public art can be met. *Art street design concept* solutions are applied only where the architecture and composition of public space is insufficient for various reasons, being too monotonous or devoid of an identity. At the same time, the designers assume that this formula is to fit into the basic elements of the urban composition's structure. The number of advertising banners in a given area and their size also play a significant role here. If there are too many of them, *art street design concept* is not possible because a viewer is not able to register more than a dozen sensory stimuli over a distance of 150-250 meters.

Artists' ideas go in different directions. They can be in the form of small architecture with street furniture. An example of this type of art is the famous silver ring, which might be suspended above the square in front of the Vancouver Art Gallery (Canada, 2013) [25]. Such art can consist of color and texture changes introduced to the facades of the surrounding buildings or independent architectural projects supplementing the existing layout, e.g. the famous Viennese remodeling on the roof at Fakestrasse designed in 1983, in which the authors emphasize the art relationships clearly present in their work, pointing to: *a visualized line of energy*

which, coming from the street spans the project, thus breaking the existing roof and thereby opening it [26].

The concept of *art street design properly designed* should not contain political or other content that affects deep social, ideological or religious disputes because its task is to consolidate the local community and try to rebuild a weakened neighborhood, not to create new divisions. This is the main difference between *street art* and *art street design concept.* The second fundamental difference is that *street art* is created spontaneously, usually created by one person. *The concept of art street design* is created in a team, in a design office, and goes through a process of acceptance at all levels: architecture, urban planning, installations, infrastructure and cost estimation, fire safety approvals, sanitary services, and material requirements.

However, the community of architectural planners is very divided when it comes to *street art* entering the domain of architecture and urban planning [27]. In this dispute, *street art creators* respond to spatial planners saying that it is due to them, i.e., the artists of *street design*, that the *micro-effect of Bilbao* on the local community scale is possible (although not everywhere) [28].

Artists from *LDV Studio – Urbain* spoke about the future of this trend in 2017: *Street art participates in urban planning thanks of its spontaneous improvisation and as a form of dialogue in the community. Today, such art projects are created when the urban revitalization project begins, before construction works have started* (...).

They note that: *Cities are increasingly often created on the basis of a new idea, often experimental. For this reason, street art will be able to occupy an even more significant place in cities in the future. It will be a more inclusive and participatory form* [29].

5. THIRD WAY – MULTIMEDIA

> *….It's difficult to get away from this idea that pop art is what we now think of as pop art. Pop art was what we called mass media. Cinema and television – it had nothing to do with fine art...* [1]
> *Richard Hamilton; ICA (Institute of Contemporary Art)*

Interactive art, the first announcements or even traces of which can be found in the 1940s [30], finally began to take shape as a recognizable, consciously formed and constantly gaining in importance movement of contemporary art [30].

It was mainly due to artistic circles that popularized electronic tools and computer technologies in their creative work in the 1970s [31]. An example would be the art of telematics, which uses computer telecommunication networks as a medium [31].

Telematic art breaks down the traditional relationship between active "visitors" and passive art objects, creating interactive behavioral contexts for remote aesthetic encounters. Telematics in art was first used by Simon Nora and Alain Minc in *The Computerization of Society* in 1978. Telematic art was further developed by Roy Ascott as a formula for transforming the viewer into an active participant in the creation of artworks. Ascott has been at the forefront of the theory and practice of telematic art since 1978, when he started organizing various collaborative online projects [31].

A new proposal for the use of multimedia in the city space may be intermedia art that directly engages the user when he or she uses the urban space.

Intermedia art can be understood here as a combination of animation projections and a real three-dimensional space with architectural elements. The space around the installation becomes a conceptual development that broadens the perception of the work of art. To experience the work, the viewer must perform certain physical actions with their body, limbs, voice, and clicking. An interactive work of art reacts as its form yields a reactive response. The change in form can be related to the physical shape, position, color, clarity, frequency, sound loudness, or other properties.

In such intermedia art *the artwork loses its materiality, assuming a processual, changeable, unstable form, realized in the individual experience of the recipient-user; The primacy of the artist-author is questioned, and the previously passive recipient becomes an active partner, co-creating the work using the material and formal context prepared by the artist* [31].

Interactive art requires 5 elements to co-exist simultaneously: 1. presence – a feature containing the components of proximity, boundaries, common ground, 2. mapping – involving space-time, 3. activity – means both analog and digital behaviors in which users engage, as well as various gestures that take on meaning, 4. learning – such as rhythm, flow, repeatability, 5. vivacity – so that the experience will be remembered and preserved [31].

Digital media art is generally a progressive and transgressive field. The assumptions of interactive art assume the implementation of a certain scenario of cooperation. The artist's role is redefined as he becomes the designer of the context of user activity. In order to be successful, interactive projects require the involvement of not only the artist, but also designers, engineers and programmers [31].

By developing intermedia art towards **meta-design,** we reach the design of *interactive systems that do not constitute closed systems with a strictly defined set of possible procedures, but offer the user the possibility of free adaptation to their own preferences (…)* [31].

Currently, one of the most attractive concepts of art in the city space is the adaptation of the intermedia performance entitled **“Śmierci nie ma”** [**"Death does not exist”]** at the Graphic Expansion Studio and the Intermedia Action Studio at the Academy of Art and Design in Wrocław (Poland) by the co-author of this article, Anna Szalwa. The artistic activities of the author to date have consisted of combining large-format drawings with the projection of animations and sound in a given space in accordance with the *site-specific* concept. They are designed to be displayed on a stage or in a gallery, but they can also be adapted to public spaces in cities.

The concept would be to create interactive art in the public space of the city, the task of which would be to enliven and make the space more attractive by designing a unique and innovative audiovisual environment for it using the original artistic language.

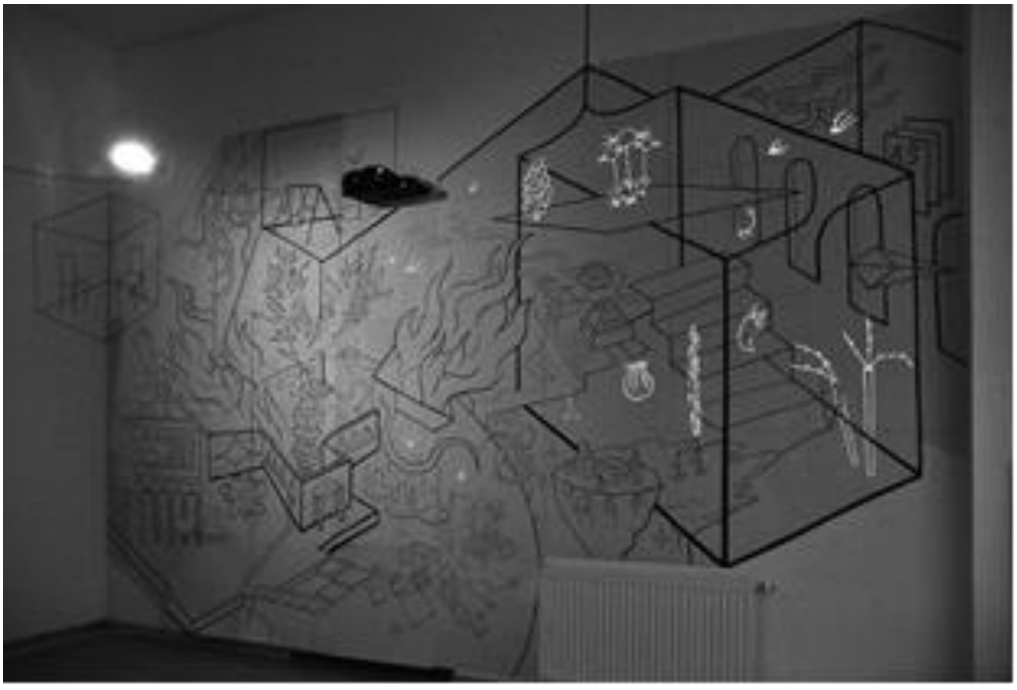

Fig. 2. Anna Szalwa’s intermedia performance "Death does not exist" – a part of the installation. ”Sztuka Przejścia ’19’’ – The Best Diplomas of Academy of Art and Design in Wrocław, group exhibition, BWA Gallery, Wrocław – 30/10/21).

Source: own photography – A. Szalwa

Rys. 2. Intermedialny performance Anny Szalwy „Śmierć nie istnieje” – część instalacji. ”Sztuka Przejścia ’19’’ – najlepsze dyplomy Akademii Sztuk Pięknych i Wzornictwa we Wrocławiu, wystawa grupowa, Galeria BWA, Wrocław – 30.10.2021).

Źródło: fotografia – A. Szalwa

This art integrates animation, large-format drawing, sound, stage design, light, and sound. Thus, a multimedia world that merges with reality is created in which the recipient becomes an element of the work by being in the space of the installation as an active subject. The dynamics of the animation follow the movement and the number of users.

The art language is based on an individual method of selecting digital and analog tools, the drawing and animation style, the type of music used and a characteristic way of composing a work in a given space – freely treating the divisions of walls, the floor and the ceiling.

In the prototype made in Wrocław, the animation was projected onto drawings which at that time served as a screen, enabling the integral complementing of mutually interpenetrating moving images. The visual composition was accompanied by sound that was designed to build a hypnotic atmosphere to attract the viewer's attention for longer and in combination with the aforementioned elements trigger a kind of transgressive experience.

6. SUMMARY – COPYRIGHT AND RIGHT TO LOCATION

In conclusion, it is impossible not to notice the danger of recognizing all acts of artistic activity in the city space as art because it entails the protection of copyrights to each artwork, which may be considered over the ownership right to the area on which it was created. In this way, innocent artistic activities may become a ruthless weapon in the fight for the right to ownership of urban space, overturning the existing order of the land ownership structure. There are already cases of people winning lawsuits for the copyrights to murals, such as Tristan Eaton, who won a hearing regarding the infringement of his copyrights to a mural on 5 March 2021 (Canada) [32]. To be protected under copyright law, an artistic expression must meet at least the following requirements: *it must be the author's work that is original and recorded on any material medium of expression. Since it can be "any" material, it can also be a wall in a public space. The origin of the author's work must be documented and must be sufficiently durable or stable (...).* Therefore, like any other artistic work, if a graffiti artwork meets these minimum requirements, it can be copyright protected [33].

BIBLIOGRAPHY

1. Angelotti M., Ciuffi V., Lenza V.: Pop Art. WS White Star Publishers, Vercelli, Italy 2011, pp. 224-226.
2. Fandrejewska-Tomczyk A.: Raport Kultura. Pierwsza do zamknięcia, ostatnia do otwarcia. Fundacja Gospodarki i Administracji Publicznej, Kraków, 2020. Source: https://www.scenastu.pl/assets/Pliki-do-pobrania/Raport-kultura-23.10.pdf. Access: 23.10.2021.
3. Smyk A.: From the Street to the Screen: Street Art's Influence on Digital Design. Source: https://blog.adobe.com/en/publish/2017/07/07/from-the-street-to-the-screen-street-arts-influence-on-digital-design.html#gs.empxev. Access: 29.10.2021.
4. Royo M.: Entre graffiti et graff: un simple écart de langage? À propos de deux livres récents, 2015. Source: https://journals.openedition.org/anabases/5507. Access: 27.10.2021.
5. Bahnam R.: Rewolucja w architekturze. Wydawnictwo Artystyczne i Filmowe, Warszawa, 1979.
6. Ottinger D.: Futurism. La futurisme a Paris. Une avant-garde explosive. Centre Pompidou, Paris, 2009.
7. Baumgarth Ch.: Marinetti Manifest – Manifest Futuryzmu. Futuryzm. Wydawnictwo Artystyczne i Filmowe, Warszawa 1987.
8. Kwiatkowski J.: Oko pod kontrolę dotyku duszy. Suprematyzm we współczesnym dyskursie intelektualnym. Zakład Graficzny Uniwersytetu Warszawskiego, Warszawa, 2013, s. 87-89.
9. Jencks Ch.: Le Corbusier. Tragizm współczesnej architektury. Wydawnictwo Artystyczne i Filmowe, Warszawa 1982.
10. Buczek G.: Urbanista, vol. 6, Ministerstwo Infrastruktury, 2005. Source: www.mau.com.pl/pdf/Karta.pdf. Access: 28.10.2021.
11. Kuspit D.: Koniec Sztuki. Muzeum Narodowe w Gdańsku, Gdańsk 2004, s. 163.
12. Suárez-Mansilla M.: Art World Law Bulletin. Chronicles of Themis and Athenea, vol. 7. Madrit, 2018. Source: http://artworldlaw.com/en/history-of-street-art-i/. Access: 20.10.2021.
13. *Graffiti and its "child" – street art – are the most spectacular products of new art, cultivated in the open public space of the city (...), and they appear as an expression of the youth cultural revolution, heir to the counterculture rebellion of the late 1960s* – Moch. W.: Street art i graffiti. Litery, słowa i obrazy w przestrzeni miasta, Wydawnictwo Uczelniane Wyższej Szkoły Gospodarki & Włodzimierz Moch, Bydgoszcz 2016. Source: https://kpbc.umk.pl/Content/180712/PDF/Moch_graffiti.pdf. dostęp: 22.10.2021
14. Royo M.: Koolkiller or Insurrection by signs [in] Graffiti and graff – just a difference in language? Paru dans Anabases, vol. 28, 2018. Source: https://journals.openedition.org/anabases/5507. Access: 25.10.2021

15. Street art od początku. 2020. Source: https://desa.pl/pl/historie/street-art-od-poczatku/. Access: 25.10.2021.
16. Moch. W.: Street art i graffiti. Litery, słowa i obrazy w przestrzeni miasta, Wydawnictwo Uczelniane Wyższej Szkoły Gospodarki & Włodzimierz Moch, Bydgoszcz, 2016. Source: https://kpbc.umk.pl/Content/180712/PDF/Moch_graffiti.pdf. Access: 22.10.2021.
17. Laskowski P.: Street art in the Service of the Revolution. Czasopismo Krakowskie Studia Międzynarodowe, nr 1 Arabska wiosna rok później. Source: https://repozytorium.ka.edu.pl/bitstream/handle/11315/23147/LASKOWSKI_Street_Art_w_sluzbie_rewolucji_2012.pdf?sequence=1&isAllowed=y. Access: 31.10.2021.
18. Wiesner A.: Street art a graffiti v kontextu města. Institute of Ethnology, Slovak Academy of Sciences, vol. 67(1), Bratislava, 2019, pp. 47-62. Source: https://www.sav.sk/journals/uploads/03151852wiesner.pdf Access: 23.10.2021
19. Bacharach S.: Street Art and Consent. British Journal of Aesthetics, vol. 55(4), 2015.
20. Awad S.H., Wagoner B.: Street Art of Resistance, 2017. Source: https://www.researchgate.net/publication/318330847_The_Street_Art_of_Resistance. Access: 25.10.2021.
21. Niżyńska A.: Street art jako alternatywna forma debaty publicznej w przestrzeni miejskiej. Trio, Warszawa 2011.
22. Sorbier M.: Grafitti w 2021 r., artystyczny gest czy prowokacja? Source: https://www.franceculture.fr/emissions/affaire-en-cours/le-graffiti-est-il-toujours-vandale. Access: 22.10.2021.
23. Fukuyama F.: Koniec Historii. Wydawnictwo Zysk i Ska, Poznań, 1996, pp. 266.
24. Gzell S., Nyka L.: Street Art and Architecture. Street Art: Between Freedom and Anarchy. Ed. Duchowski M., Sekuła E. Akademia Sztuk Pięknych w Warszawie, Warszawa 2011.
25. Source: https://www.cbc.ca/news/canada/british-columbia/vancouver-art-gallery-plaza-redesigns-pitched-to-public-1.1874939. Access: 25.10.2021.
26. Source: https://coop-himmelblau.at/projects/falkestrasse/. Access: 25. 10. 2021.
27. Talen E.: Responses to Stephen Marshall's. The kind of art urban design is. Journal of Urban Design 21 (4), pp. 437-438.
28. In recent years, new indirect forms of combining urban planning and street art in the functional and spatial context have appeared. An example is the Backjump Festival in Berlin, during which a multi-storey factory hall with surrounding parking lots was made available to street artists who come to the festival every year from Western Europe, Asia and the Americas. Source: https://rynekisztuka.pl/2012/01/03/inteligentna-sztuka-ulicy-czyli-smart-street-art/. Access: 28.10.2021.
29. What would it be like if street artists participated in the development of urban design? LDV Studio Urbain, 2017. Source: https://www.demainlaville.com/street-artistes-construction-projet-urbain/. Access: 27.10.2021.

30. Kluszczyński R. W.: Sztuka interaktywna. Od dzieła-instrumentu do interaktywnego spektaklu. Wydawnictwa Akademickie i Profesjonalne, Warszawa, 2010.
31. Porczak A.: Interaktywne media sztuki, ASP Kraków, 2009. Source: https://www.intermedia.asp.krakow.pl/wp-ontent/uploads/2014/05/ims_pl.pdf. Access: 29.11.2021.
32. Source: https://www.instagram.com/p/CMCjrUQh9QJ/?utm_medium=copy_link. Access: 28.10.2021.
33. Lerman C.: Protecting artistic vandalism: Graffiti and copyright law. NYU Journal of Intellectual Property and Entertainment Law, Forthcoming, 2021, p. 308. Source: https://jipel.law.nyu.edu/wp-content/uploads/2015/05/NYU_JIPEL_Vol-2-No-2_2_Lerman_Protecting_Artistic_Vandalism.pdf. Access: 28.10.20.

Piotr FIUK*

THE CREATIVITY OF VENETIAN ARCHITECTURE AND DESIGN IN THE 20TH CENTURY

1. CONTEMPORARY ARCHITECTURE OF VENICE – AN OVERVIEW OF THE PROBLEM

The architecture of the waterfront city has been shaped over the centuries, creating innovative constructions for the **foundation of buildings** on the marshy ground of the Adriatic Sea lagoon, creating **lacy facades** for their static lightness, and solving the **unique shipping methods**. The original architectural interior and artistic design solutions developed in Venice have been used since the Middle Ages as inspiration in developing European cities. The continuation of centuries of influence on European art of the concepts and realizations prepared for the unique space of Venice was provided in the 20th century by the projects of outstanding artists who were connected with the Serenissima [C. Scarpa, M. Botta] and representatives of the international architectural community [F.L. Wright, L. Kahn, Le Corbusier, T. Ando]. The original concepts were materialized in a small part and considered by conservative representatives of the city authorities as an excessive interference in the landscape of the historic center. They gained recognition on the international forum thanks to media coverage, publications in professional journals and scientific publications. The popularization of the unique structural and spatial concepts that the most eminent architects created with reference to the *genius loci* of the waterside centre has influenced the international impact of contemporary Venetian architecture, as well as its perpetuation in the art history of the past century. The individuality and creation of contemporary designs for architecture, interiors, design and the visual arts developed for Venice referred in terms of originality to the artistic achievements of past centuries – also becoming a model in the 20th century. New trends were sought in the art of shaping space, the creativity of functional solutions of new urban structures and modern buildings. The original concepts presented the potential for new investments within the historical urban layout considered (due to

* West Pomeranian University of Technology in Szczecin (POLAND), piotr.fiuk@zut.edu.pl

the architectural harmony and artistic value of the cultural landscape of Venice) to be a closed structure with no – seemingly – prospects for the spatial development [1].

The avant-garde compositions of the new architecture[2] were modified during the development of the documentation. The contemporary solutions — referring to the principles of shaping blocks of old Venetian houses – were juxtaposed with the historical elevations in the frontage lines creating individualized accents in the city landscape and preserving its harmonized character. The contemporary projects dealt with the problem of technological and infrastructural modernization of old buildings and their adaptation to new utility standards, while preserving the compositional values of the historical substance. The creativity of design art in Venice reflects the exceptional scientific and artistic status of the university (Università Iuav di Venezia), a leading center in Italy and among architectural universities in Europe. Since its foundation in 1926 it has shaped the trends of Italian architecture and design art.

2. THE INNOVATION OF INTERIOR VENETIAN ARCHITECTURE: TRADITION AND CONTINUITY

The history of architecture discusses the process of formal and stylistic, as well as the structural and functional evolution of old building methods, concepts of shaping the composition of buildings, and layout of urban space. Transformations took place while adapting old houses to new functions and composing interior layouts and artistic solutions to meet the changing aesthetic tastes in subsequent style epochs. Decapitated buildings that were technically infeasible or unprofitable for adaptation to meet new requirements and utility standards were demolished.

The new functional and aesthetic solutions changed the old structure of the buildings. The creative designers were adjusting historical functional layouts and structural solutions to the changing investment potential: the access to modern technologies, equipment and construction materials. While adapting old buildings and their expansion, valuable elements of the building structure and original historical elements were preserved, the innovative solutions became a model for continuators.

[1] The city in the lagoon of the Adriatic Sea was created over the centuries, in the process of adaptation to the natural geographical conditions, the transformation of islands with marshy ground into fortified fragments of a compact urban system, whose area was gradually enlarged by advanced construction projects.

[2] Known for publication in professional publications; Maretto P.: Venezia: Architettura del XX secolo in Italia, Vitali e Ghianda, Genova 1972, pp. 45-52, 113-135; - Scimemi M.: Architettura del Novecento a Venezia. The palace Rio Nuovo, Publisher Marsilio, Milan 2009, pp. 15-126.

The creation of new compositional and formal solutions and the location of new functions in historical city layouts and the structure of old buildings have been a challenge for designers for centuries – the evolution process of original concepts and innovative solutions determined the stylistic changes in the architecture.

Today a contrast between the new buildings (constructed with the use of technologies, materials, and equipment unknown many years ago) and a valuable historic architecture is visible. The new investments, which are necessary due to the transformation of the old urban layout, require innovative solutions.

The *genius loci* of Venice have been reflected in the last century in projects for the transformation of historic interiors involving the introduction of contemporary forms based on the new design ideas and innovative solutions.

3. CREATORS OF ORIGINAL CONCEPTS

A city with a unique architectural landscape, a rich artistic tradition and invaluable musical achievements has for centuries integrated artists coming from different backgrounds and international centers regardless of outstanding local designers. For Venice and the islands co-creating a unique agglomeration in the lagoon the outstanding projects and concepts were created by outstanding architects representing several continents [Otto Wagner, Adolf Loos, Gerrit Rietveld, Carlo Scarpa, Frank Lloyd Wright, Louis Kahn, Le Corbusier, Oskar Niemeyer, Aldo Rossi, Mario Botta, Tadao Ando, Santiago Calatrava, Rafael Moneo, Zino Zucchi, among others][3].

Italian architects in the 20th century continued the tradition of excellent urban and architectural solutions belonging to the primordial achievements in the art of shaping space, interiors and design. Among the most outstanding were: the residential house at Bacino di S. Marco, 1952-1953, by architect M. Pavanini; – a residential and office building in the vicinity of the church of San Simeon Piccolo, 1955-1958, by architect G. Samona and E.R. Trincanto; – a bank premises at Campo Manin, 1964, by architect A. Scattolin and constructor P.L. Nervi; – a residential complex on Sacca Fisola (Giudecca) designed by the I.A.C.P., U.N.R.R.A. – CASAS studio, 1956.

[3] In 1964 architects from Poland received the first prize (ex aequo) in the competition for the development of the Tronchetto Island: Kalina Eibl, Zdzisław Hryniak, Janusz Matyjaszkiewicz, Wacław Ostrowski, S. Michałowski, [in:] Barucki T.: Zagraniczne sukcesy polskich twórców: architektura, "Projekt", nr 5-6 (73) 1969, s. 67.

Contemporary realizations were mostly created in urban areas isolated from the center, tourist routes, and main communication routes. They constituted stages of contemporary transformations of peripheral areas of the historic city. The original designs, for the most part, were not materialized or were modified during the preparation of the implementation documentation due to the necessary (according to the building administration and the conservative part of public opinion) adaptation to the character of Venetian architecture. The city center maintained a harmonious architectural landscape with an idealized appearance of buildings erected in the 20th century similar to the urban planning policies of many former cities of the Italian peninsula[4]. In the case of the visionary projects prepared by F.L. Wright, L. Kahn and Le Corbusier the potential for modernizing the multifunctional urban structure of the old center and increasing its esteem after enriching the historic landscape (perpetuated in the popular consciousness as excluded from the process of change), with the unique achievements of modern architecture was not recognized. The concepts of the mentioned authors were closely integrated into the historical structure of Venice[5].

The outline for distinguishing trends in the architecture of Venice in the 20th century makes it possible to indicate the most important examples and the characteristic features and ideological assumptions: * creation; * continuation; * contrast; * recomposition of the historical spatial structure.

Among the most outstanding creations of contemporary architecture are (unrealized): the Masieri Memorial – Frank Lloyd Wright 1953; the Congress Palace – Louis Kahn 1961; the New Hospital – Le Corbusier 1965. Distinctive references of contemporary forms to the historic context and location in the area of water bodies include: the Hotel Bauer-Grünwald – Marino Meo 1945-1949; the Apartment Buildings (Junghans) – Cino Zucchi 1996-1998. The creative explorations of modernist forms, identical to the historic landscape were undertaken in the project Casa alle Zattere – Ignazio Gardella 1953-1958 (the original avant-garde "radically modernist" version was transformed into an interesting contemporary composition of a residential house). A subtle contrast of modern masses with historic buildings was

[4] The extraordinary popularity of Italian cities, in terms of holiday travel routes planned by millions of tourists, confirms the rightness of local authorities, with the involvement of art historians, conservators and architects.

[5] The turn of the 20th and 21st centuries saw the multifaceted development of the tourism industry (exceeding the potential of resorts of limited size) and the desire of the administrative authorities of many cities to erect "architectural icons" to ensure their international popularity.

proposed in the postwar years by leading Venetian architect Angelo Scattolin (Palazzo Rio Nuovo S.E.D.E. 1960; the office and service building on Via 22 Marzo 1959)[6].

At the beginning of the 21st century, innovative projects for the adaptation of historic buildings were realized by the Japanese master – Tadao Ando. The unique, in terms of artistic and technological, solutions were created in the reconstruction of the former "customs warehouse" (Punta della Dogana) and the Mannerist palace (Palazzo Grassi), in which new exhibition spaces were arranged for the exhibit of the contemporary art. Regardless of the significant scale of the transformations the unique (in conceptual terms) projects preserve the historic substance leaving the valuable decoration and furnishings intact while highlighting the qualities of the old architecture. Tadao Ando's projects are an ideological continuation of innovative solutions, which were prepared in historic houses in Venice in 1950s and 1960s by Carlo Scarpa (Olivietti Salon, Fondazione Querini Stampalia, Castel Vecchio Museum, Canova Museum).

4. LANDSCAPE, INTERIOR ARCHITECTURE AND DESIGN

In Venice, due to the unique conditions of its location, there was a direct relationship between the spatial layout and the buildings of the city. The centuries-old integration of urban planning and architecture is reflected in the landscape of the waterside center. The natural landscape is connected by the water area of the lagoon enriched by composed greenery complexes within the included development complexes. A limited space has developed methods for the organization of miniature gardens based on the use of irregular shapes difficult to access for maintenance work and with limited sunlight (there was a need of appropriate plant species). In addition, the little space allowed for the composition of groups of trees, shrubs, and flowers at different levels with original pavilions and pergolas. A distinctive feature of Venetian housing, especially from the *fin de siècle* era, was the arrangement of courtyards, terraces and balconies with a rich green arrange.

The architecture was integrated with the interior solutions of palaces and residential houses. The communication and water transport – leading in terms of

[6] A separate scope of Venetian building art is the complex of pavilions created for the organization of the cycle of famous biennales, with outstanding realizations of the international architectural community. Within Gardini, in the mid-1950s, the complex spatial arrangement of the Venice Pavilion (architect Brenno Del Giudice, 1932) was unhappily recomposed and degraded, with the construction of the Brazilian National Pavilion (architect Amerigo Marchesin); originally planned as an object integrated with an intimate bridge, it was finally realized after the demolition of the colonnade forming the original landscape composition.

utility, at the same time significant in terms of emphasizing the prestige of the owner — influenced the shape of representative facades from the side of canals. Representative gates served vessels, which were connected with mostly arcaded courtyards arranged inside the palaces. The interiors of the buildings were composed around the courtyards within, which were located with impressive flights of stairs, reaching the successive floors of arcades. In the 20th century the principle of communication from the courtyards was diversified with internal corridors.

The craftsmanship of the old masters in designing representative interiors was continued in modern times by representatives of the Italian school of architectural design, which was developed with the support of public institutions and implementation of the state strategy of economic development. Italy and Scandinavia were among the leading international centers defining trends and fashions in the design of furniture, equipment and interior decoration, household appliances and electrotechnical, electronic and automotive devices. The scientific and popular publications as well as trade journals popularized new concepts in design.

The leading creator of interior architecture and design in the 20th century was Carlo Scarpa, whose recognizable style became synonymous with modern Venice. At the same time, it became a source of inspiration for avant-garde projects and conservative adaptations in other centers of the Old Continent.

Fig. 1. Palazzo dei Congressi, architect Louis Kahn 1961, an unrealized version with location in the Arsenal area (computer visualization by Dionisio Gonzalez)
Source: https://archiwatch.it/2012/02/14/lou-non-sfondo-a-venezia-parte-2/
Rys. 1. Palazzo dei Congressi, architekt Louis Kahn 1961, niezrealizowana wersja z lokalizacją na terenie Arsenalu (wizualizacja komputerowa Dionisio Gonzalez)
Źródło: https://archiwatch.it/2012/02/14/lou-non-sfondo-a-venezia-parte-2/

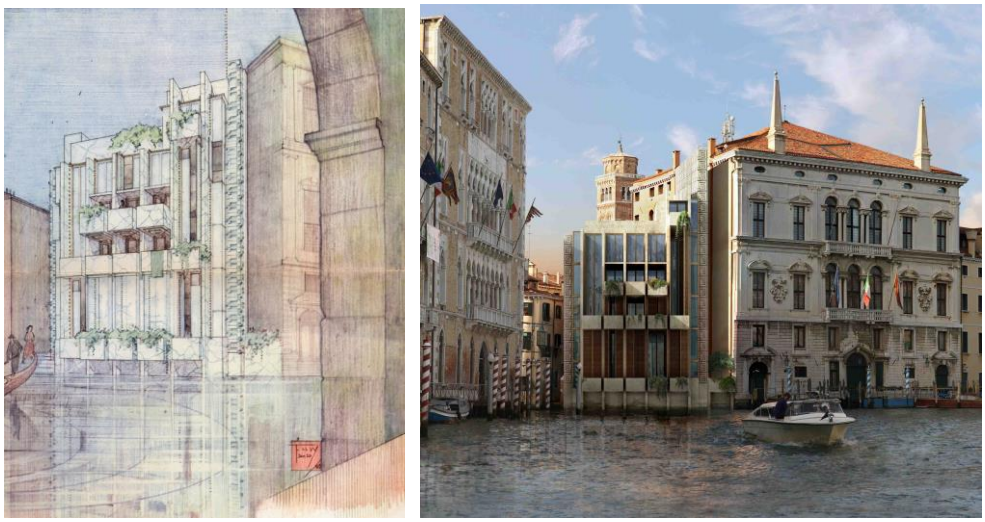

Fig. 2. Masieri Memorial, architect Frank Lloyd Wright, 1953, an unrealized concept of a unique juxtaposition of a modern block with the stately facades of modern palaces along the Canale Grande; design drawing and computer visualization (by Dionisio Gonzalez)

Source: https://www.archiweb.cz/en/b/masieri-memorial-nerealizovany-projekt-na-canal-grande

Rys. 2. Masieri Memorial, architekt Frank Lloyd Wright, 1953, niezrealizowana koncepcja unikalnego zestawienia nowoczesnego bloku z okazałymi fasadami nowoczesnych pałaców wzdłuż Canale Grande; rysunek projektowy i wizualizacja komputerowa (autor Dionisio Gonzalez)

Źródło: https://www.archiweb.cz/en/b/masieri-memorial-nerealizovany-projekt-na-canal-grande

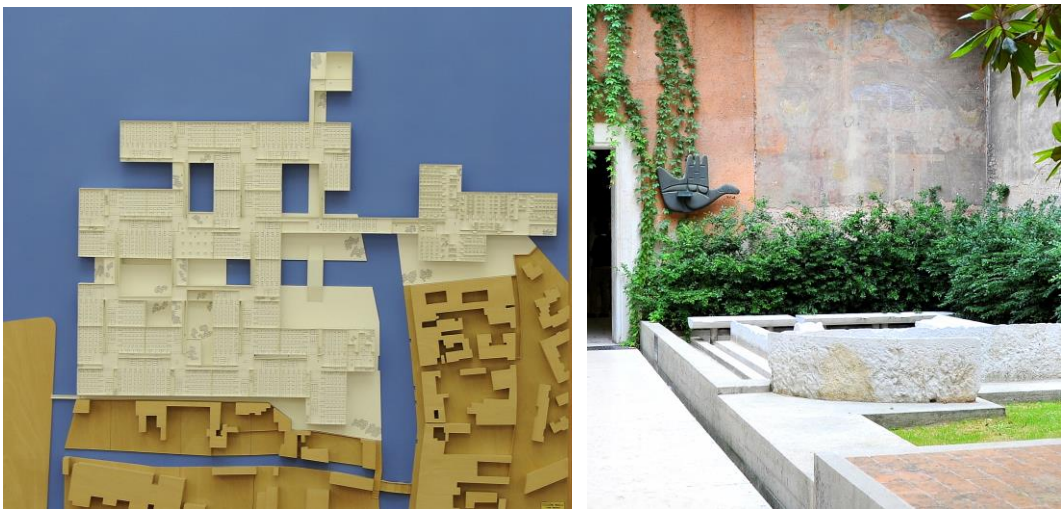

Fig. 3. New Hospital, Fondamenta San Giobbe, architect Le Corbusier, 1965, the model of an unrealized project in the gallery of Università Iuav di Venezia and a souvenir of the master's visit to the university courtyard (arrangement by C. Scarpa)

Source: photos by the author

Rys. 3. New Hospital, Fondamenta San Giobbe, architekt Le Corbusier, 1965, model niezrealizowanego projektu w galerii Università Iuav di Venezia i pamiątka z wizyty mistrza na dziedzińcu uniwersyteckim (aranżacja C. Scarpa)

Źródło: fotografia – autor

Fig. 4. Office and service building in Via 22 Marzo, architect A. Scattolin, 1957-1959, a draft and implementation
Source: [13, p. 41]; photos by the author
Rys. 4. Budynek biurowo-usługowy przy Via 22 Marzo, arch. A. Scattolin, 1957-1959, projekt i realizacja
Źródło: [13, s. 41]; fotografia – autor

Fig. 5. Residential building Casa Alle Zattere, architect I. Gardella, 1954-1957, on the left, demolished buildings for modern architecture
Source: [10, p. 120]; photo by the author
Rys. 5. Budynek mieszkalny Casa Alle Zattere, architekt I. Gardella, 1954-1957, po lewej budynki rozebrane pod nowoczesną zabudowę
Źródło: [10, s. 41]; fotografia – autor

Fig. 6. Savings Bank, Campo Manin, architect Angelo Scattolin, construction by Pier Luigi Nervi, 1972
Source: [3, p. 60]; photo by the author
Rys. 6. Savings Bank, Campo Manin, architekt Angelo Scattolin, konstrukcja Pier Luigi Nervi, 1972
Źródło: [3, s. 60]; fotografia – autor

Fig. 7. Palazzo Rio Nuovo (the office building of the S.E.D.E. electro-energy company), architect A. Scattolin 1960, sketch of façade structure and realised version.
Source: [13, p. 69]; photo by the author
Rys. 7. Palazzo Rio Nuovo (biurowiec firmy elektroenergetycznej S.E.D.E.), architekt A. Scattolin 1960, szkic konstrukcji elewacji i wersja zrealizowana.
Źródło: [13, s. 69]; fotografia – autor

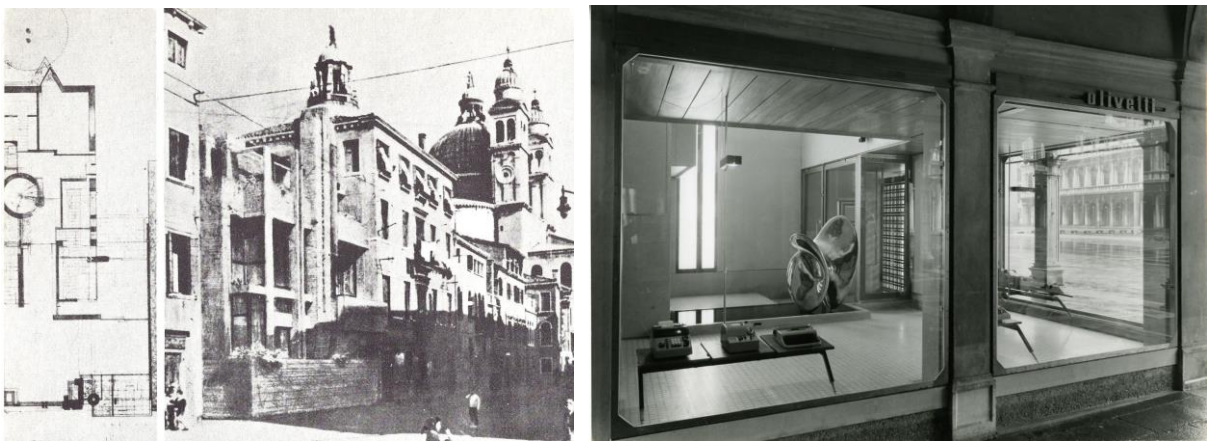

Fig. 8. Casa Taddei, Rio Terra dei Catecumeni; on the right Negozio Olivetti, Piazza San Marco; architect C. Scarpa, 1957.
Source: [10, p. 118]; https://it.wikipedia.org/wiki/File:Paolo_Monti_-_Servizio_fotografico_-_BEIC_6337225.jpg
Rys. 8. Casa Taddei, Rio Terra dei Catecumeni; po prawej Negozio Olivetti, Piazza San Marco; architekt C. Scarpa, 1957.
Źródło: [10, s. 118]; https://it.wikipedia.org/wiki/File:Paolo_Monti_-_Servizio_fotografico_-_BEIC_6337225.jpg

BIBLIOGRAPHY

1. Barucki T.: *Zagraniczne sukcesy polskich twórców: architektura*, [in:] „Projekt”, nr 5-6 (73) 1969, s. 67.
2. Catitti S.: *The Japanese Roots of Carlo Scarpa’s Poetic Architecture*, [in:] *Italia e Giappone a confronto*, a cura di S.U. Baldassarri, Angelo Pontecorboli Editore, Firenze 2017, pp. 33-59.

3. *Cassa di Risparimo di Venezia. La Nuova Sede*, Cura della Cassa di Risparmio di Venezia, [investor's folder] Stampato A Verona Presso L'Industria Grafica Moderna S.P.A. Nel Mese di Luglio 1975.
4. Di Martino E.: *La Biennale di Venezia 1895-1995: cento anni di arte e cultura*, Mondadori Editore, Milano 1995.
5. Foscari G.: *Elements of Venice*, (Foreword by Rem Koolhaas), Lars Müller Publishers, Zürich 2014, pp. 126-157, 222-275, 312-383, 422-545.
6. *Italia nostra difende Venezia – Venice for modern man. Ten centuries of history face modern town-planning*, Royal Institute of British Architects (exhibition catalogue) Venice 1962, pp. 28-50.
7. Jagiełło-Kowalczyk M., Markiewicz P., Siedlecki B.: *Wenecja – Zagrożenia i perspektywy*, ed. M. Jagiełło-Kowalczyk, Wydawnictwo Politechniki Krakowskiej, Kraków 2017, s. 17-129
8. Kusch C.F., Gelhaar A.: *Venice Architectural Guide: Buildings and Projects After 1950*, DOM Publishers, Berlin 2014, pp. 16-18, 47-54, 94-162
9. Malinowska-Petelenz B., Skaza M., Twardowski M.: *Wenecja – Potencjał*, ed. M. Jagiełło-Kowalczyk, Wydawnictwo Politechniki Krakowskiej, Kraków 2017, s. 15-132.
10. Maretto P.: *Venezia: Architettura del XX secolo in Italia, Vitali e Ghianda*, Genova 1972, pp. 45-52, 113-135.
11. Morita E., *Studies on Carlo Scarpa and Seiichi Shirai*, Politecnico di Milano, Scuola di Architettura e Società, Laurea Magistrale in Architecture, [in:] ttps://www.politesi.polimi.it/bitstream/10589/90341/1/2014_04_Morita.pdf, [online 14.04.2019].
12. *New Italian Architecture. Italian Landscapes between. Architecture and Photography*, red. P. Ciorra, M. D'Annuntis, Skira Architecture Library, Milano 2000, pp. 125-131.
13. Scimemi M.: *Architettura del Novecento a Venezia. Il palazzo Rio Nuovo*, Editore Marsilio, Milano 2009, pp. 15-126.
14. *Venice For Modern Man: Ten Centuries Of History Confront Modern Town-Planning* (An Exhibition Catalogue The Ducale Palace), Pubblicazione: Stamp. di Venezia, Venezia 1962, pp. 28-70.
15. Węcławowicz-Gyurkovich E.: *Architektura najnowsza w historycznym środowisku miast europejskich*, Wydawnictwo Politechniki Krakowskiej, Kraków 2018, s. 123-138.
16. Zucchi C.: *A city is not a tree: New Models of Urban Space*, [in:] *New Italian Architecture. Italian Landscapes between. Architecture and Photography*, ed. P. Ciorra, M. D'Annuntis, Skira Architecture Library, Milano 2000, pp. 124-131.

Katarzyna JANICKA-ŚWIERGUŁA*

BIOPHILIC DESIGN – A REMEDY FOR THE CHALLENGES OF THE MODERN WORLD?

1. INTRODUCTION

We live in a time of a crisis of sustainable development, which manifests itself in the loss of biodiversity, environmental pollution and the depletion of natural resources. We forget that who we are depends on the natural environment that has shaped our bodies and senses. Evolution works by taking advantage of existing tissue, breaking it down, and combining the resulting elements into something new. In this way, we become dependent on the presence of certain determinants in the environment of our existence, which gives us a sense of belonging and well-being. Denying this genetic dependence would be tantamount to denying the existence of basic needs such as breathing or hunger [5].

One of the most important obstacles to experiencing nature is the design and development paradigm of the modern built environment. Originally, humans could have evolved in the natural world, while for modern humans, the "natural environment" has become the overwhelmingly built environment in which we spend 90% of our time. The need to be in contact with nature is still crucial to our health and fitness, but satisfying it becomes a challenge as expanding cities treat nature as an obstacle. The result is a shortage of green spaces, natural shapes, landscape views and natural light [2].

2. WHAT IS BIOPHILIC DESIGN?

The concept of biophilia is understood as an innate human tendency to interact with nature and other forms of life, which is essential to physical, mental health and well-being. Its idea comes from the understanding of human evolution, where the

* Lodz University of Technology, Institute of Architecture and Urban Planning (POLAND), katarzyna.janicka@p.lodz.pl

human species developed biologically in an adaptive response to natural forces, and not through adaptation of the intellectual order [2]. As a scientific term biophilia was first used by the German psychologist and sociologist Erich Fromm to describe the psychological orientation of being attracted to all living things [4].

The idea of biophilia was popularized by the American biologist Edward Wilson in his 1984 publication entitled "Biophilia". He argued that we need contact with nature and with the complex geometry of natural forms, just as we need nutrients and air for our metabolism. In his opinion, people are not capable of a full and healthy life in isolation from nature, which means that we benefit from direct contact with living biological forms, and not from a substitute that we often experience today in, for example, urban planning and architecture [5].

Biophilic design cannot be treated in terms of next "architectural style" that can be used or ignored depending on the prevailing fashion [5]. Modern architecture and design rarely take into account the human genetic structure and the physiological and psychological responses. The formal issues and abstract concepts of space and materials are of fundamental importance. However, they do not result from a full understanding of the processes that take place that give man an existential foothold on earth [5]. Meanwhile, a relationship with nature, outdoor walks, bird and insect watching, and gardening are essential to maintain a healthy and vibrant existence for human species.

3. THE BENEFITS OF USING BIOPHILIC DESIGN

Scientists confirm that biophilic design can significantly improve wellness as well as accelerate regeneration, the healing process, and increase immunity. Clinical studies have shown that observing nature lowers blood pressure, heart rate, and respiratory rate, and increases pain tolerance. It has also been proven that wounds heal faster in patients placed in natural or artificial spaces, but in which the geometrical properties of natural environments were imitated [10].

Nosocomial infections, which occur worldwide and affect approximately 10% of hospitalized patients, are still a big problem in healthcare. Obviously, this affects the extension of hospital stay, increases mortality and costs of living. Meanwhile, a remarkable and often overlooked advantage of sunlight is its disinfectant capacity, mentioned above. Sunlight is known to kill bacteria and viruses, such as MRSA, Listeria, Norovirus, Legionella, Staphylococcus, Salmonella and the very common micro-organism – Clostridium Difficile. Interestingly, despite widespread awareness

of the benefits of natural light, architects and planners still place the main emphasis on heat loss caused by windows and the construction of appropriate partitions separating buildings from the surroundings. These design decisions are mainly influenced by investors for whom the budget is crucial, which confirms the need for social education in the field of benefits resulting from introducing nature into the interior and the need for an interdisciplinary design process.

4. 14 PATTERNS OF BIOPHILIC DESIGN

Biophilic design is largely based on the so-called design patterns. This theory has been developed since the 1960s by Christopher Alexander and defines what makes some places have a good effect on a person, and others give just such an impression. This method also explains that the design process is to be thoughtful, purposeful and repeatable, and not "inspired" by nature. Wiliam Browning and Jennifer Seal-Cramer attempted to classify genetic patterns based on the theory of biophilia [4]. The 14 patterns distinguished by them, classified into three main groups, have a wide range of applications, both in urban, architectural and interior design. Below is a short description of each pattern based on the publication “14 Patterns of Biophilic Design”. Improving Health & Well-Being in the Built Environment” by William Browning, Catherine Ryan and Joseph Clancy.

4.1. Group 1 – NATURE IN THE SPACE PATTERNS

This concept refers to the direct, physical presence of nature in space, such as plants, water, animals, as well as the sounds and smells of nature. Examples of the application of this method in design will be the introduction of potted plants, aviaries, fountains, aquariums, green roofs and walls etc. In this group, we distinguish the following patterns [1]:

Table 1

Nature in the space – pattern

P1. Visual Connection with Nature.	A view to elements of nature, living systems and natural processes.
P2. Non-Visual Connection with Nature.	Auditory, haptic, olfactory, or gustatory stimuli that engender a deliberate and positive reference to nature, living systems or natural processes.
P3. Non-Rhythmic Sensory Stimuli	Stochastic and ephemeral connections with nature that may be analyzed statistically but may not be predicted precisely.

P4. Thermal & Airflow Variability	Subtle changes in air temperature, relative humidity, airflow across the skin, and surface temperatures that mimic natural environments
P5. Presence of Water.	A condition that enhances the experience of a place through seeing, hearing or touching water.
P6. Dynamic & Diffuse Light.	Leverages varying intensities of light and shadow that change over time to create conditions that occur in nature.
P7. Connection with Natural Systems.	Awareness of natural processes, especially seasonal and temporal changes characteristic of a healthy ecosystem.

Source: Browning W., Ryan C., Clancy J.: 14 Patterns of Biophilic Design. Improving Health & Well-Being in the Built Environment, Terrapin Bright Green LLC, New York, 2014

4.2. Group 2 – NATURAL ANALOGUES PATTERNS

It refers to organic, inanimate, and indirect analogies to nature. Examples would be fabrics, textures, shapes, organic shaped decorative motifs, processed or altered, providing a wealth of information. Patterns belonging to this group are [1]:

Table 2

Natural analogues patterns

P8. Biomorphic Forms & Patterns	Symbolic references to contoured, patterned, textured or numerical arrangements that persist in nature.
P9. Material Connection with Nature	Materials and elements from nature that, through minimal processing, reflect the local ecology or geology and create a distinct sense of place.
P10. Complexity & Order	Rich sensory information that adheres to a spatial hierarchy similar to those encountered in nature.

Source: Browning W., Ryan C., Clancy J.: 14 Patterns of Biophilic Design. Improving Health & Well-Being in the Built Environment, Terrapin Bright Green LLC, New York, 2014

4.3. Group 3 – NATURE OF THE SPACE PATTERNS

Patterns belonging to the third group refer to spatial systems in nature, based on our innate curiosity and fascination with the mysterious world, creating scenic views and hidden alleys [1].

Table 3

Nature of the space – patterns

P11. Prospect	An unimpeded view over a distance, for surveillance and planning.
P12. Refuge	A place for withdrawal from environmental conditions or the main flow of activity, in which the individual is protected from behind and overhead.
P13. Mystery	The promise of more information, achieved through partially

	obscured views or other sensory devices that entice the individual to travel deeper into the environment.
P14. Risk/Peril	An identifiable threat coupled with a reliable safeguard.

Source: Browning W., Ryan C., Clancy J.: 14 Patterns of Biophilic Design. Improving Health & Well-Being in the Built Environment, Terrapin Bright Green LLC, New York, 2014

5. BIOPHILIC DESIGN – EXAMPLES

One of the aspects of biophilic design is the combination of natural and man-made structures. This may include the introduction of natural materials, surfaces, sunlight, and the use of plants. It may also include the building's natural environment, introducing an intensive relationship with plant and animal life, which will support ecosystems and protect native species. Another aspect of biophilic design is the application of geometric features of nature to the building and urban structure. This means introducing complex fractal geometry found in nature. It is important that these patterns are not thoughtlessly copied as they may become misunderstood and appear abstract [5].

Selected examples of projects based on biophilic design are presented below, which, in the author's opinion, are the correctness of this idea and its beneficial influence on our lives.

5.1. Amazon Spheres, Seattle, USA

Amazon Spheres (Fig. 1) are three spherical conservatories comprising part of the Amazon headquarters campus designed by NBBJ. This glass domes consists of elongated pentagonal modules that appear 180 times across the three spheres. By connecting each angle of the module to a central hub, the architects created a fluid yet modular pattern that could be repeated throughout the building. The spheres, range from 24 to 29 m in height and serve as an employee lounge and workspace. Inside the glass walls, the metal structures appear more fluid, with curves favored over hard edges. The largest sphere, in the center, is four stories high and has 299.6 m^2 of space, and it houses the cafeteria, stairs, elevators, and bathrooms. The stairwell shaft is covered by a four-story "living wall" with 25,000 plants, including carnivorous species from Asia. One driving philosophy behind the plant collection was the concept that The Spheres should feel like “year five on day one.” In light of this principle, the team sourced plants from botanical gardens, private growers and universities around the world years before the building opened in 2018. The guiding principle for the Amazon Spheres project was to provide people with an environment

completely different from the working environment, to influence their creative thinking and pace of work [3, 7].

Fig. 1. Amazon Spheres, Seattle
Source: https://www.archdaily.com/920029/amazon-spheres-nbbj (access: 27.10.2021)
Rys. 1. Sfery firmy Amazon, Seattle
Źródło: https://www.archdaily.com/920029/amazon-spheres-nbbj (access: 27.10.2021)

5.2. Jewel Changi Airport, Singapore

Jewel Changi Airport (Fig. 2) is a 135,700 m² nature and entertainment shopping and entertainment complex at Changi Airport in Singapore, connected to three passenger terminals. The main architects were Safdie Architects. Jewel weaves together an experience of being in nature with culture, leisure facilities and landside airport operations. Inside were designed indoor gardens and leisure attractions, retail offerings, restaurants and cafes, and hotel facilities, all under one roof.

The focal point of the Jewel is the Forest Valley, a terraced covered garden. It has plenty of spacious and interactive experiences with walking paths, cascading waterfalls and quiet seating areas. Its main attraction, among more than 200 different species of trees and flora, is the tallest (40 metres) indoor waterfall in the world – the "rain vortex" – flowing from the oculus in the domed roof into the Forest Valley Garden seven floors below. Recirculating rain water is pumped to the roof to free fall through a round hole at up to 37,850 liters per minute to a basement-level pool to cool the landscape environment and collects a significant amount of rainwater that can be reused throughout the building. The geometry of the structure is based on a partially inverted toroidal dome measuring 200 meters [8].

Jewel Changi Airport opened in early 2019 and has become a model example of a hybrid facility in which utilitarian functions are combined with the experience of nature on multiple levels.

Fig. 2. Jewel Changi Airport, Singapore
Source: Adapted from [8]
Rys. 2. Lotnisko Jewel Changi, Singapur
Przyjęto z [8]

5.3. Transurban Office, Brisbane, Australia

In 2020, the Transurban company that deals with infrastructure projects hired Cox Architecture to create a new headquarters. The theme of Transurban is "keeping you moving", hence the design of the offices was to reflect the dynamic combination of urban traffic viewed through the prism of subtropical Brisbane. The architects wanted to create a work space that would positively affect the well-being of employees, develop their creativity and cultivate a sense of community (Fig. 3).

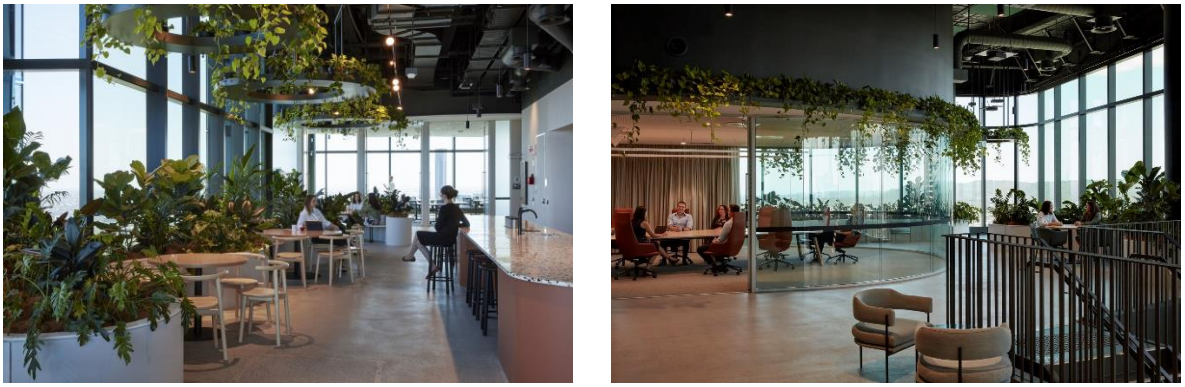

Fig. 3. Transurban Office, Brisbane, Australia, common space
Source: Adapted from [9]
Rys. 3. Biuro Transurban, Brisbane, Australia, przestrzeń wspólna
Źródło: Przyjęto z [9]

Biophilic elements reflecting the subtropical location of the design were introduced through the use of plants, undulating lines reminiscent of vines and a color palette. Exposed ceilings are painted dark green and planted canopy hanging from above. Meeting rooms are purposely pulled back from the façade to create quiet break-out moments and to reinforce a sense of transparency. Designed over

three floors, the workspace is connected by a large atrium and stair space. The top level includes a social kitchen and collaborative space, training rooms and town hall [9].

5.4. Mitie – The Living Lab, London, Great Britain

The experimental work environment based on biophilic design was created by DaeWha Kang Design in collaboration with Dr. Marcella Ucci for Mitie, which is one of the leading outsourcing and facility management companies in the UK. The company initiated Connected Workspace, which includes sensor technology, big data and machine learning to revolutionize the way they manage and maintain their building portfolio. Living Lab focuses on the health, wellness and user experience aspects of Connected Workspace [6].

On the twelfth floor of the Shard Building in London, architects designed not only a workplace, but also a pilot study to measure the impact on workers in a detailed post-occupation study. The project consists of two spaces designed in accordance with the principles of biophilic design: "Living Lab" acting as an engaging work environment and two "Regenerative Capsules" that provide Mitie employees with the functions of short-term rest and meditation [6].

Living Lab (Fig. 4) fully implies the complexity of nature-related projects, natural materials, and interactive and dynamic lighting. Designers have created a sense of privacy with the bamboo screens that wrap around the ceiling above. Natural bamboo is also used to make interior items such as the floor, desks and task lighting. There are live plants in the desk tops, and task lighting above them. The lighting in the room is diurnal and combined with the astronomical clock – cool blue in the morning, dazzling white in the afternoon and a fiery orange when the day is over. The change of light is almost imperceptible, giving the feeling of extra dynamism [8]. As part of the study of the impact of biophilic design on working conditions, Mitie employees worked at the Living Lab for four weeks. Every day they answered questions in the questionnaires about their comfort, satisfaction and emotional reaction. They then worked for the next four weeks in a control area on the same floor under similar environmental conditions, but without a biophilic design. After the end of the experiment, their feelings in these two spaces were compared. Research has shown the positive effect of daylight, natural materials and a direct visual connection with nature. The regular rhythm of the structural ribs and the variation of the discrete leaves gave the impression of clarity and complexity in space, which also had a positive effect on the work [6].


Fig. 4. Mitie – The Living Lab, London, Great Britain
Source: https://inhabitat.com/a-london-office-boasts-biophilic-design-for-a-healthier-happier-workplace/living-lab-by-daewha-kang-design-1/ (access:25.10.2021)
Rys. 4. Mitie – Żywe Laboratorium, Londyn, Wlk. Brytania
Źródło: https://inhabitat.com/a-london-office-boasts-biophilic-design-for-a-healthier-happier-workplace/living-lab-by-daewha-kang-design-1/ (access:25.10.2021)

6. SUMMARY

As the above analysis of selected buildings and interiors based on biophilic design has shown, the introduction of nature into our everyday life may take a different scale. Great emphasis is placed on influencing the senses and arousing the interest of the recipient on various levels. Architects, planners and designers define the necessary dialogue between man and the natural world. The resulting buildings and living spaces should link this relationship with an additional emphasis on emotional nourishment. Vitruvian "durability", "utility" and "beauty" may prove insufficient in the face of the rush of the modern world because they ignore our genetic code. One of the aspects of biophilic design is the intimate combination of natural and artificial structures, which means integrating the geometric features of nature into the building and urban tissue. Conscious use of the design tools mentioned in this article carries great value, the benefits of which are felt physically, mentally and emotionally.

BIBLIOGRAPHY

1. Browning W., Ryan C., Clancy J.: 14 Patterns of Biophilic Design. Improving Health & Well-Being in the Built Environment, Terrapin Bright Green LLC, New York 2014.

2. Kellert S. R., Calabrese E. F.: The Practice of Biophilic Design, Terrapin Bright LLC, London 2015.
3. Matt D., Take a look inside Amazon's Spheres as they get set to open, The Seattle Times, January 26, 2018, p. A1.
4. Modzelewski B., Szkołut A.: Biofilia – teoria i praktyka projektowa, 2014, https://docplayer.pl/51849136-Biofilia-teoria-i-praktyka-projektowa.html (access: 30.10.2021).
5. Salingaros N. A., Masden II K. G.: Neuroscience, the Natural Environment, and Building Design, Chapter 5 of: Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life, Yale University, 10-12 May 2006, pp. 59-83.
6. http://daewhakang.com/project/the-shard-living-lab/ (access: 25.10.2021).
7. https://seattle.curbed.com/2018/1/30/16947838/amazon-spheres-seattle-architecture-photos (access: 27.10.2021).
8. https://www.archdaily.com/915688/jewel-changi-airport-safdie-architects (access: 27.10.2021).
9. https://www.officelovin.com/2021/01/a-look-inside-transurbans-biophilic-brisbane-office/ (access: 30.10.2021).
10. https://www.ibigroup.com/ibi-insights/let-the-sunshine-in/ (access: 25.10.2021).

Anna STEFAŃSKA*, Marta CYGAN**

BIONIC PATTERNS IN SEARCH OF ANALYTICAL MODELS TO BUILD STRUCTURAL FORMS OF EPHEMERAL ARCHITECTURAL OBJECTS

1. INTRODUCTION

In contemporary Architectural Design and Architectural Engineering, designs of organic forms prevail; however, this is dictated not so much by the desire to achieve an affinity with Nature but by integrating form with the supporting structure. Today's construction sector is responsible for the effective use of natural resources, encouraging to minimise material consumption. Interdisciplinary research leads architects to look less for the aesthetics of the "sculpture object" and more for the rational use of repetitive elements. Designing according to the logic of Nature can be seen in definitions such as biomimicry-material science, biomimetics or bionics. These definitions differ slightly etymologically; however, many researchers and the paper's authors use them interchangeably. The structures of organisms found in nature are significantly different from those built by humans, both in terms of geometry and the chemical composition of their building blocks. The search for the implementation of the principles of Sustainable Development is also directed toward the use of materials that are neutral to the environment, possibly renewable, and with the lowest possible carbon footprint. This can also be seen in the search for innovative digital fabrication methods and effective shaping of load-bearing structures, especially for small-scale exhibition pavilions[1] [3]. The aim of implementing bionic shapes in architecture is not to achieve significant geometric complexity or to use many advanced, costly, and energy-intensive materials that make these solutions far from ecological. The research carried out in this matter mainly focuses on the search for algorithmic design methods and customised materials that allow optimal use of materials and shaping according to the way forces are distributed in natural objects.

* Warsaw University of Technology, Faculty of Architecture (POLAND), anna.stefanska2@pw.edu.pl
** Warsaw University of Technology, Faculty of Architecture (POLAND)

2. LITERATURE REVIEW

The increased interest in bionic design in the 21st century is mainly due to computer capabilities. The development of CAD and CAM tools aided design and digital fabrication in the 20th century. Still, it was not until computer-aided design, introducing morphogenic and evolutionary algorithms derived from Nature, that design significantly changed. Previously impossible to achieve complex curvilinear geometries by changing the way we design from form design to form finding [4] and computer-aided design and the development of modern structural calculations are no longer a barrier to design and construction [5][6]. Algorithmically aided models support form and structure development by varying the set parameters without the designer interfering with the final shape. Computer-aided design allowed the transcription of the design into a digital record and the possibility of processing the input data and creating new databases based on boundary conditions. The designer asks research questions providing context and resource constraints of material, time or budget. The implementation of digital technologies allows an interdisciplinary exchange of information that supports the development of research into optimising the architecture as a project and creating and operating a building.

Emerging trends in architecture, especially those related to the digitalisation of the design process, are constantly changing the quality of tectonic and engineering solutions. A critical and unchangeable factor of recent changes is the growing need for interaction between many disciplines, which is particularly important at parameterising architects' work tools. The development of modern computer programs and the ability to model structural forms in non-Euclidean geometry using algorithms have revealed previously unknown performance issues. One of these is the realization of the complex and often irregular technical structure that forms the supporting skeleton. Digitising concepts such as *finding forms* (both passive and active) provides architects with the tools to shape and manufacture structural and building components.

3. DIGITAL FABRICATION IMPLEMENTATION IN THE PROCESS OF CREATIVE DESIGN OF STRUCTURAL FORMS

The rationalisation of material and construction solutions in shaping contemporary structural detail is a fabrication. As a process referring to the prefabrication of construction elements, fabrication is at the same time an answer to building forms of complicated geometry: hyperbolic, elliptical, fractal. Fabrication is

one of the most engaging activities to make digital models on an architectural scale with sustainable materials and available construction technologies. At the same time, the digitalisation of the tools used in fabrication generates a dynamic development of processes related to the construction stage, affecting many aspects such as the design of elements and nodes or the management of the manufacturing and assembly processes.

3.1. Digital software

The introduction of digital tools has significantly changed how design is carried out in contemporary architecture. Increasingly, the free-form geometries used by designers are no longer merely the result of the pursuit of a particular aesthetic but multivariant optimisation. The search for the optimum shape is increasingly identified with static calculations and the search for fabrication methods and suitable materials. The desire to design according to the characteristics of a given material, described by F.L. Wright in the last century, is transforming and evolving into a search for production methods that make the best use of these characteristics. The shaping of contemporary architecture is a search for geometry in spatial forms and structural surfaces. An essential aspect of this search is the methods undertaken in the design phase. Experimental methods in the search for geometry with an optimal forces distribution were visible in the '70s in the examples of F. Otto or A. Gaudi's hanging models or mathematical models based on parabolic hyperboloids by F. Candela. All these shapes were achieved by an experimental method that has been developed today and allows for precise optimisation in the Finite Element Method as one of three morphogenesis methods [7] [8]. Structural optimisation is one of the primary methods of form-finding. Another basic method used in morphogenesis is geometric optimisation, used in searches based on mathematical algorithms. These methods use an intuitive choice of parameters and output guidelines, usually maintaining good conditions for the fabrication [9].

The third family of morphogenesis is the search for form, independent of structural optimisation or simplified fabrication technologies. The form can be shaped based on the author's aesthetic preferences or a fully automated script based on an algorithm that builds the shape. Different morphogenic shaping families can be combined with form-building optimisations, using structural optimisation and digital fabrication, and extended by additional boundary conditions such as minimising environmental impact or sustainable design developed by international organisations.

The search for free geometries in contemporary design is linked to new digital tools, materials engineering and the search for fabrication methods. All these issues are optimised to minimise the use of material, energy and non-renewable resources, in line with the principles of sustainable development.

3.2. Biomimicry in architectural design

The development of research into the use of biomimicry in architecture represents new design perspectives. Thanks to its features, it enables the production of sustainable architecture throughout its entire scope (cradle-to-grave). The innovative use of computer models has enabled contemporary architects and researchers to design independently and achieve specific digital models optimisations. On the contrary, modern materials engineering and advanced digital fabrication enable more efficient and rational vision with unprecedented precision [10]. The biomimetic approach changes the perception of design, dividing it into separate design elements like form, function structure and material selection. Copying Nature's evolutionary models, the interaction of geometric guidelines and biological logic allows these elements to permeate, coexist and connect [11].

3.3. Nature-inspired materials

On the one hand, the search for modern technologies to produce durable and versatile materials that require low energy and technical sophistication has led traditional construction to be dominated by concrete, steel and wood. These materials, combined with conventional construction, whose main objective was repetition and maximum unification, work very inefficiently, such as cantilevers with a constant cross-section thickness. Inspired by the logic of using materials in bionic structures, the recent search to optimize natural resources strives for "elegant strategies that fulfil a variety of not only mechanical but also functional needs" [12]. The hierarchical structure of organisms to form supporting skeletons can be seen in the natural environment. Although the search for the optimal shape is becoming possible, using computer-based tools, the fabrication of load-bearing structures is still a challenge in the ACE sector [13]. The use of cellular materials such as honeycomb, the bone structure of, e.g. cuttlefish, is becoming an inspiration for the material and lightweight system that can still have significant stiffness and load-bearing capacity [12].

The development of high-quality architecture has been enhanced by technology in the design of forms and materials usage[14] [15]. Research on the dependence of new materials and their manufacture methods is becoming a growing need in light of the requirements of sustainable design [16]. It is evident in interior architecture [17] and the search for complex structural forms that carry significant loads. Their chemical composition dictates the search for biomaterials, which are much simpler than the traditional materials available in the AEC sector. Their chemical performance, combined with shaping characteristics, makes it possible to achieve benefits, such as the water-resistance of lotus leaves [17], shark skin [18], and beetle wings [19]. The other vital performances of natural materials are the hygroscopic properties of plants [20], the colour variation of a chameleon depending on the tension of its skin [21], or the lightness combined with the significant rigidity of cuttlefish bones [12]. There is also research based on biomimetic studies on the characteristics of biological materials such as *Ammophila Arenaria* grasses and their commonalities with materials such as bimetal [22].

Table 1

Non-standard materials in architectural design with the use of additive manufacturing

Year	**Author**	**Building, location**	**Material Technology/ algorithm**	**Pictures**
2013	Neri Oxman, Mediated Matter Group, MIT Media Lab	The Silk Pavilion	Silkworm	

2016	ShoP Architects	Installation, Miami, USA	Biodegradable bamboo composite, Cellular Fabrication TM 3D printing	
2018	Siam Research and Innovation Company (SRI)	Thailand	Triple "S" is a new evolution in 3D printing consisting of Surface, Structure and Shelter design concepts	
2018	Courtesy Branch Technology with Thornton Tomasetti's CORE Studio	3D-printed structure, Nashville, USA	Carbon fibre – reinforced Acrylonitrile Butadiene Styrene	
2019	Laurens Faure, Sandhelden GmbH & Co. KG	Germany	Sand – 3D printing	
2021	ICD ITKE	Research Pavilion, Botanic Garden Freiburg, Germany	Load-bearing structures entirely made of robotically wound flax fibre	

2021	Hunter Ruthrauff of T.Y. Lin International Group	A winning concept of the 2021 Forge Prize, San Diego, USA	Concept of 3D – printed steel bridge	

Source: own elaboration
Źródło: opracowanie własne

4. DISCUSSION

Biomimicry in architectural engineering focuses, on the one hand, on adaptive morphological structures and, on the other hand, on the availability of unique mass production, which started in post-Fordism, when the need for the individual output of elements well suited to their specific function appeared. The potential of recent computer-integrated manufacturing within Industry 4.0 goes in the direction of intelligent and adaptive technologies. Coupled manufacturing, based on real-time manufacturing and sensor adaptation, creates a new set of smart manufacturing. The biggest drawback of these techniques is a good-quality environment around the sensors. However, it still improves human-robot interaction to improve the precision of the final form. Machine learning (ML) techniques, despite the limitations still difficult to ignore in the construction sector, allow us to expect increasingly intelligent robots to be aware of the environment and the human partner in Human-Robot collaboration [23]. Exploiting this interaction with biomimetic inspirations in structures and systems, functions and mechanisms and what is currently the essential material space and technique for its most optimal manufacturing open up a new world of research fields for interdisciplinary designers.

5. CONCLUSIONS

Despite fruitful research and implementation of both materials and structural systems inspired by patterns from Nature (which have contributed to the significant development of Computer Aided Architectural Design), there is still a need to develop this field of science. Interdisciplinary collaboration between material engineers and designers and the search for modern fabrication remains a challenge in architecture and other creative and technical industries. The most significant barrier is the search for solutions on an architectural scale for bionic hierarchical structures in terms of the

materials used and how the supporting skeleton is built, developed on a microscale. The rapid development of recent tools and research into facilitating digital fabrication targets exploration that will impact the need to translate the fundamentals governing the behavior of living organisms into engineering practice [12].

BIBLIOGRAPHY

1. Abdallah Y. K., Estévez A. T., 3d-printed biodigital clay bricks, *Biomimetics*, vol. 6, no. 4. MDPI, Dec. 01, 2021. doi: 10.3390/biomimetics6040059.
2. Tayeb F., Caron J.F., Baverel O., du Peloux L., Stability and robustness of a 300 m2 composite gridshell structure, *Construction and Building Materials*, vol. 49, pp. 926-938, 2013, doi: 10.1016/j.conbuildmat.2013.04.036.
3. Menges A., Morphospaces of Robotic Fabrication [in:] Brell-Çokcan S., Braumann J. (Eds.), *Rob|Arch 2012, Robotic Fabrication in Architecture, Art, and Design*, Springer, 2013, pp. 28-47. doi: https://doi.org/10.1007/978-3-7091-1465-0_3.
4. Imani M., Donn M., Balador Z., Bio-Inspired Materials: Contribution of Biology to Energy Efficiency of Buildings, [in:] *Handbook of Ecomaterials*, Springer International Publishing, 2018, pp. 1-24. doi: 10.1007/978-3-319-48281-1_136-1.
5. Menges A., Biomimetic design processes in architecture: morphogenetic and evolutionary computational design, *Bioinspiration & Biomimetics*, vol. 7, no. 1, p. 015003, 2012, doi: https://doi.org/10.1088/1748-3182/7/1/015003.
6. Md Rian I., Sassone M., Tree-inspired dendriforms and fractal-like branching structures in architecture: A brief historical overview, *Frontiers of Architectural Research*, vol. 3, no. 3, pp. 298-323, 2014, doi: https://doi.org/10.1016/j.foar.2014.03.006.
7. Williams C.J.K., The Definition of Curved Geometry for Widespan Structures, *Widespan Roof Structures*, pp. 41-49, 2000, doi: 10.1680/wrs.28777.0003.
8. Bagneris M., Motro R., Maurin B., Pauli N., Structural Morphology Issues in Conceptual Design of Double Curved Systems, *International Journal of Space Structures*, vol. 23, no. 2, pp. 79-87, 2008, doi: https://doi.org/10.1260/026635108785260560.
9. Tellier X., *Morphogenesis of curved structural envelopes under fabrication constraints*. Paris: Universite Paris-Est Ecole doctorale Science, Ingenierie et Environnement, 2020.
10. Colic-Damjanovic V.M., Gadjanski I., Potentials of fablabs for biomimetic architectural research, *1st International Conference on Multidisciplinary Engineering Design Optimization, MEDO 2016*, 2016, doi: 10.1109/MEDO.2016.7746543.
11. Čučaković A., Jović B., Komnenov M., Biomimetic Geometry Approach to Generative Design, *Periodica Polytechnica Architecture*, vol. 47, no. 2, pp. 70-74, 2016, doi: https://doi.org/10.3311/ppar.10082.

12. Wang Y., Naleway S.E., Wang B., Biological and bioinspired materials: Structure leading to functional and mechanical performance, *Bioactive Materials*, vol. 5, no. 4, pp. 745–757, 2020, doi: 10.1016/j.bioactmat.2020.06.003.
13. Pottmann H., Eigensatz M., Vaxman A., Wallner J., Architectural geometry, *Computers and Graphics (Pergamon)*, vol. 47, pp. 145-164, 2015, doi: https://doi.org/10.1016/j.cag.2014.11.002.
14. Rychkov P., Lushnikova N., Synergy of contemporary architecture and materials science, *Budownictwo i Architektura*, vol. 16, no. 1, pp. 109-118, 2017, doi: 10.24358/bud-arch_17-161_10.
15. Hu M., Performance Driven Structural Design-Biomimicry in Structure, 2017. [online]. Available: https://www.researchgate.net/publication/317600062
16. Langella C., Perricone V., Hybrid biomimetic design for sustainable development through multiple perspectives, *GRID - Architecture, Planning and Design Journal*, vol. 2, no. 2, pp. 44-76, 2019, doi: https://doi.org/10.37246/grid.500310.
17. Zhao Y., Yu C., Lan H., Cao M., Jiang L., Improved Interfacial Floatability of Superhydrophobic/Superhydrophilic Janus Sheet Inspired by Lotus Leaf, *Advanced Functional Materials*, vol. 27, no. 27, pp. 1-7, 2017, doi: https://doi.org/ 10.1002/adfm.201701466.
18. Bixler G.D., Bhushan B., Bioinspired rice leaf and butterfly wing surface structures combining shark skin and lotus effects, *Soft Matter*, vol. 8, no. 44, pp. 11271-11284, 2012, doi: https://doi.org/10.1039/c2sm26655e.
19. Zhu H. *et al.*, Prewetting dichloromethane induced aqueous solution adhered on Cassie superhydrophobic substrates to fabricate efficient fog-harvesting materials inspired by Namib Desert beetles and mussels, *Nanoscale*, vol. 10, no. 27, pp. 13045-13054, 2018, doi: https://doi.org/10.1039/c8nr03277g.
20. Zhang P., Chen P.Y., Wang B., Yu R., Pan H., Wang B., Evaluating the hierarchical, hygroscopic deformation of the Daucus carota umbel through structural characterisation and mechanical analysis, *Acta Biomaterialia*, vol. 99, pp. 457-468, 2019, doi: 10.1016/j.actbio.2019.09.012.
21. Teyssier J., v. Saenko S., van der Marel D., Milinkovitch M.C., Photonic crystals cause active colour change in chameleons, *Nature Communications*, vol. 6, pp. 1-7, 2015, doi: https://doi.org/10.1038/ncomms7368.
22. de Andrade T.A B., Beirão J.N D.C., de Arruda A.J.V., Cruz C., The adaptive power of ammophila arenaria: Biomimetic study, systematic observation, parametric design, and experimental tests with bimetal, *Polymers*, vol. 13, no. 15, pp. 1-17, 2021, doi: 10.3390/polym13152554.
23. Mukherjee D., Gupta K., Chang L.H., Najjaran H., A Survey of Robot Learning Strategies for Human-Robot Collaboration in Industrial Settings, *Robotics and Computer-Integrated Manufacturing*, vol. 73, no. October 2020, p. 102231, 2022, doi: 10.1016/j.rcim.2021.102231.

Tomasz KOZŁOWSKI*

CONCRETE ARCHITECTURE WORKSHOPS FOR STUDENTS AS A WAY TO PROJECT-BASED LEARNING

1. INTRODUCTION

The term Paper Architecture appears in the history of architecture to denote something unreal. However, when working with students, such an unreality is normal. Design errors or a lack of knowledge can go unnoticed in theoretical design.

The Concrete Architecture workshops are to change the approach to teaching design at the Faculties of Architecture at Cracow University of Technology. Participation, not only in the design part, but also in the actual construction, is supposed to familiarise students with the complexity of the whole investment process related to architecture and its interdisciplinary character.

2. COURSE OBJECTIVES

Meetings with the students, which take place every two years in September, are to complement academic education and reflect Project-Based Learning (PBL), while applications are voluntary. Students work in our workshops during the week. They have to solve a real task here, which is the creation of a concrete throne. Such activity is related to the complete reality and complexity of the problem. The design knowledge acquired previously must be supplemented with new skills, and most importantly, the works will be later presented and evaluated in public at an exhibition for professionals involved in concrete-related industries. Lectures and assistance provided by concrete experts will help to broaden the knowledge. The need to prepare the design themselves and, most importantly, to participate in building the formwork, creating the reinforcement, and filling the molds forces the participants to be creative. After all, the projects should be completely realistic. The weight of concrete, the cross sections of individual elements, and their shape require the

* Cracow University of Technology (Poland), tomasz.kozlowski@admin.pk.edu.pl

design teams to be thorough at all stages of their work. In turn, mixed teams made up of students from different architecture schools require them to cooperate not only at the level of their own university.

During the meetings, the theory on how to design small architectural forms is supplemented by lectures given by engineers not related to architectural education. All the knowledge gained here is to be applied to the concrete throne projects developed by the student teams.

3. THE FOREGOING PROCESS AND THE REASONS FOR MODIFICATIONS

The Faculty of Architecture at CUT held workshops for doctoral students under the same name earlier. Doctoral students prepared a drawn project entitled The Throne of Abraxas the Sorcerer. The classes were combined with lectures on design theory. However, the works were made only as drawings and as such, they did not give complete satisfaction or force the students to think about the final shape of those small elements. Working without the opportunity to come into contact with real material was far from perfect. One cubic metre of concrete weighs 2.5 tonnes; students were expected to design their work using 0.3 m3; what did that mean on paper, though? The final thrones can be seen from the workshops at the FA CUT. This lack of reality and the lack of participation of students in the real process of building architecture revealed the need to create opportunities for groups of students to participate in something different that would provide more opportunities for self-education and exploring the real complexity of concrete design.

Fig. 1. Theoretical works from the 2013 workshops for PhD students of the FA CUT
Źródło: own resourses
Rys. 1. Prace teoretyczne z warsztatów dla doktorantów WA PK w 2013 roku
Źródło: zasoby własne

The possibility of using a certain amount of concrete, given in the theme of the work, proved difficult to verify in the drawings. The shapes that looked beautiful in the sketches would also be difficult for the students to make themselves.

For some projects, it was even impossible to make a model. Such a state made the organizers realise the need to introduce a different model of teaching design. The acquisition of knowledge must be based on greater self-study while the content presented must be verifiable by the students. Learning must also provide opportunities for collaboration in project groups. The whole activity must also be verifiable in an unbiased way, after all, one does not know whether the designs drawn will be buildable at all. There was a need to cooperate with a partner outside the university, the Association of Cement Producers, an organization that promotes cement in Poland. Such a co-organiser offered the possibility of hiring lecturers from outside the architecture schools, a specialist construction team and, ultimately, the execution of the projects.

4. COMPLEMENTING THE TEACHING PROCESS

While examining the previous projects developed by the students, it could be seen that they do not understand the specifics of working with concrete. The weight and shapes of the solids they designed would be difficult even to imagine and therefore to construct. However, neither the cost nor the technical aspect was taken into account in the earlier activities. That demonstrated the need for a different approach to teaching architecture. The shape of the designed architecture forces its creators to use appropriate materials and thus to acquire relevant knowledge about them. Therefore, an attempt has been made to change the approach to organising workshops. The practical aspect of acquiring knowledge becomes the most important one. The assumptions made can only be tested in their practical application. Working with models alone does not seem to be sufficient in certain situations. It turned out that working with relatively small forms that resemble real construction conditions in preparation will allow the elimination of design errors and a different approach to the project itself.

5. SUPPLEMENT TO THE THEME

The design theme remained virtually unchanged, but the cooperation with the Association of Concrete Producers and the AGH University of Science and Technology allowed the students to produce the sculptures themselves. This is the biggest and most interesting change introducing the possibility of the PBL method. This is the biggest and most interesting change introducing the possibility of the PBL method. The Concrete Architecture workshops have thus changed their character to a multidisciplinary one. The ones organised in 2016 had the theme: The Throne of the Emperor of the Other Side of the Earth while those in 2018: The Throne of the Ice Queen. The pretext for the September 2021 edition (rescheduled from 2020 due to COVID-19) will be Game of Thrones. Students must remember that it will not involve an iron throne, but something even more durable and imperishable. The most important element here will now be the completely real concrete. Participants will be divided into five groups of five students. The project should first be presented on a single 50x70 cm board, in a vertical layout, with the use of axonometric drawings that clearly explain the concept. Any scale can be used as long as it is congruent with the concept. The design can be made with any permanent technique, other than a computer-generated one, allowing reproduction. And here one may arrive at the claim that it should be possible to turn the architecture shown in sketches and drawings into a building project for it to exist. Thus, the participants must turn their sketches and models into technical projects. The final stage in the creation of the throne is its independent construction. Each team will have up to 0.3 m3 of concrete at their disposal to complete the project, the concrete can be reinforced. The casts will be made in individual formworks of approximately 50x50x160 cm designed and assembled by the workshop participants. The whole activity can be described as a construction on a smaller scale.

Here we need to explain the premise that the dimensions of our sculptures need to be mathematically determined, apart from the mundane weight of course. Historically, beauty was represented in works that could be expressed in mathematical formulas. The buildings were created according to the rules and habits memorised by both architects and the audience. What was important was an accurate composition. However, the very definition of accurate composition is difficult to describe and we can see that it is variable. Therefore, let us tackle deciphering the meaning of the word ‘composition’ itself; dictionaries do not facilitate this. Terms such as layout, structure, idea of a work of art, work of art seem to be the most interesting from the point of view of architecture. And if we treat

construction as the pursuit of some undefined beauty, we can reject terms such as science, whereas the theory of composing works of art may be of interest. As always, to find the meaning of architecture one can quote the words of a philosopher. Friedrich Schiller helps us make sense of the quest for compositional correctness when he writes that objects should be regular, but must appear as free of rules [1]. Abandoning this approach to creation or design, contemporary times have coined a new term, decomposition. Contrary to what it may seem, it does not mean destruction of the composition, but refers to its complete absence. Architects themselves engage in such discussions. Josef Paul Kleihues provokes us slightly and exhorts: [...] We need the energy of outsiders, [...] their provocative theories and artistic incentives that counterbalance all prevailing rationalism, as an impulse for our competitions, seminars and discussions [2]. Such a 'manifesto' can lead us to consider abandoning composition and following a path towards unknown deconstruction. This is not an easy and sometimes impossible path in student architecture. However, the new approach to the creation of architecture may be an antithesis of Adolf Loos' words, who claimed that every work of art has its strict, internal laws and can only be presented in one form [3]. This will be something we will be able to see at the end of the workshops. When working with students, teachers strive to show that designs should be devoid of ornaments. Describing Loos' theories, Christopher Long argues that the building was being degraded to a graphic art-that the use of ornament was often overblown and obscured the underlying formal aspects of the buildings or objects to which it had been applied [4]. Therefore, our buildings must be free of ornament today. They must become contemporary sculptures. Also in a literal sense because, once the workshops are completed, they will become real sculptures, adorning the squares in front of the headquarters of the largest cement-related companies in Poland.

6. PBL WORKSHOPS

The whole activity was divided into five days of classes. The work was divided into stages related to the creation of projects and their execution.

Monday: is the day of lectures introducing the theme of the workshops. Participants get acquainted with lectures delivered by architects and concrete experts. The latter group is more interesting to us as the lecturers are not connected with architecture faculties and provide the participants with knowledge that differs slightly from that known from architecture schools. Professor Jan Deja from the

Department of Building Materials Technology at the Faculty of Materials Science and Ceramics of AGH University of Science and Technology introduces students to highly technical issues of designing in concrete. Krzysztof Kuniczuk, engineer and author of the book entitled Architectural Concrete, a true bible of concrete architecture, explains the issues related to the technology of working with this material. Being a practitioner, he strives to make students aware of what architectural concrete is and how an architect should draw up a design so that it is fully comprehensible to contractors. Kuniczuk describes it as follows: Architectural concrete – this is the concrete specifically designed at the stage of creating documentation that specifies the requirements of its surface and, as a result of its exposure, affects the visual character of the structure [5]. This is one of the definitions of Concrete Architecture, perhaps not very poetic, but very engineering and comprehensible even for students. Engineer Sławomir Stożek from PERI Poland talks about the use of PERI formwork that will be used by the participants in their further work. Finally, engineer Andrzej Wójcik from RECKLI Poland presents the possibilities of shaping patterned concrete with RECKLI mats.

The students also start working in groups. The groups are made up of students from different schools and the people are selected at random. This is one of the key elements: learning teamwork skills. Naturally, this will enable students to make new friends and to get to know the character of other architecture schools. There is an important exchange of information between participants. Here comes the design stage. At first, freehand drawings are made, which are a bit tentative. There are usually as many of them as there are participants in the group. There is still complete freedom in creation. All the ideas at this stage are acceptable. However, the group can only make one throne due to time and technical constraints. The participants have to evaluate and choose a final and collaborative version for further work. The projects are still not entirely realistic, not all of them are suitable for the students to make on their own. We can see a variety of non-geometric elements with edges that are difficult to describe and make in a model. Styrofoam models can be helpful here. They show what can be cut and glued by the students themselves. The students must demonstrate knowledge of the basic building materials employed in shaping a small architectural form.

Another important stage of the workshop – industry consultations. Drawings and models allow you to talk to engineers. Practitioners advise on the best shape of the elements and their size. What seems most important at this stage of work is to discover the need for realism in all project activities. After all, the drawn works must

be able to be built. Students are challenged to a different kind of creativity than the one they are accustomed to at university. They have to demonstrate an engineering approach rather than an artistic. The whole activity must be naturally fully artistic and innovative, but the participants must be aware of the limitations. The projects are altered after such consultations. New models adapted to technical possibilities can also be created at this stage. They can be used to check whether the group is able to produce a technical design in a further stage of the work.

Fig. 2. Monday ÷ Tuesday. Developing projects in groups
Źródło: own resourses
Rys. 2. Poniedziałek ÷ wtorek. Opracowywanie projektów w grupach
Źródło: zasoby własne

Tuesday: The group members should already have agreed on a single project. Teamwork has produced some good results. Further consultations help to digitalise the works, more models are being created. Easily editable computer models become significant. Students prepare technical drawings that will enable them to work independently on site. Plans, elevations and cross-sections will be necessary for further work. Axonometric drawings are also created on appropriate scales to confirm the correctness of the concept. Final arrangements about the shapes are also made with tutors from the Faculty of Architecture and with concrete experts regarding the technical possibilities of making the sculptures. Drawings of details and ways of assembling the formwork appear. Experts advise on the best ways to reinforce concrete. Here the students have to demonstrate their knowledge in the selection of materials for the relevant tasks in the design process. Technical designs must take into account the technical possibilities on our construction site. The co-organisers provide some materials that can be used in the construction.

Fig. 3. Wednesday. Participants prepare formwork and reinforcement
Źródło: own resourses
Rys. 3. Środa. Uczestnicy przygotowują formę i zbrojenie
Źródło: zasoby własne

Wednesday: Work at the construction site commences. Students get all the necessary tools. The ready-made box is to be the beginning of the formwork. They shape the individual parts themselves. The elements are cut and sanded. Any imperfections on the surface will be reflected in the self-consolidating concrete that will be used. The participants learn how to finish concrete surfaces and how to use RECLI mats. It is also necessary to optimise the individual elements of the work to obtain the lowest weight and adequate strength.

Fig. 4. Thursday. Finishing work and unassisted pouring of concrete into the formwork
Źródło: own resourses
Rys. 4. Czwartek. Prace wykończeniowe i samodzielne wlewanie betonu do szalunku
Źródło: zasoby własne

Thursday: Here, participants must demonstrate their ability to coordinate the entire project and related discipline-specific designs, as well as their ability to negotiate with the contractor. A specialist construction company helps with the most difficult elements. Once the formwork is in place, it is time to perform the reinforcement. Here, civil engineers provide further help. The participants know it theoretically but have never participated in its construction themselves. This time, the experts give advice and hints on how to finish the surfaces of the formwork and how to apply the release agent to it. This is a crucial part of the course as the formwork is dismantled after 24 hours when the concrete has not been completely cured. Participants learn how to protect finished elements against physical and chemical agents.

Fig. 5. Friday. The finished thrones
Źródło: own resourses
Rys. 3. Piątek. Ukończone trony
Źródło: zasoby własne.

Friday: The moment everyone (participants and teachers) has been waiting finally arrives. The sculptures are positioned vertically and a special brigade removes the formwork and transports the structures to the site of the first exhibition. The

concrete is too fresh for the students to do this on their own. Participants admire their work. They discuss their forms and present their drawn designs. No grades are given. The mere realisation that all the groups have completed their work on time is a reward and, most importantly, indicates the success of the workshops.

7. USING PROJECT-BASED LEARNING (PBL)

Wacław Celadyn writes that the more educational methods emphasize the issue of the competency of graduates in building sites, in terms of professional communication, the more likely it is that the students will modify their attitude towards technology-related building documentation and will be better prepared for their profession [6]. Drafting the documentation for our small construction site constituted one part of the learning process. The excellent construction of the thrones demonstrates the need to combine theory and practice. Modification of the theme as such was not necessary, but it was necessary to introduce an element of real work with concrete. An element of this was the preparation of technical documentation by the students themselves. The modification took place in the very teaching process and the incorporation of work on the construction site. Elements related to handling real material were introduced. Such a change also allowed the development of skills that cannot be acquired while working alone, using a piece of paper or even a computer. There was a need for teamwork and consequently a division of responsibilities in project groups. Our small design offices (as the student groups might be called) had to designate people responsible for different stages of the projects and agree on an appropriate division of roles. This is a vital skill as students become used to working independently. Here, each team had to create opportunities for self-realisation of the individual participants to avoid conflicts.

8. EVALUATION

The transition to the PBL method in the workshops introduced the possibility of a simpler evaluation of the projects. They were not evaluated on a scale of 2 to 5 as in schools. The only criterion provided at the end of the activity was the successful construction of the project. During the first workshops, the tutors had to justify the grades. Several criteria could be mentioned here: conformity of the project with the functional requirements, completeness of the design, applied material and

construction solutions. The quality of the drawing itself, which is very subjective, also played an important role. In our PBL project, it was not the design itself, but its effect in the form of a finished and built thing that became the most important. It should be noted that all student groups worked independently. 5 projects were completed in 5 days. It is quite difficult to assess the quality of the projects. However, since all the project groups managed to complete the task in such a short time, the whole undertaking should be assessed as entirely positive. The works presented at the exhibition were made to perfection. What was most important, i.e. the results of independent work with concrete can be seen in the photographs of the completed structures. All the Thrones of the Ice Queen can be admired, and their form is unusual. Both the structure of the solids and their texture and shape demonstrate the extraordinary contribution of the students and tutors from and outside of the faculty of architecture. The concrete experts showed the participants the possibilities offered by the correct use of this material. The objectives were achieved. One can only regret that it is impossible to transfer this method of learning to the everyday projects of students in the faculties of architecture.

9. CONCLUSIONS

The inability to organise the 2020 Concrete Architecture workshops during the COVID-19 pandemic (and rescheduling them to 2021) demonstrated the need for direct student participation. The meetings involving the use of concrete could not take place as an online event. As future architects, the students need to present their thoughts in a very precise and comprehensible way on our site. The "crazy" projects are to be created, but they can be built without incurring excessive costs. Our chairs are to become expressionist sculptures. To explain the massiveness and lack of ornamentation in our thrones, we can quote a philosopher who, not by chance, describes the very chair as something uncomplicated. The unity of a chair is its purpose, which demands just such parts and in just such a mechanical arrangement; the unity of a business conversation is governed by the bargain to be closed, requiring only such words and sentences, and in the appropriate logical and grammatical order [7]. However, the aim behind the meetings with the students was not just the thought of a useful thing but a work of concrete art. The workshops revealed how attractive it can be to create a perfect and unique throne using only the most essential elements, such as those found in ordinary chairs. Here, one can see that a throne has to be unusual, but it does not have to be made of gold. Our thrones

are an expression of technical education. They show the need for future architects to improve their skills. The workshops may demonstrate that: In engineering education, students are expected to achieve these technical outcomes: to design engineering components or systems; to apply knowledge of science and mathematics in engineering; and to conduct and interpret engineering experiments. Other outcomes include interpersonal skills, such as written and oral communication, teamwork and leadership, and lifelong learning [8]. The student groups had to demonstrate technical knowledge and teamwork skills. The proposed changes in the teaching process brought the expected results. The shift from theoretical to pragmatic teaching prompted students to adopt a more creative, individual approach in developing the form of the designed structure and to search for new means of aesthetic expression. More attention was paid than before to how the surface of the material was finished and to the choice of the shape of individual elements. The students discovered that there are important connections between the availability of technical solutions and their designs. When evaluating the projects submitted by students of the Faculty of Architecture at Cracow University of Technology, the following words from Heinrich Wölfflin may prove useful: Every work of art has form, is an organism. Its most essential feature is the character of inevitability – that nothing could be changed or moved from its place, but that all must be as it is [9]. All the thrones look splendid. Unfortunately, we do not know what their owner – the Ice Queen – would like to say about them, but the organisers – the architects and engineers were very pleased.

Figure 6: Friday. Happy participants pose with the result of the workshops
Źródło: own resourses
Rys. 6. Piątek. Szczęśliwi uczestnicy pozują z rezultatami warsztatów
Źródło: zasoby własne

BIBLIOGRAPHY

1. Schiller F.: Kallias or Concerning Beauty: Letters to Gottfried Körner, Cambridge University Press, 2003, p. 155.
2. Skwara M.: Ogród wyobraźni, *Architektura*, listopad/grudzień, nr 6/1986, s. 29.
3. Loos A.: Architektura [w:] Ornament i zbrodnia, Warszawa 2013, s. 148.
4. Loos A.: Ornament, Crime, Myth, and Meaning, [in:] Edwards J.K. (Ed.), Architecture: Material and Imagined, Washington D.C., ACSA Press, 1997, p. 443.
5. Kuniczuk K.: Beton architektoniczny – wytyczne techniczne, SPC, Kraków 2011, s. 17.
6. Celadyn W.: Architectural education to improve technical detailing in professional practice [in:] *Global Journal of Engineering Education*, Volume 22, Number 1, 2020, p. 62.
7. Parker D.H.: The Principles of Aesthetics, 2004, p. 17.
8. Ayadat T., Ahmed D., Chowdhury S., Asiz A.: Measurable performance indicators of student learning outcomes: a case study [in:] *Global Journal of Engineering Education*, Volume 22, Number 1, 2020, p. 40.
9. Wölfflin H.: Principles of Art History, Dover Publications Inc., 1929, p. 124.

Anna MIELNIK*

STUDENT COMPETITION SUPPORTED BY LECTURES FROM CONCRETE TECHNOLOGY EXPERTS AS A MULTI-FACETED TEACHING METHOD

1. INTRODUCTION

Architectural competitions are a common teaching method today. They seem to be in line with the general principles of democracy. The paper presents a model for supplementing conventional education with a contest and introducing an entity outside the university into the educational process through lectures delivered by experts in the narrow field of concrete technology.

Single-family houses constitute one of the most obvious, common and only seemingly easiest themes in architecture. For the same reasons, this theme is especially significant in the educational process in the early academic years. Referring to O.M. Ungers, the house can be described as 'the laboratory of architecture' [1].

The education of architecture students regarding housing, while being specific, is dichotomous. Firstly, it reflects individualism and, at the same time, manifests contemporary architectural shaping. Second, the critical thinking and opinions of architects reflect the cultural, social, and economic needs of society. Hence, architectural objects reflect individual or group imperatives and, from a didactic perspective, the ability to transfer knowledge through education into practice [2].

The architectural education of first-year students is mainly based on theoretical academic knowledge, and this also applies to technical issues. Students often lack a broader reference from theory to practice. They are not always able to use and implement the knowledge on their own, as it is taught in isolation from practice. This is the weakness of such a teaching model.

To confront theory with practice in the design theme, an architectural and urban design task for second-year undergraduate students at the Department of Architectural Composition at the Faculty of Architecture at Cracow University of Technology takes the form of a competition co-organised with the Association of

* Cracow University of Technology (POLAND), amielnik@pk.edu.pl

Cement Producers. The design task consists of the project of a single-family detached house in a given location and with a given functional programme, which becomes a complex and demanding didactic theme due to the specific competition requirements regarding composition (*Play of Solids*), context (*House in the Landscape*) and matter (*Concrete Architecture*). The competition requirements become a pretext for building an architectural form. A project based on a predetermined theme and functional programme in the competition system allows one to familiarise oneself with and prepare for the realities of the profession. Owing to the competition with its jury, even the theoretical commission of a purely conceptual student project becomes more tangible. Organising a competition for first years students poses a particular challenge given the many constraints and rules they have to adhere to. However, when encouraged to play the complex 'architectural game' that the competition is about, students acquire many skills necessary for their future work. One of them is self-reliance, an essential attribute of a creator.

Participation in the competition allows students to gain several skills: finding pretexts in shaping an architectural composition; working with imposed functional requirements and spatial conditions; the fundamentals of concrete-related technical and material solutions; seeking a balance between the universal language of abstract pure forms and practical needs; theoretical justification of the adopted architectural concept and the development and presentation of an architectural design including its competition exposition, placement on the Internet, and printing. Through participation in the competition at its various stages, students can gain and enhance both hard and soft skills, which they would not be able to achieve through a project that is not related to the contest. Competition can also be considered as a tool and method to motivate students.

The segment in the title of the competition 'Concrete Architecture' is an expression of the belief in the need to draw students' attention to the advantages of the building material that is becoming particularly attractive in new plays today and allows to give almost any shape to architecture. The role that concrete plays in the creation of modern buildings cannot be overestimated. Today, its rough surface is perceived as an aesthetic element without any pejorative connotations. Architecture has always looked for materials that would allow the creator to freely shape the building. Here, concrete becomes a new, yet easily workable stone and its versatility makes it more than just a mere construction material today [3].

The Department of Architectural Design (formerly the Chair of Housing Design) has been cooperating with the Polish Cement Association for many years. One of the

forms of this cooperation, aimed at promoting architecture with the use of concrete technology among students of various university degrees, is the *Concrete Architecture – Play of Elementary Solids – House in the Landscape competition,* organized since 2000 for fourth-semester students.

According to Professor Dariusz Kozłowski – the initiator of the competition and cooperation with the Association: *Today, concrete is the stone of the present: it can be processed like this natural material, as conceived by the artist. Sometimes, one can see the soul of concrete – when the shape of the thing reveals the combination of beauty, purpose, and durability of the product of human imagination* [4]. One can easily notice that architects all over the world consciously use concrete more and more boldly. The concrete that not only has an obvious engineering function but also determines the architectural qualities of buildings – architectural concrete. Hence the need to prepare students to work with this material.

2. PROBLEM AND SOLUTION

During several years of competition, the quality of the projects has gradually increased, but it has been noticed that the aspects related to the concrete matter and technology pose a great difficulty for the students. In the world of architecture, there have been more and more examples of concrete architecture that the students have been able to refer to in terms of designing an architectural form, whereas the technical aspects of the concrete matter have remained a kind of hermetic 'secret knowledge' for them. Formally very interesting, their designs appeared as if detached from the technical aspects. This has been particularly evident in the required drawings of details and visualisations.

To equip students with the tools to understand the world of concrete architecture, a decision has been made to organise lectures that would familiarise them with actual issues related to architectural concrete technology, both in purely theoretical terms and primarily in practical ones. Thanks to the cooperation with the Polish Cement Association, speakers – experts directly related to the contracting industry – were first invited in 2016, thus creating an opportunity for students to get to know this material better.

In its activities, the Polish Cement Association (PCA) takes actions whose main objective is to develop the cement industry, promoting modern techniques and technologies. Among other things, it conducts educational activities by organising seminars, conferences and training devoted to the issues related to the cement

industry. Lectures (which combine theoretical and practical aspects) for students constitute a particular basis of the Association. The following are invited to the meetings: a representative of the PCA, an expert in concrete technology, the author of the first book on the subject in Polish, an expert in formwork, an expert in patterned concrete matrices, and an investor in some of the most known concrete buildings in Poland.

Students are introduced to modern and effective solutions in housing construction, technical guidelines for fair-faced concrete, issues related to shaping fair-faced concrete in the formwork system, possibilities of shaping the concrete texture, and real-life experiences related to the investment process and the multidisciplinary nature of an architectural project with the use of concrete technology. The experts present various examples of built concrete architecture, selected in accordance with the topics covered. Students may be surprised to discover that working with concrete has something magical about it and the final result can be quite different from the architect's expectations. It is therefore particularly important to show the students how architects should describe concrete solutions and elements in their design. This is where the magic happens because it is difficult to describe to engineers the 'art' that this material should turn into. Descriptions of the design should be written so that the contractor understands what the architect was thinking and how the finished concrete elements are supposed to look. Experts also show examples of failed elements and mistakes, which is of great importance. The risks and the element of randomness inherent in the construction process in concrete technology are made clear. Many elements can influence the end result. Each project poses a new individual challenge. That is why students are shown different buildings, those beautiful and those imperfect. The students are provided with knowledge that should help them master the concrete matter and avoid mistakes. A good grasp of the rules governing concrete technology will help prevent many mistakes. It will prepare students for discussions with concrete technologists and contractors. They learn that an architect should account in his work for limitations resulting from product properties and execution possibilities.

The lectures enable the students to understand better the processes behind certain effects that until now were incomprehensible to them. They could see divisions in façades, openings, textures, colors, and errors, but they did not understand how and why these were produced. They did not know how to translate the final effect into a construction drawing. They had seen concrete architecture for several years, but the technical layer was unknown to them. Creating architecture

with the use of exposed concrete is especially challenging from a technical point of view, which is emphasised in the lectures. The technical process must be realised as early as the conceptual design stage, as the choice of this material strongly influences the design already at the conceptual stage. It is not an aspect that can be left to experts to solve at the end of the process. This can be seen even in the definition of architectural concrete given by Krzysztof Kuniczuk, which says that it is concrete which, as a result of exposure, affects the visual character of the structure and is specifically designed at the stage of creating documentation in which the requirements for its surface are specified [5].

Engineering experience, insight into the construction reality of experts, make students more aware of the problems that can accompany 'concrete projects'. This awareness may in the future protect a student who is already an architect from execution problems that lead to difficulties in achieving the desired effect. Some of the information will be useful to students directly in their work on competition entries, some in their future work as architects.

3. METHODOLOGY

The first data collection tool to investigate the impact of lectures on improving the understanding and awareness of the concrete technique of the students was observation. A whole design studio class of the second year fourth semester at the Department of Architectural Composition FA-CUT (guidance Prof. Tomasz Kozłowski) was researched since the lectures were introduced (2016). No sample group was assigned. According to the tutors, it can be noticed how the projects were evolving, changing week by week along with the knowledge acquired during the lectures. Students are clearly becoming more aware of the technical aspects of concrete matter. The effectiveness of the change was assessed by comparing projects from previous years when students did not attend lectures. The students consciously choose one of the façade techniques (monolithic wall, prefabricated elements) or a combination of these. The progress has been most evident in the cross-section drawings (appropriate thickness of layers), elevations (precisely designed divisions of concrete) and above all in the accuracy of the drawings of the details in a 1:20 scale. The students have become more aware of the problems and have made it easier for them to find the most reasonable construction and finishing solutions. There has also been a change in the details of descriptions.

The members of the Competition Jury also observe positive changes in student projects from year to year. As a result, it is becoming increasingly difficult to select the winning projects and the number of honourable mentions awarded in the competition is growing.

Due to the inherent difficulty in deriving quantifiable data evaluating creative design solutions, in general, as well as those created with the support of the lectures by experts, compared with previous years, it has been decided in 2021 to examine the impact of the lectures and the design task combined with participation in the competition on the education employing a questionnaire addressed to the students who have participated in the project. To measure the effectiveness of the method, a questionnaire has been sent to the students after the end of the cycle of the lectures, while the course project has been still in progress. The students are obviously not able to compare the traditional method of conducting these particular classes with the modified one; however, they can refer to other design courses and rely on their own opinions and critical thinking skills.

A survey was conducted to investigate the following questions (Tables 1-7): (Questions 1-2, 5) source and level of knowledge regarding concrete technology prior to the lectures and perceived availability of information, (Questions 3-4) impact of the lectures on design, (Question 6) impact of participation in the competition on the need to acquire knowledge about concrete technology, (Question 7) feedback on the usefulness of such a method of supplementing education.

4. SURVEY - RESULTS AND ANALISIS

The survey was conducted in April 2021. Fifty-four students participated in the survey, which represents 67.5% of the students attending the course (design studio class of the second year, fourth semester, at the FA-CUT Department of Architectural Composition. It was conducted on-line via MS Office 365 application used during COVID-19 pandemic and was both anonymous and voluntary. Two types of survey questions were used: one multiple choice question (single-answer), five binary yes-no questions, and one rating scale question.

Table 1

Table 1. Question 1 with responses

Q1	1. Where do you know the term concrete architecture from?	Number of answers	Percentage
A1	- classes at the Faculty of Architecture	43	81 %
A2	- other sources	10	19 %
A3	- I do not know it	0	0

Table 2

Question 2 with responses

Q2	What was your theoretical and practical knowledge of concrete architecture before attending the lectures?	Number of answers	Average rating
A1	Average rating (from 1– poor, 2 – less than average, 3– average, 4 – good, to 5– great)	53	2,34

Table 3

Question 3 with responses

Q3	Did the lectures have a clear impact on your increased awareness of concrete technology?	Number of answers	Percentage
A1	- yes	51	94%
A2	- no	3	6%

Table 4

Question 4 with responses

Q4	Did the lectures have an impact on the sense of increased creativity in design?	Number of answers	Percentage
A1	- yes	47	87%
A2	- no	7	13%

Table 5

Table 5. Question 5 with responses

Q5	Do you feel that the theoretical and practical information provided by lecturers is difficult to obtain from other sources (other courses, course books, teaching materials, the Internet, professional literature?	Number of answers	Percentage
A1	- yes	39	72%
A2	- no	15	28%

Table 6

Question 6 with responses

Q6	Does participation in the competition *Concrete Architecture – Play of Solids – House in the Landscape* motivate you to gain knowledge about concrete technology?	Number of answers	Percentage
A1	- yes	39	72%
A2	- no	15	28%

Table 7

Question 7 with responses

Q7	In your opinion, is supplementing the theoretical education at the Faculty with lectures given by concrete technology experts interesting and necessary?	Number of answers	Percentage
A1	- yes	53	98%
A2	- no	1	2%

Question 1: The result shows that most students are familiar with the term Concrete Architecture and that they know it mainly from classes at the Faculty of Architecture.

Question 2: The result indicates that the students describe their knowledge of concrete technology before attending the lectures as below average (2.34). 12 students define this knowledge at level 1, 17 at level 2, 18 at level 3, 3 at level 4, and only 2 at level 5.

Question 3: The result shows that for most students (94%), the lectures had an impact on increasing their awareness of concrete technology.

Question 4: The result indicates that for the majority of students (87%), the lectures had an impact on the sense of increased creativity in design.

Question 5: The result reveals that 72% of the students feel that the theoretical and practical information provided by the lecturers is difficult to obtain from other sources (other courses, course books, teaching materials, the Internet and professional literature). One can notice a contradiction here with the result of the first question. This can be explained by the fact that easy access to information, resources on the Internet, implementations from the world create cognitive dissonance in students. Students think that they can easily acquire any knowledge at any level. This results in a higher degree of criticism towards experts, lecturers, and academics.

Question 6: The result shows that for 72% of the students, participation in the competition 'Concrete Architecture – Play of Solids – House in the Landscape' is a motivator to acquire knowledge about concrete technology. This result is satisfactory for instructors because on average the number of students who are particularly involved in designing, acquiring knowledge, and participating in the competition appears to be lower.

Question 7: The result demonstrates that the vast majority of students believe that complementing the theoretical education at the Faculty with lectures given by concrete technology experts is interesting and necessary.

Students were not merely asked to express a generally positive or negative opinion about the lectures. The Internet in the 21st century offers the possibility to search for information, but direct contact with the engineers who participated in the construction of many architectural masterpieces is extremely valuable. The experts who try to teach using their achievements, the experience of their active professional practice, can attract interested students. The positive response may indicate a lack of such information in academic teaching. Interest in the lectures translates into increased creativity in design among a large number of students. On the contrary, it is puzzling to find a relatively high proportion of students whose willingness to learn

about concrete technology was not positively affected by their participation in the competition. However, this coincides with a general problem in motivating some students. The survey indicated that supplementing the education with lectures by concrete technology experts was highly rated by the students. The analysis of the survey results and the comparison of the projects from the years before the introduction of the method with those created after its introduction proves that such a teaching method is effective.

5. TECHNICAL VERSUS CREATIVE ASPECTS OF THE PROJECT

The problem of architecture as a direction in education is its undefined status – a field on the border of art and technology. Contemporary education in technical sciences cannot be limited to mastering knowledge and professional skills only in a narrow specialisation, e.g. technical one. In the design theme described above, a balance between technical and artistic/creative aspects is sought. Theory of the concrete technology can help students understand the nature of the material but it takes creativity to turn an ordinary building material into a work of art. It is important to stress that theory is meant here to support the design process.

One of the main objectives of the described students task is to learn how to realistically approach the design of even the most unrealistic buildings – here single-family houses – which will only appear on paper after all. The knowledge imparted by professionals is useful in learning reality. The great architect, theoretician and academic Antonio Monestiroli wrote that: what architecture needs is freedom, which does not mean detachment from reality, but the freedom that allows one to get to know reality, capable of interpreting the values and aspirations of our time [6].

When referring to concrete architecture, we mean the use of concrete and reinforced concrete in façade techniques and interiors in such a way that the nature of this building material remains visible [7]. So, especially in the case of a project with the use of such material, it is extremely important to show its formal features, not so much construction. To show the nature of forms and matter, students create drawings and visualisations during the course. Solids and planes emerge from a green site and become completely realistic through painted or drawn perspectives and computer visualisations (Fig. 1a, 1d) [3]. The students try to record real and intentional space in their images.

The humanistic and artistic dimension of architecture is difficult to measure and therefore untranslatable into principles and the most difficult to assess. However, as

emphasised by Professor Żychowska, it is necessary to point out the need to humanise architectural education [8], introduced here through a freehand perspective drawing (Fig. 1a). Perspective drawing superbly develops the imagination and the ability to communicate the thought and idea of a project.

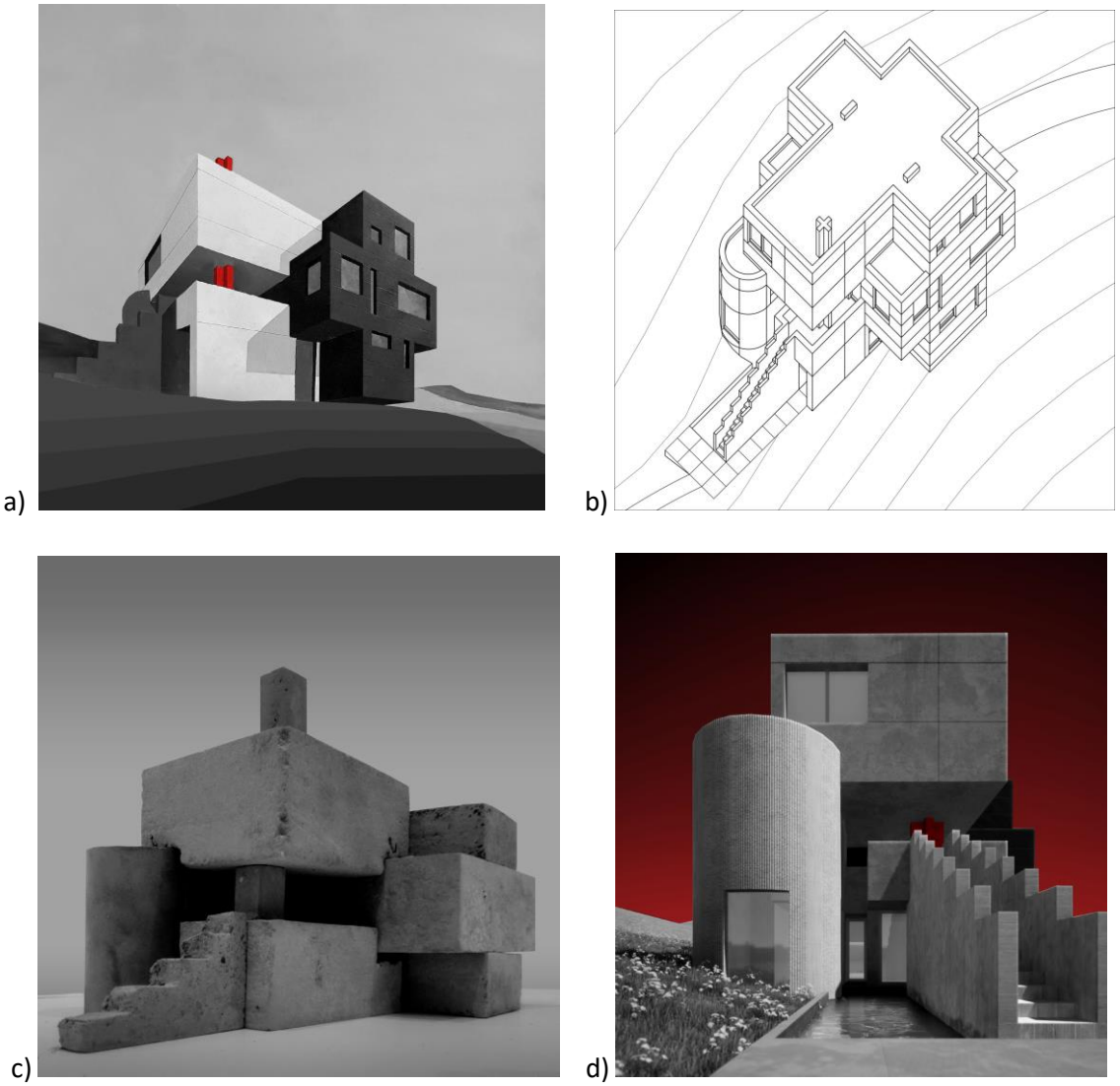

Fig. 1. Student's project, first award 2020, author: Mateusz Binda, guidance: Tomasz Kozłowski, tutor: Anna Mielnik, a. handmade perspective drawing, b. axonometry, c. concrete model, d. computer visualisation

Źródło: own resourses

Rys. 1. Projekt studencki, I nagroda 2020, autor: Mateusz Binda, prowadzenie: Tomasz Kozłowski, opiekun: Anna Mielnik, a) ręcznie robiony rysunek perspektywiczny, b) aksonometria, c) model betonowy, d) wizualizacja komputerowa

Źródło: zasoby własne

Familiarisation with the technical aspects of architectural concrete during the course helps the students to become acquainted with the matter, its physical aspects, weight, divisions, texture and colour, which they then show more consciously in the

form of visualisations (Fig. 1d). During the lectures, the students become familiar with tools for expressing their architectural ideas. Although the projects are created on paper, they delude the audience with their reality. In the visualisations, they look as if they were built and existing. Time has shown that the forms of their houses are more and more original each year. Here the students strive to record the real space.

6. CONCLUSIONS

Learning architecture is a complicated matter because it is a combination of theoretical and practical knowledge. Schools of architecture with their limited flexibility must constantly react to the transformation of the architectural profession [9]. Architecture schools should open minds and struggle to keep young people enthusiastic [10]. It seems that encouraging student participation in the competition and promoting their success is an effective method. Enriching the traditional method of teaching architectural design with the lectures delivered by expert practitioners has allowed students to gain knowledge and accumulate a set of additional tools that help them find information, solutions and draw conclusions. The knowledge transferred to them is universal, and they will be able to use it in other student projects and in their future professional work. The cooperation demonstrates that openness to partners outside the university allows freedom of academic speculation while maintaining technical correctness.

BIBLIOGRAPHY

1 Ungers O.M.: Kosmos der Architektur, [in:]. Lepik A. (Ed.), Hatje Cantz, Berlin 2007, p. 61.
2. Czafík M., Puškár B., Vráblová E., Bacová A.: Architectural education and residential buildings, *Global Journal of Engineering and Education*, 22 (3), 2020, pp. 222-227.
3. Kozłowski T.: The play of solids in a single-family house, *Środowisko Mieszkaniowe /Housing Environment*, vol. 29, 2019, pp. 80-100.
4. Kozłowski D.: Concrete Architecture – The Play of elementary Solids – House in Landscape, *PRETEKST- Journal of Chair of Housing*, vol. 2, 2006, pp. 8-9.
5. Kuniczuk K.: Beton architektoniczny – wytyczne techniczne, Polski Cement, Kraków, 2011, s. 17.
6. Monestoroli A.: Architecture and Its Teaching, Defining the Architectural Space – Transmutations of Concrete, vol. 1, 2017, pp. 95-103.

7. Kozłowski D.: Concrete and the Masters of the Transmutation of Matter, Defining the Architectural Space – Transmutations of Concrete, vol. 1, 2017, pp. 7-15.
8. Żychowska M. J.: Humanisation of engineering studies, *World Trans. on Engng. and Technol. Educ.*, 17 (3), 2019, pp. 250-253.
9. Legény J., Špaček R., Morgenstein P.: Binding architectural practice with education, *Global Journal of Engeneering. Education*, 20 (1), 2018, pp. 6-14.
10. Sokołowski P.: Uroboros, Autoportret. Pismo o dobrej przestrzeni – Uczenie architektury, vol. 60 (1), 2018, s. 70-73.

Katarzyna ROSŁON-MAZGAJ*

THE REAESTHETICS OF FUNERARY DESIGN IN DESIGN SPACES

1. INTRODUCTION

The COVID-19 pandemic and its consequences have brought the subject of death extremely close to home in the last two years. Each of us who has lost a loved one has experienced it. The taboo of talking about death in public has been broken. Why do we not want to talk about death? Why do we feel uncomfortable when discussing it? Do we have the right to grieve? And by extension how do our surroundings, their aesthetics and features of funerary design in the broader sense impact on us?

The growing interest in this subject can be seen through the number of recently created support groups of various types on social media, therapy workshops, websites dedicated to death and mourning, as well as publications on the subject or conferences dedicated to the issue of death in its broadest sense. Does this mean that the way in which we mourned in the past has been inadequate? If we start to 'externalise' our emotions, we require a different space to express them. But what kind of space? This challenge has undoubtedly been attested by architectural and design projects in the field of funerary design over the last decade. One can see in these projects that a search for new definitions and solutions is not exclusively restricted to the design of elements related to the funeral industry, interiors, or the look of small architecture, but one can also plan one's own funeral ceremony, thus offering some relief to relatives who are often helpless at this time. These seemingly brief periods of time, if not addressed properly, can affect the whole mourning process. New forms of interment also stir great emotions. Our society, having a somewhat orthodox approach to such issues, may even consider them to be a profanation of our mortal remains. Are we ready for this? A fitting design of the space in which we experience the loss of a loved one will offer us a feeling of security

* Silesian University of Technology, Faculty of Architecture (POLAND), katarzyna.roslon@polsl.pl

during the mourning process and will allow us to bear the emotions that we find so difficult to deal with. Architects and designers play an enormous role in this regard.

The aim of this research paper is to make us aware that "death is an intrinsic element of humanity, hence architecture, art and design should face this topic boldly and not evade it."

2. FUNERARY ARCHITECTURE

When assessing the changes that have taken place in the design of funerary architecture, one has the impression that nothing has altered in this sphere of activity over the years. These spaces, marginalised in terms of their aesthetics, and located mainly in burial grounds or cemeteries, were closely linked with the religious faiths for which the cemetery was intended. They often belong to parishes or are managed by municipal services. Municipal cemeteries found in larger towns and cities often contain chapels or pre-burial buildings of an ecumenical or nondenominational character. There is an option in them to introduce features relating to a particular faith or to empty the interior of features associated with a particular religion. Buildings owned by private funeral directors are different. The owners often invest their own funds in newly established funeral parlours, rooms to pay one's respects, and chapels of rest in the funeral homes. In the last few years, there has been an interest in alternative forms of interment. This has resulted in the construction of columbaria in which the ashes of the deceased are deposited. It is indubitably a more ecological way of burying the dead, but it still provokes controversy and fear. Our history is deeply rooted within us. Crematoria, where the corpses of our relatives, and perhaps ours too in the future, are burned, are associated with the period of hostile occupation and the martyrdom of war.

Memorial parks are also often established in places where crematoria are currently located. At this juncture, a question arises about the aesthetics of such places. Each of us has attended funerals on several occasions and has been in buildings designed for funerals. In the face of death what impact did the surrounding architecture have on us? What is the role of this place in the process of dying?

The aesthetics of the buildings mentioned above is often questionable, although it is clear that taste is not a subject for debate. However, are the reaesthetics of funeral spaces for students at an academic level of design art a proper path to follow? There is scope for teaching this subject in the faculty of Interior Design and Architecture. In this faculty, of which I am head, as part of the course of Architecture

studies there exists a project relating to "places for final farewells", which could be, but did not have to be, of an ecumenical nature. The culmination of the students' work was a collection of sixteen projects that presented structures of a funerary nature. These were often embedded in their surroundings, in open spaces or located by water or in the mountains. The choice of the surroundings belonged to the student. The common element of these studies was the implementation and synthesis of the surroundings of a given place as perceived by the designer-student. Analyses of the projects reveals an interpretation of these features. The conclusions drawn from these were used to create entire interiors with a specific purpose – places to bid one's final farewells. In the interior functional agenda, which could be an open interior, apart from the space for the farewell itself, there should also be space for people attending the ceremony and space for the person conducting the ceremonies and back-room facilities, but these were not required.

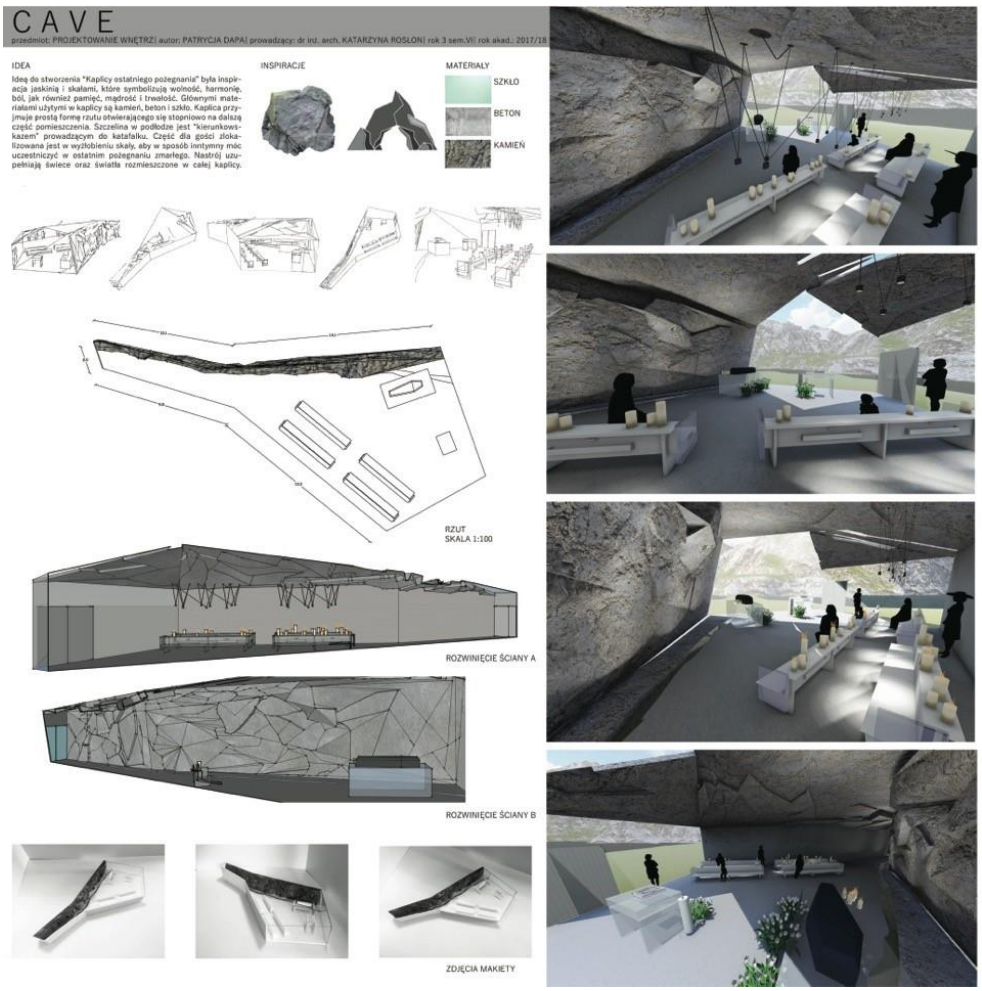

Fig. 1. A place for final farewells – a conceptual design. Author: student Patrycja Dapa
Source: Faculty of Architecture SUT, Interior Design (major of Architecture)
Rys. 1. Miejsce na ostatnie pożegnania – projekt koncepcyjny. Autor: studentka Patrycja Dapa
Źródło: Wydział Architektury Politechniki Śląskiej, Projektowanie Wnętrz (kierunek Architektura)

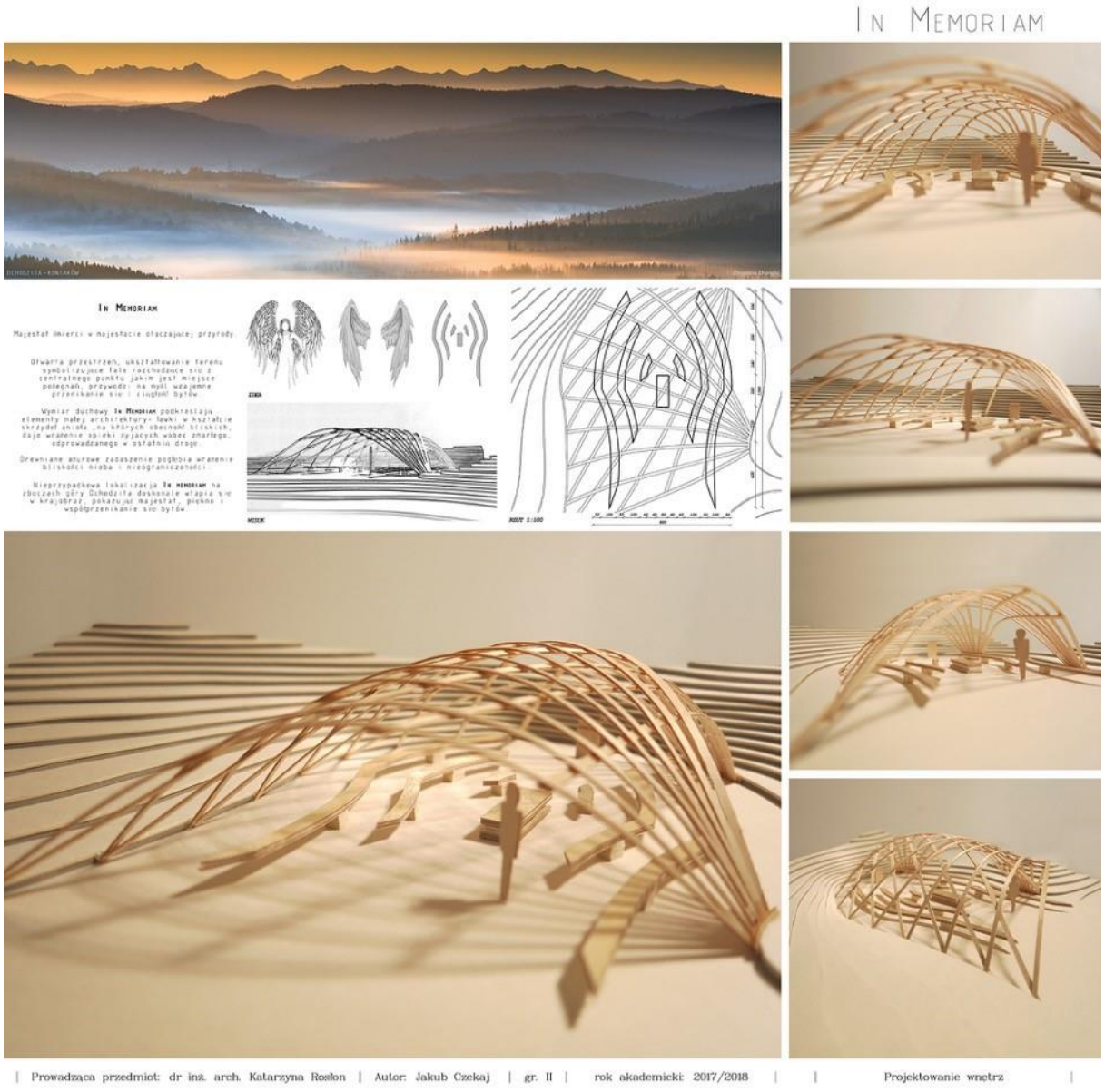

Fig. 2. A place for final farewells – a conceptual design. Author: student Jakub Czekaj
Source: Faculty of Architecture SUT, Interior Design (major of Architecture)
Rys. 2. Miejsce na ostatnie pożegnania – projekt koncepcyjny. Autor: student Jakub Czekaj
Źródło: Wydział Architektury Politechniki Śląskiej, Projektowanie Wnętrz (kierunek Architektura)

One should take notice of the proposals presented above and the approach of the younger generation of designers with respect to the design of funerary spaces. They are filled with light, which plays a creative role, whilst also being a symbol of transcendence. The structure of the interiors presented is a background, often neutral, devoid of decorative details. The surrounding nature itself becomes the background and simultaneously the focal point of the created interior.

3. THANATOARCHITECTURE

The discourse on architecture for the dead continues. Architects, designers and theorists are currently debating it on many levels in relation to design spaces. Thanatoarchitecture is a concept first used in 2015 by Robert Idem, who drew attention to the place of the architecture of passing of which we are all conscious. When using this term, he defined the spaces of death and structures that are directly associated with death through their functionality. This term should be understood as the relationship between thanatology and architecture on many levels, which includes the context of functional and spatial solutions, as well as the philosophical and ethical issues involved.

In history, in our culture and during modern times, death has taken on – and continues to take on – many aspects. From 'traditional death' which we used to witness in the privacy of our homes where the person dying passes surrounded by their loved ones, to 'modern death', medical and hidden away, often lonely, and which takes the form of the conclusion of a course of treatment in the presence of indifferent medical staff.

4. FUNERARY DESIGN – thanatoDESIGN

Designing space for the deceased is not only about architecture and interiors, but also about assimilation of a wide range of funerary design elements. Perhaps we are dealing with thanatodesign? It is noticeable, especially in Western Europe, that there is more and more testing of new methods of interment. The question is, are we ready for such resolutions? Resolutions exist in which ecology plays the prime role, this being followed by the entire product design process. We are giving up plastic packaging, we segregate trash, and we save water and energy. Scientists and designers are also meeting pro-ecological needs, developing alternative methods of interment. Here, we speak of different types of urns that biodegrade in different ways. Made as they are of biodegradable materials, they can decompose or dissolve in water when buried in the ground.

Dutch scientists working with botanists at the TU Technical University in Delft have created a coffin made of mycelium, specially cultured for this purpose. The creator of the project is Dutchman Bob Hendrikx. This is how the Living Cocoon coffin came about. It decomposes in the ground in two to three years. By comparison, a coffin made in the traditional way takes much longer to break down.

Fig. 3. LIVING COCOON – ecological coffin, designed by Dutchman Bob Hendrikx
Source: https://odeszli.pl, (access: 25.11.2021)
Rys. 3. LIVING COCOON – ekologiczna trumna, zaprojektowana przez Holendra Boba Hendrikxa
Źródło: https://odeszli.pl, (dostęp: 25.11.2021)

An alternative design is that of the Ice Urn created by Diane Leclair Bisson from the USA. She herself emphasizes that the work involved in creating this unusual urn was not difficult. Ice is a workable material. It can be easily shaped and, most importantly, it is environmentally friendly. The inventor has produced a special mould into which water is poured along with the human ashes and the contents are deep frozen. The ice object formed by this method – flat on the top, so that flowers can be attached to it – becomes an urn which melts when released into the sea, lake or river. It should also be stressed that human ashes, being nontoxic to the environment, do not pose a threat of biological contamination.

Fig. 4. Ice urn – designed by Diane Leclair Bisson
Source: https://www.whitemad.pl, (access: 25.11.2021)
Rys. 4. Lodowa urna – zaprojektowana przez Diane Leclair Bisson
Źródło: https://www.whitemad.pl, (dostęp: 25.11.2021)

After death, we can also transform into any tree of our choice. The designers of Capsula Mundi, which resembles a huge egg, encourage us to choose this ecological form of interment. It is an alternative to the classically constructed necropolises that grow and expand before our eyes. Would it not be preferable if green areas were created in these places instead? Quite a bold proposition. The creators of this project, two Italian designers Anne Citelli and Raoul Bretzel, have invented an original biodegradable pod. Although the description of the absorption of the human body by a process in which the main role is played by a plant whose seed or seedling is an integral part of the capsule evokes mixed feelings, this invention sheds a new perspective on what happens to our body after death. It is no accident that the pod resembles an egg in shape. The egg is a symbol of rebirth and the overcoming of death. The body is placed in an embryonic position inside the pod. We leave this world naked, just as we arrived there. Would this form of burial offer us some form of comfort were we to sit down in the shade of a tree grown of the remains of our loved ones? Contrary to appearances, this solution is proving very popular among supporters of ecology.

Fig. 5. Capsula Mundi – designed by Anne Citelli and Raoul Bretzel
Source: https://dobrewiadomosci.net.pl, (access: 25.11.2021)
Rys. 5. Capsula Mundi – zaprojektowane przez Anne Citelli i Raoula Bretzel
Źródło: https://dobrewiadomosci.net.pl, (access: 25.11.2021)

Unfortunately, the examples of alternative forms of interment cited above, do not comply with Polish law as contained within the Minister of Health's Regulations regarding the handling of remains of the deceased. Although cremation is permitted in Poland, the form of interment remains traditional. The urn can be buried in a grave or placed in a columbarium intended for this purpose. All who witness the genesis of pro-ecological movement by the use of the above-mentioned examples and the elimination of overcrowding in cemeteries must be patient and wait a little longer. On the other hand, however excellent the proposals for funerary design may be, how long will it take for us as a society to be ready for such daring forms of interment?

Returning to the designs that we see every day in funeral parlours, still adopting the traditional designs of coffins and urns, one sees very slow changes taking place in this area. Traditional wooden coffins and urns made of stone still predominate, occasionally reduced to simplified forms without any unnecessary, over-the-top ornamentation.

Fig. 6. Interiors of the modernised MZUK Gliwice funeral parlour
Source: photo – Katarzyna Rosłon-Mazgaj
Rys. 6. Wnętrza zmodernizowanego zakładu pogrzebowego MZUK-u Gliwice
Źródło: fotografia – Katarzyna Rosłon-Mazgaj

Contemporary design encroaches on this area of our lives in a relatively timid manner and it could be said that it is reserved for a narrow group of society that appreciates good design, is financially prepared for it and, above all, is brave enough to choose a good funerary design on the final journey. Polish company Aeon Form, whose founders are three licensed architects, decided to introduce on the market personalised designs of coffins, urns, and gravestones. The shapes of these are often quite futuristic and bold, meeting the tastes of their customers.

Fig. 7. Cristal Coffin – By Aeon Form
Source: designteka.pl, (access: 25.11.2021)
Rys. 7. Cristal Coffin – zaprojektowane przez Aeon Form
Źródło: designteka.pl, (access: 25.11.2021)

5. ART

As far as art in its broadest sense is concerned, the issue of death in all its aspects has accompanied us since the times of antiquity. Witnessed over the centuries and illustrated from the times of the Books of the Dead in ancient Egypt and throughout the literature that followed, where we become inured to death as often laid bare by the authors of these works. And also in images, photographic or cinematographic, in which the ethos of death is stripped of any illusions.

While renovating and modernising the pre-funeral building in the Central Cemetery in Gliwice wall paintings from the interwar period by Gliwice artist Erich Johannes Gottschlich were discovered. These paintings present a contemporary interpretation of the ‘danse macabre’ motif, the dance of death. In later years, they were covered not to stir inappropriate emotions in people during the mourning process. The ten paintings which surround the frieze of the chapel's interior depict the death of such people as a miner, a monk, a soldier, a bride and many other characters.

When work was being undertaken on the above-mentioned design concept these paintings remained covered, in line with the developer’s guidelines, although the proposals of the municipal conservator of monuments during consultation on the

project differed radically. The photos below present how it appears at present and visualisations of the selected design concept showing the final outcome of the design project. However, owing to the costs involved, this has not been realised to date.

Fig. 8. Interior of the pre-funeral building at the Central Cemetery in Gliwice – existing interior and the design concept for the renovation
Source: photo – Katarzyna Rosłon-Mazgaj, project – Katarzyna Rosłon-Mazgaj design study
Rys. 8. Wnętrze budynku przedpogrzebowego na Cmentarzu Centralnym w Gliwicach – stan istniejący i koncepcja projektowa renowacji
Źródło: fotografia – Katarzyna Rosłon-Mazgaj, projekt – studium projektowe K. Rosłon-Mazgaj

Are we witnessing the slow death of funerary architecture? In the introduction to this study, I mentioned the lack of acceptance of public mourning and the taboos surrounding death. Is there a direct correlation with a lack of communal interest in the subject of passing on? I once heard that there are no good practices in faculties of architecture where the design of space of funerary structures, necropolises or hospices is concerned. There are few examples of graduate theses or conceptual projects relating to this theme. However, we should not make broad statements. There are individual graduate studies, course work and competitions organised by communities associated with the design industry.

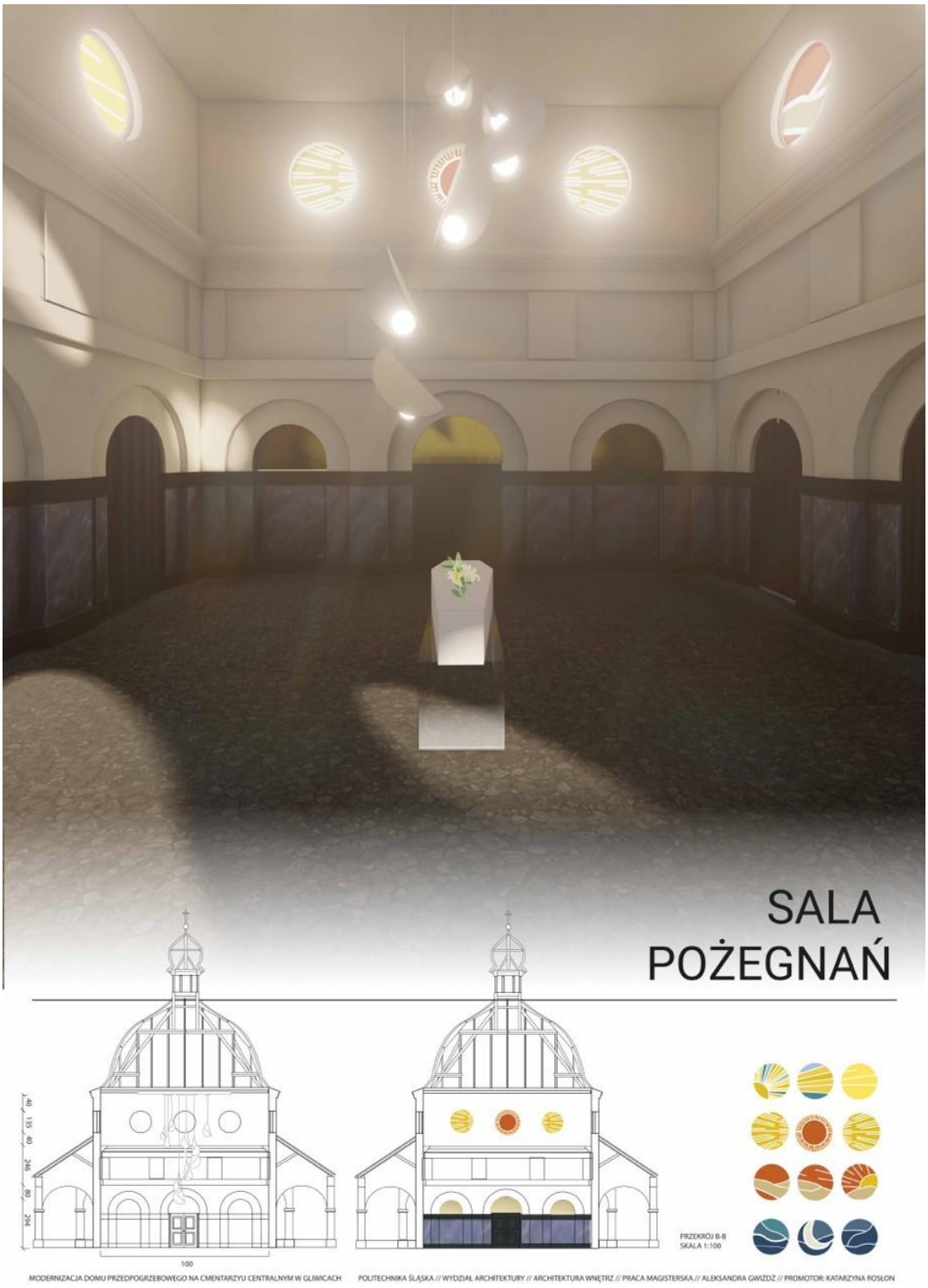

Fig. 9. Master's degree thesis. Visualisation of the interior design concept of the pre-funeral building at the Central Cemetery in Gliwice

Source: Faculty of Architecture SUT, major of Interior Design, student: Aleksandra Gwiżdż (under the supervision of Katarzyna Rosłon-Mazgaj)

Rys. 9. Praca magisterska. Wizualizacja koncepcji aranżacji wnętrz budynku przedpogrzebowego na Cmentarzu Centralnym w Gliwicach

Źródło: Wydział Architektury Politechniki Śląskiej, kierunek Architektura Wnętrz, studentka: Aleksandra Gwiżdż (pod kierunkiem Katarzyny Rosłon-Mazgaj)

As part of her master's thesis, Aleksandra Gwiżdż, a graduate of Interior Design, presented an alternative interior concept of a pre-funeral building. The main design concept was to create a welcoming space for the people mourning. Owing to the secular nature of the building and the variable number of people participating in final farewell ceremonies, the author of the study focused on the flexibility of arranging the interior of the chapel itself. A catafalque was placed as a permanent feature in the central part of the room. The whole gives the impression of space projecting upward, by focusing on the light entering the interior in the central part, reinforced by suspended lighting fixtures that support the play of light passing through the stained glass windows designed for the occasion. It undoubtedly creates the right mood. The interior evokes a sense of security and peace. It enables people to connect and encourages them to experience loss together.

6. SUMMARY

When answers are found to the questions one has posed oneself in the content of this study, one is able summarise it with one statement: architecture, art, and funerary design have always directly mirrored human attitudes towards death. Since the beginnings of humanity, they have formed the background for the phenomenon of death and constituted the formal structure for the entire mourning process, beginning with the moment of death, storage of the remains, through to interment, and the subsequent remembrance of the deceased. Despite the presence of death in every aspect of architecture, art and design, their form is detached from the emotions accompanying the moment of the final passing. Setting its function to one side, the form is not merely a shell that is interwoven with the process of dying. It affects our experience of the traumatic moments in our lives. It is important that the devaluation of the funerary architecture be stopped. This is directly related to the wide-ranging necessity for aesthetic and formal education, which, although probably not immediately, but certainly in the near future, will end the depreciation of this area of our lives. The role of teachers should be undertaken by educators specialising in architectural design, simultaneously expanding the theory of architectural design, and also, in a broad sense, the art of physical structures connected with death.

The ongoing marginalisation of thanatoarchitecture and disregard for the aesthetic stratum that has been commercialised in the wider funeral industry demonstrates to us all how much this issue should be explored, leading to the

improvement of aesthetics, aesthetic education and becoming accustomed to what is unavoidable.

BIBLIOGRAPHY

1. Aries P.: Człowiek i śmierć, Państwowy Instytut Wydawniczy, Warszawa 1989.
2. Idem R.: Tanatoarchitektura. Architektura służby zdrowia. Problematyka projektowa. Wydawnictwo Politechniki Gdańskiej, Gdańsk 2015, s. 132.
3. Pleskaczyńska K.: Kreowanie przestrzeni umarłych. Dziedzictwo kultury, wyzwania przyszłości. Uniwersytet Artystyczny w Poznaniu, Poznań 2015.
4. Węglarz M.: Wszystko, co powinieneś wiedzieć, zanim umrzesz. Tajemnice branży pogrzebowej. Wydawnictwo Muza, 2020.
5. Rozporządzenie Ministra Zdrowia *w sprawie postępowania ze zwłokami i szczątkami ludzkimi*, Dz.U. 2021 poz. 1910.

MURALS AS A TOOL FOR SPATIAL AND IDEOLOGICAL ACTIVITIES IN THE ARCHITECTURAL AND URBAN ENVIRONMENT – SELECTED EXAMPLES

Abstract

The aim of the study work is to present contemporary murals divided into the technique in which they were made, the form, and the ideological message, as well as to determine their role in the space in which they were created. The methods that were used to conduct the research are: literature analyses, the author's own observations, in situ research, and analyses obtained as part of the author's seminar Fine Arts in Public Space.

Streszczenie

Celem opracowania jest przedstawienie współczesnych murali z podziałem na technikę wykonania, formę i przekaz ideowy, a także określenie ich roli w przestrzeni, w której powstały. Metody, które posłużyły do przeprowadzenia badań to: analizy literaturowe, obserwacje własne Autorki, badania in situ oraz analizy uzyskane w ramach autorskiego seminarium Sztuki piękne w przestrzeni publicznej.

THE PERCEPTION OF MURALS AND THEIR IMPACT ON SURROUNDINGS, PART I

THE PERCEPTION OF MURALS AND THEIR IMPACT ON SURROUNDINGS, PART II

Abstract

In recent years, we can observe a significant number of murals appearing in the space of Polish cities. They are important for the image of the city because, as a kind of plastic art, they fit into the mainstream of street art. They are usually large format wall paintings and as such have a huge impact on the perception of the space in which they are located. Not only the visual side of the mural is important, but also the message it carries. Street performers very often take the floor on important social and political issues. Their work is an original statement on a specific topic, so the views expressed in them, reaching many recipients, may constitute the nucleus of a broad public discourse. The importance of these activities for the space in which

they are created is crucial for its reception and functioning. Research was conducted in the form of questionnaires containing closed questions and open. Differences in the perception of the mural and their impact on the environment were investigated according to the sex and frequency of being in the vicinity of the examined painting. The aim of the study was to determine the attractiveness of the mural in the urban space depending, among others, on the frequency of staying in its surroundings. The study work discusses the results of research on the perception of selected murals on recipients. The research was conducted as part of the subject of Psychophysiology of Vision in the academic year 2020/2021. The information obtained may be a pretext for further research on the quality of human life environment and the reception of murals in space.

Streszczenie

W ostatnich latach można zaobserwować znaczącą ilość murali pojawiających się w przestrzeni polskich miast. Mają one istotne znaczenie dla wizerunku miasta bowiem jako rodzaj sztuki plastycznej wpisują się w nurt street artu, czyli sztuki ulicznej. Zazwyczaj są to wielkoformatowe malowidła ścienne i jako takie mają olbrzymi wpływ na postrzeganie przestrzeni, w której się znajdują. Znaczenie ma nie tylko strona wizualna muralu, ale także przekaz jaki w sobie niesie. Artyści uliczni bardzo często zabierają głos w istotnych sprawach społecznych i politycznych. Ich dzieła są autorską wypowiedzią na konkretny temat, więc wyrażane w nich poglądy, trafiając do wielu odbiorców mogą stanowić zalążek szerokiego dyskursu publicznego. Bardzo istotne jest także znaczenie, jakie te działania mają dla przestrzeni w której powstają, na jej odbiór i funkcjonowanie. Przeprowadzono badania w formie ankiet zawierających pytania zamknięte i otwarte. Badano różnice w postrzeganiu muralu i ich wpływu na otoczenie w zależności od płci i częstości przebywania w otoczeniu badanego malowidła. Celem badania było określenie atrakcyjności muralu w przestrzeni miejskiej w zależności od m.in. częstotliwości przebywania w jego otoczeniu. W opracowaniu omówiono wyniki badań dotyczące postrzegania wybranych murali na odbiorców. Badania przeprowadzono w ramach przedmiotu Psychofizjologia Widzenia w roku akademickim 2020/2021. Uzyskane informacje mogą stanowić pretekst do dalszych badań dotyczących jakości środowiska życia człowieka i odbioru murali w przestrzeni.

THE CITY – A CREATIVE SPACE / SELECTED CASES

Abstract

The city space is an area for articulation in the field of art and architecture, implying the creation of places of special importance to residents and creating a multilevel system of place identification. The aim of the study work is to draw attention to the role of artistic activities that deepen social sensitivity and identity, also in the marketing and economic aspect, based on the example of the city of Poznań. The whole discussion was set within the observational, heuristic method and a case study, confirming that urban space is a creative space.

Streszczenie

Przestrzeń miasta jest obszarem artykulacji w obszarze sztuki i architektury, zakładającym tworzenie miejsc o szczególnym znaczeniu dla mieszkańców i kreacją wielopoziomowego systemu identyfikacji miejsca. Celem opracowania jest zwrócenie uwagi na rolę działań artystycznych pogłębiających wrażliwość i tożsamość społeczną, także w aspekcie marketingowym i ekonomicznym, na przykładzie miasta Poznania. Całą dyskusję osadzono w ramach metody obserwacyjnej, heurystycznej i studium przypadku potwierdzającego, że przestrzeń miejska jest przestrzenią kreatywną.

STREET ART AND ART STREET DESI GN URBAN CONCEPT: IN SEARCH OF A NEW PLACE FOR ART IN THE CITY SPACE

Abstract

The purpose of this study is to discuss the presence of contemporary art in public spaces in cities and related dilemmas of social, functional, spatial, and economic nature. According to the authors, between the two main movements of urban art like *street art* and the still developing *art street design urban concept,* there is still room for a third path – intermedia animation involving the user directly when he or she uses the urban space.

Streszczenie

Celem opracowania jest omówienie obecności sztuki współczesnej w przestrzeni publicznej miast i związanych z nią dylematów o charakterze zarówno społecznym, funkcjonalnym, przestrzennym, jak i gospodarczym. Według autorów, pomiędzy

dwoma głównymi nurtami sztuki miejskiej, jakimi są Street art, a wciąż rozwijającą się koncepcja urbanistyczna Street designu, jest jeszcze miejsce na trzecią ścieżkę – animację intermedialną angażującą użytkownika bezpośrednio w korzystanie z przestrzeni miejskiej.

THE CREATIVITY OF VENETIAN ARCHITECTURE AND DESIGN IN THE 20TH CENTURY

Abstract

Venetian architecture in the 20th century is an original phenomenon in the art of shaping a space and continuing the centuries-old tradition of influence of the center, located on the lagoon, on other centers of Europe. The original projects were developed by outstanding Italian architects and world-famous artists, the winners of international architectural competitions also invited to Venice. The outstanding avant-garde solutions exceeding the limits of standard perception of the principles of shaping space were not realized due to (unjustified) fear of infringing the unique character of the city.

Streszczenie

Architektura wenecka w XX w. stanowi oryginalne zjawisko w sztuce kształtowania przestrzeni, kontynuując wielowiekową tradycję oddziaływania ośrodka położonego nad laguną na inne ośrodki Europy. Oryginalne projekty opracowane były przez wybitnych włoskich architektów oraz światowej sławy twórców — laureatów międzynarodowych konkursów architektonicznych; również zapraszanych do Wenecji. Wybitne awangardowe rozwiązania, przekraczające granicę standardowego postrzegania zasad kształtowania przestrzeni, nie zostały zrealizowane ze względu na (nieuzasadnioną) obawę o naruszenie unikalnego charakteru miasta.

BIOPHILIC DESIGN – A REMEDY FOR THE CHALLENGES OF THE MODERN WORLD?

Abstract

Humanity, despite its original, deep rooting in nature, has the ability to create in a highly urbanized environment, filled with synthetic materials and artifacts. This strongly "enclosed" environment can become both a creative stimulus and

a destructive obstacle. The rush of life, everyday struggles, and omnipresent consumerism are accompanied by notorious regret over the pace of the passing time. The events of 2020 "stopped the world" for a while, but did they cause the expected reflection on the real needs of our lives? The fact is that humanity loses its natural ties with nature, and hence it seems beneficial to popularize the idea of biophilic design, which emphasizes the benefits of the unique relationship between humans and nature. Nature's relationship with human performance, productivity, and well-being is very strong, and above all it affects creativity and an open mind. The aim of the article is to present the ideas and principles of biophilic design in the modern world, which is an interesting alternative to the universal pursuit of innovation. The author performs a comparative analysis of selected architectural objects and interior solutions designed in the spirit of biophilic design. The final conclusion of the considerations is the hypothesis that the 21st century brings the necessity to extend Vitruvius' triad with another rule: "coexistence with nature".

Streszczenie

Ludzkość, pomimo swojego oryginalnego, głębokiego zakorzenienia w naturze, ma zdolność tworzenia w silnie zurbanizowanym środowisku, wypełnionym syntetycznymi materiałami i artefaktami. To silnie „zamknięte” środowisko może stać się zarówno twórczym bodźcem, jak i destrukcyjną przeszkodą. Pędowi życia, codziennym zmaganiom i wszechobecnemu konsumpcjonizmowi towarzyszy notoryczny żal nad tempem upływającego czasu. Wydarzenia roku 2020 na chwilę „zatrzymały świat”, ale czy spowodowały oczekiwaną refleksję nad realnymi potrzebami naszego życia? Faktem jest, że ludzkość traci swoje naturalne związki z naturą, dlatego warto popularyzować ideę biophilic design, która podkreśla korzyści płynące z wyjątkowej relacji człowieka z naturą. Związek natury z wydajnością człowieka, produktywnością i samopoczuciem jest bardzo silny, a przede wszystkim wpływa na kreatywność i otwarty umysł. Celem opracowania jest przedstawienie idei i zasad projektowania biofilnego we współczesnym świecie, będącego ciekawą alternatywą dla uniwersalnego dążenia do innowacji. Autorka dokonuje analizy porównawczej wybranych obiektów architektonicznych i rozwiązań wnętrz zaprojektowanych w duchu biophilic design. Końcowym wnioskiem z rozważań jest hipoteza, że XXI wiek niesie ze sobą konieczność rozszerzenia triady Witruwiusza o kolejną zasadę: „współistnienie z naturą”.

BIONIC PATTERNS IN SEARCH OF ANALYTICAL MODELS TO BUILD STRUCTURAL FORMS OF EPHEMERAL ARCHITECTURAL OBJECTS

Abstract

Architecture is a science, as evident in the change in design. Natural modelling processes characterise the 21st century, and bionics become an inspiration in the creative search for contemporary architecture. Experimental modelling and algorithms to describe structures and evolutionary processes make it possible to optimise materials, such as minimising the use of building materials in Nature. Integrating architecture with biology or material engineering in objects with homogeneous functions allows for supporting structures and digital fabrication efficiency. This study work presents results from the conducted, selected research, implementing biomorphic algorithms for searching optimal rod structures in the architecture of temporary pavilion objects. The article aims to identify contemporary technological inspirations for the art of form-finding in the logic of imitation of forms visible in nature.

Streszczenie

Architektura jest nauką, widoczne jest to w zmianie sposobu projektowania. XXI wiek charakteryzuje się wzorowaniem procesami zachodzącymi w naturze, a bionika staje się inspiracją w poszukiwaniach twórczych współczesnej architektury. Doświadczalne modelowanie i aplikowanie algorytmów jako próba opisywania struktur oraz procesów ewolucyjnych umożliwia przede wszystkim optymalizację materiałową, na wzór minimalizacji zużycia budulca w naturze. Integracja architektury z biologią czy inżynierią materiałową w obiektach o jednorodnych funkcjach pozwala na efektywność struktur nośnych, a także zautomatyzowaną fabrykację. W opracowaniu przedstawiono wyniki z przeprowadzonych, wybranych badań, implementacji algorytmów biomorficznych do poszukiwania optymalnych struktur prętowych w architekturze tymczasowych obiektów pawilonowych. Celem opracowania jest identyfikacja współczesnych inspiracji technologicznych do sztuki kształtowania przestrzeni, w logice naśladowania form, widocznych w przyrodzie.

CONCRETE ARCHITECTURE WORKSHOPS FOR STUDENTS AS A WAY TO PROJECT-BASED LEARNING

Abstract

The author tries to describe a modification of the teaching approach during workshops conducted at the Faculty of Architecture at Cracow University of Technology. One of the reasons for the change was to improve the quality of education. During the development of projects, students usually use theoretical knowledge found in books and copy designs from architects. A lack of realism or understanding of concrete technology has been noticed. The change in the organisation of the workshops described in the study consisted of introducing project realization as a successive stage in teaching. The students were to make a concrete throne. The primary objective was the transition from theoretical to practical teaching. The change forced participants to take a different and more creative approach to designing a small architectural work and to use a specific material. The transformation of the theme enabled them to acquire new skills other than those in paper-based academic works.

Streszczenie

Autor stara się opisać modyfikację podejścia dydaktycznego podczas warsztatów prowadzonych na Wydziale Architektury Politechniki Krakowskiej. Jednym z powodów zmiany była poprawa jakości edukacji. Podczas opracowywania projektów studenci zwykle wykorzystują wiedzę teoretyczną znalezioną w książkach i kopie projektów architektonicznych. Zauważono brak realizmu i zrozumienia dla technologii betonu. Opisana w badaniu zmiana organizacji warsztatów polegała na wprowadzeniu realizacji projektu jako kolejnego etapu nauczania. Uczniowie mieli wykonać betonowy tron. Głównym celem było przejście od nauczania teoretycznego do praktycznego. Zmiana zmusiła uczestników do innego, bardziej kreatywnego podejścia do projektowania dzieła małej architektury i wykorzystania określonego materiału. Przekształcenie tematu umożliwiło im zdobycie nowych umiejętności, innych niż te w papierowych pracach akademickich.

STUDENT COMPETITION SUPPORTED BY LECTURES FROM CONCRETE TECHNOLOGY EXPERTS AS A MULTI-FACETED TEACHING METHOD

Abstract

The study work aims to present a teaching method introduced in the design task for second-year undergraduate students in the Department of Architectural Composition at Cracow University of Technology in the form of a competition entitled '*Concrete Architecture – Play of Solids – House in the Landscape*' co-organised with the Association of Cement Producers. Over the years of competition, it has been noticed that aspects related to the matter and technology of concrete pose great difficulty to the students. To equip students with the tools to understand concrete architecture, lectures given by experts in concrete technology and contracting have been organised to familiarise them with actual issues related to architectural concrete technology, both in purely theoretical and primarily practical terms. The method introduced has resulted in increased student awareness of this technology, an increase in the technical level of competition entries, and a creative approach to designing concrete matter.

Streszczenie

Praca studyjna ma na celu przedstawienie metody dydaktycznej wprowadzonej dla studentów II roku, w zadaniu projektowym realizowanym w Katedrze Projektowania Architektonicznego Politechniki Krakowskiej w formie konkursu „Architektura betonowa – Gra brył – Dom w krajobrazie", współorganizowanym ze Stowarzyszeniem Producentów Cementu. Przez lata realizacji cyklicznego konkursu zauważono, że aspekty związane z materią i technologią betonu sprawiają studentom duże trudności. Aby wyposażyć studentów w narzędzia do rozumienia architektury betonowej zorganizowano wykłady prowadzone przez specjalistów technologii betonu i wykonawstwa, mające na celu zapoznanie ich z aktualnymi zagadnieniami związanymi z technologią betonu architektonicznego, zarówno w ujęciu czysto teoretycznym, jak i przede wszystkim praktycznym. Wprowadzona metoda zaowocowała wzrostem świadomości studentów na temat tej technologii, podniesieniem poziomu technicznego prac konkursowych oraz kreatywnym podejściem do projektowania materii betonowej.

THE REESTHETICS OF FUNERAL DESIGN IN DESIGN SPACES

Abstract

The study work deals with the issues of design, interior architecture and spaces where the topic of funeral design is marginalized. The role of aesthetic education should be emphasized not only at the academic level but also in the broadly understood social scope. The subject of funeral aesthetics has been deprecated and taboo over the years. This is directly related to the lack of consent for mourning. The omnipresent kitsch flooding the market related to the funeral industry and the lack of awareness of the recipients prompted us to conduct research in this field and indicate possible solutions that may become a pretext for further design searches. The context of the interior in which we experience difficult moments in relation to the environment and the design of elements closely related to this issue has a significant impact on our psychophysiology of sensations. A well-designed space can significantly minimize stress without increasing the feeling of loss and confusion. The research is based on the author's own design activities in funeral spaces and on the conceptual projects of students from the Faculty of Architecture who implemented a program in the field of interior design.

Streszczenie

Opracowanie odnosi się do zagadnień wzornictwa, architektury wnętrz oraz przestrzeni, w których marginalizowany jest temat designu funeralnego. Należy podkreślić rolę edukacji estetycznej nie tylko na poziomie akademickim ale również w szeroko-pojętym zakresie społecznym. Tematyka estetyki funeralnej była przez lata deprecjonowana i tabuizowana. Związane jest to bezpośrednio z brakiem przyzwolenia na przeżywanie żałoby. Wszechobecny kicz, zalewający rynek związany z przemysłem funeralnym oraz brak świadomości odbiorców skłoniły do przeprowadzenia badań z tego zakresu oraz wskazania możliwych rozwiązań, które mogą stać się pretekstem do dalszych poszukiwań projektowych. Kontekst wnętrz, w których przychodzi nam przeżywać trudne chwile w odniesieniu do otoczenia oraz wzornictwa elementów ściśle związanych z tym zagadnieniem ma istotny wpływ na naszą psychofizjologię doznań. Dobrze zaprojektowana przestrzeń może w znaczącym stopniu zminimalizować stres bez potęgowania uczucia straty i zagubienia. Badania oparte są na własnych działaniach projektowych w przestrzeniach funeralnych oraz na projektach koncepcyjnych studentów Wydziału Architektury realizujących program z zakresu projektowania architektury wnętrz.

WYDAWNICTWO POLITECHNIKI ŚLĄSKIEJ
ul. Akademicka 5, 44-100 Gliwice
tel. (32) 237-13-81, faks (32) 237-15-02
www.wydawnictwopolitechniki.pl

UIW 48600

Sprzedaż i Marketing
tel. (32) 237-28-48
wydawnictwo_mark@polsl.pl

Sprawy wydawnicze
tel. (32) 237-13-81

Ark. wyd. 10,5

---

e-wydanie
Monografia

ISBN 978-83-7880-843-5
Monografia 939

Wydawnictwo Politechniki Śląskiej
44-100 Gliwice, ul. Akademicka 5
tel.(32) 237-13-81, faks (32) 237-15-02
www.wydawnictwopolitechniki.pl
Dział Sprzedaży i Reklamy
tel.(32) 237-18-48
e-mail: wydawnictwo_mark@polsl.pl