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photo. Beata Gibała-Kapecka

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Iwona Kalenik, PhD
Academy of Fine Arts in Warsaw

FRAMEWORK OF PLACES

Review paper

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Abstract

A wall, an inner wall, a fence: elements that are between the inside and the outside, often seen on plans as linear elements with a protective force, are nevertheless zones that crown and frame the work, i.e. the designed space. Properly designed, with a tangible thickness, they can stratify and become on their own spaces of recesses, niches, hollows and even corridors or passages. Solid, thick and heavy or, on the contrary, light, openwork and filled with air, they frame the interiors of buildings and the urban space. They operate bi-directionally, although they belong to a single object. They speak of the interiority and exteriority of an architectural object at the same time. On a plan and in a large scale they are perceived as boundaries, barriers, but in closer perspective and deeper understanding they can become soft edges enclosing the delicate matter of a building or a part of a city. The article deals with the theme of edges and verges in the context of the architecture of buildings and the city, the issues of the framework of parts of urban space. In relation to both buildings and city districts, they appear to be important spatial elements, yet which are often treated with insufficient attention. The article considers several examples of urban frameworks to illustrate their role in creating places.

Keywords

urban architecture, public space, edge, boundary, place, experiencing architectural space, feeling architecture

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Introduction

The concept of place, defined and described by many authors, refers to the relationship between space and experience. Space itself is not yet a place, because it is only when it is individualised, considered in the context of events, objects, actions, individual, specific features that it acquires an identity. This is one of the reasons why the architectural discourse uses the notion of identity of place rather than the identity of space. The space seems infinite, boundless. In order to become more specific, it needs to be specified in terms of location or function. We are talking about urban space, space of a square or gallery interior. A place, on the other hand, demands at most an addition related to the language of meanings or events: a place of remembrance, a meeting place, etc., and it is framed by a specific material and immaterial framework. I study the issues of frames, edges, verges in the context of architecture and places.

It is not difficult to see that modern cities suffer from a shortage of places. The language of describing the cities is dominated by spaces: urban, public, social ones. It is very noticeable how the modernist paradigm of flowing, limitless space, combined with radical functionalism, have left their mark on cities, filling large areas with blocks of separate buildings. By attempting to create geometric compositions from separate elements, many cities have been deprived of continuity; moreover, a kind of sense of disorientation and anxiety appeared, backed by the question "Where am I actually?". Functional ideas proved difficult when confronted "with the persistent opacity of the form of a place (...). The place 'resisted' the construction of modernity and comfort, and in the 'light', it revealed its 'ugliness', because, deprived of decoration, it gained nothing in return,"[1] writes Jacek Dominiczak, who also draws attention to the fact that the historical European city is an undeniable phenomenon of Western culture, its image and atmosphere attracting not only tourists[2]. It is a city with a clear spatial framework: edges, boundaries, both in terms of buildings and small areas, neighbourhoods. Their form seems to have a significant impact on the identity of places and cities, and is often treated with insufficient attention. A wall, an inner wall, a façade, a fence are elements with the power to protect; they crown and frame the designed space considered as a work. In their thickness they can stratify and become a space on their own.

Borders

When I look at objects, especially the utilitarian ones, the closest ones, like a chair, a cup or a tablecloth, I carefully study the way their edges are finished: the outer surfaces and the borders. Then, I engage all my senses: I look and touch, I sometimes sniff. In the case of larger objects, such as a building: a house or a tenement, or larger city areas, such as urban quarters, housing estates or districts,

1 J.Dominiczak, *Miasto dialogiczne i inne teksty rozproszone*, Gdańsk, 2016, p. 49
2 J.Dominiczak, p. 125

details seem to lose their importance and the sensory perception is limited to the sight. However, these are the details of the edges, the surfaces of walls and masonry, their geometries and tectonics, and their material qualities that play a huge role in shaping the character and identity of places. These elements work bi-directionally: they are the 'edging' of the object and at the same time they imprint their form on the empty space. They create a framework for the surrounding air masses, both in the closed interior and in the open space of streets and squares. Their qualities influence whether events, situations, experiences and feelings occur between them, and consequently whether the places so produced gain a timeless character[3].

Kevin Lynch in the book *The Image of the City* introduces and describes the five main elements that make up the title image of the city. He mentions edges on the second place and devotes a large part of the book to them, trying to define and describe what they actually are and what role they play in creating the image of the city. Lynch defines edges as linear elements that are not treated as roads and are usually, but not always, boundaries between two kinds of areas[4]. He describes the types of spatial edges and the strength of their impact on urban space: in this case, the space of several mid-20th-century American cities, which certainly contributes to the timeliness of his considerations. He uses many terms to describe different types of edges, including: boundary, break in continuity, barrier, wall, edge and even seam. In doing so, he reveals the diverse nature of edges, which are important organising features for people, especially when they tie together more general areas, as inside a city encircled by water or a wall[5]. The edge, however, is, in my opinion, a concept that rather refers and belongs to the object. We are talking about the edge of a pavement or the edge of a table. An edge, therefore, is related more to the mass of a solid or a surface, something tangible, material. We think of the edge of land, the edge of a rock, the edge of a roof, something specific, with a clear shape, behind which there may already be 'nothing', an undefined mass of air.

The same applies to the border that can be the verge of something. Unlike an edge, however, a border certainly **separates** two areas; it is a kind of contact between them, a strip of a certain width, a field of meeting or a line of demarcation. A border is a kind of fill in between, a stitching combining together two urban textures. It is the border that would be much closer to the concept of a seam. An edge is always part of an object, not an area that extends beyond its form. Due to their morphology and their importance in the urban space, these are separate elements. So, when Lynch extends the notion of edge to the meaning of boundary, he introduces a kind of imprecision.

3 S.Z. Sosak, *W poszukiwaniu scen, których nie widać*, „Rzut. Kwartalnik Architektoniczny", 5 (2014), pp.38-44.
4 K. Lynch, *Obraz miasta*, transl. T. Jeleński, Kraków 2011, p. 72.
5 K. Lynch, *Obraz miasta*, p. 54.

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Frames

However, elsewhere in his book, Lynch formulates an idea that seems to define edges as we intuitively sense them. According to him, an edge can be more than simply an exposed barrier if it allows some kind of physical or visual penetration; if, to a certain depth, it is somehow built into the region on either side[6].

This idea seems to contain the essence of edge considered as an extreme part of an object or area, something that is 'built into the region'. The edge is thus an element that closes the extent of the area: another element of the city image, which, at the same time, imprints its 'pattern' on the neighbouring area. Lynch cites examples of very distinct edges: the frontage of tall buildings by the Central Park, the waterfront on a seaside boulevard, the wall of a medieval city. Urban edges defined in this way are like the frames of paintings hanging in a gallery. They belong to a region or an object, they are its integral finish. They also play a role in emphasising the importance of what they are the edge of, like the hem of a tablecloth emphasising its form, its material, but also marking the edge as an essential part of the whole to which attention is due. In the architectural and urban contexts, edges are perceptible from the outside and convey a kind of message that we are entering a different space. Their role is therefore extremely important: they can be barriers or they can have a permeating, binding character.

From the historic perspective, urban edges originally had a primarily functional character, manifested in the form of defensive walls. The conscious design of edges as a compositional element of urban complexes, based on the notion of beauty, only appeared in the periods of Renaissance and Baroque. Later, in the 19th-century, fast-growing cities, the inner-city edges, such as street frontages or developments at the junction with park layouts, were consciously composed to create areas with a high degree of local identity, carefully separating public and private spaces and enhancing residential values[7].

Edges of Venice

Venice, a city at the crossroads of Europe's trade and cultural routes, has never been enclosed by walls. The protective function was for centuries provided by the lagoon, leaving the town open and visible from afar. It is thus difficult to clearly define what constitutes the edges of the city: it is at the same time surrounded and permeated by water, which in its vast part constitutes a kind of street floor and a component of the urban interior system. The walls of the buildings, well anchored to the ground of the lagoon, are the endless edges of the city, separating the inner from the outer. The multi-layered façades thus highlight the role of walls as a frame that acts bi-directionally: towards private spaces

6 K. Lynch, *Obraz miasta*, p. 116.
7 Z. Paszkowski, *Mieszkać na krawędzi*, „Czasopismo Techniczne", z. 3-A (2007), pp. 203-214.

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and towards public spaces. Carved, stratified, enriched with loggias, arcades, staircases, overhangs and full of ornamental details, they are like hand-embroidered edges of collars or ball gowns.

Fig. 1. Venice, photo: Iwona Kalenik.

As written by Christopher Alexander, a building with a living edge is connected to its surroundings, makes an integral part of the social fabric of the city, a component of the life of every person who lives or passes nearby[8]. Alexander even postulates treating the edge of a building as a separate entity, a place that has a definite volume and is not just a line devoid of thickness or a surface of contact between different interactions[9].

Interior of the interior

Edges can be defined, described and designed as an element equal with others, play a significant role in building the continuity of a city and in strengthening the identity of its different areas. The city districts: smaller areas organised "from the inside" and having their own character, framed by edges, become individual interior systems of streets and squares. They somehow are interiors inside the city. An urban park or garden surrounded by an elegant fence with a main entrance in the form of a magnificent gate and several side gates seems to gain in uniqueness. We truly **enter** the park. We are inside the garden space enclosed by the openwork fence and we feel its separate character. The wrought-iron fence or an open-work wall act as its frame or edge, emphasising the uniqueness of the place of which they are a part. The park is here and the street is there. Similarly, the wall of the university campus

8 Ch. Alexander, *Język wzorców. Miasta, budynki, konstrukcja,* transl. A. Kaczanowska, K. Maliszewska, M. Trzebiatowska, Gdańsk 2008, p. 764.
9 Ch. Alexander, *Język wzorców. Miasta, budynki, konstrukcja*, p. 765.

in the city centre seems to say to the passer-by that a different space begins here, and that passing through the tall stately gate leads into a world of different experiences. The public interiors of the university created by the walls present inside the public interiors of the city have their own character, often a different spatial layout and atmosphere. These are examples of very clear, visible frameworks enclosing, but not isolating, a small urban part.

The frontage of the Myśliwiecka Street in Warsaw is an interesting edge of the inner-city area: it is the border between the park and a small complex of eighteen single-family houses known as Kolonia Profesorska. The detached houses and their connecting fences form a coherent continuous wall surface along the surrounding streets, in which entrances to private gardens, niches, entrance recesses, hollows and small details such as openings for letterboxes or bells can be found. In some places there are hollows in the walls, so that the curious passer-by could look inside the complex of buildings. There is no doubt that we are walking along the edge of a very individualised place. What is more, at one point, between two buildings, the frontage somehow opens up to make room for a wrought-iron gate opening onto a long staircase: a passageway through the colony, bearing the name Profesorska Street. We are inside the colony: on the nameless squares, courtyards and micro-scale streets. Undoubtedly, the strong articulation of edges in this neighbourhood underlines its specificity and unique architectural identity.

Fig. 2. Warsaw, photo: Iwona Kalenik.

Let me now refer to an example of a completely different nature: the fencing of the redevelopment area of a large section of the city, observed a few years ago in Berlin. The thin fence, made of tin segments, had an explicitly protective role: it did not allow a random person to enter the construction site. However, its outer surface was covered with careful printing: information aimed at residents, and several of its bays had a kind of “portholes” through which the progress of the works could be seen. The thin tin “wall” was not a mute barrier. It was designed to be an integral, important part of the construction site. However, its purely functional role was supplemented by the possibility of

influencing the experiences of residents. As a result, the ordinary place of a construction site became a kind of event.

Bi-directionality

In 1952 the Italian architect Luigi Moretti wrote an essay ”Structures and Sequences of Spaces” in which he proposed to read the space of several architectural objects by means of plaster models of their “air masses”, i.e. negatives of space. By removing the visible forms of the objects and turning the void into a sculptural solid, he enabled the precise perception of the shape of the models’ inner space as if from the outside. This measure also allowed to see the ‘surface’ of invisible air filling the objects and the important role of the wall in creating the shape of the space. I relate this experiment consecrated to the architectural interior to the urban space. The tradition of architecture defined as interior is based on the assumption that a building is not seen as an external form, but as the outer surface of an interior space. This is a particularly interesting approach in relation to the city space, as it allows us to understand the role of edges as a framework for city fragments, but also, in the architectural context, as a framework that captures the space of buildings. The wall of a building both defines the space inside and shapes the space outside. In combination with the surface of the street floor and the conventionally adopted air ceiling, it forms a public urban interior. It therefore works in two directions: into the private space and into the public space. It separates and connects different areas, while defining their spatial shape.

Unusual spatial situations demonstrating the power of the edges of buildings can be encountered in the streets of Rome when passing the open gate of a church. In the street frontage, from the level of the human eye, they are sometimes unnoticeable, inscribing themselves into the rhythm of the tenement houses. However, an attentive passer-by will notice a façade rich in ornamentation or a slight change in the geometry of the street, which at this point can become a tiny square. The interior of the church reveals its presence with a cool breeze from the inside of the temple. The thick, sculpted wall hides behind it a public, but unique, different space. Treated as a sculptural mass that allows the creation of niches, hollows, cornices, recesses and openings, it becomes a two-sided form, a space in itself, a field of negotiation between the interior and the exterior.

In the case of the thin, completely transparent glass façade of an office building in the centre of a large city, this kind of negotiation will not occur. The glass is a thin line raised to the third dimension, seemingly demarcating spaces. Seemingly, because these spaces are visually interpenetrating. In the evening, this invisible hard barrier cuts off the interior light from the darkness of the street with a strong cut of glass. The edge serves here as a finely honed blade. However, it has no power of moulding or imprinting. It is an unambiguous, strong but silent gesture to mark the belonging of the area.

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Layering

It is not necessary, however, to build a thick solid wall in order to separate and emphasise the individual character of the two meeting spaces and to give shape to each of them. In the Japanese tradition, which values dimness, the walls of traditional buildings are constructed of many thin layers of wood and paper. As explained by Jun'ichiro Tanizaki in his *In Praise of Shadows*, the simplicity of the Japanese house astonishes the Westerners, who feel they are seeing bare grey walls without any embellishment. According to Tanizaki this is understandable and results from the fact that they cannot penetrate the mystery of twilight[10]. Here the ornament consists of a blip of light, a moving shadow on the wall or floor. The moving and overlapping *shoji* walls create the layers necessary to filter the light and thus emphasise the uniqueness of the twilight present in the given interior. And what frames the interior is another layer made of verandas, corridors, arcades or partitions of varying permeability. They emphasise the uniqueness of the spaces they separate, while at the same time being spaces on their own.

The layers of the building's façade thus allow for the construction of a peculiar dramaturgy of experiencing the separated but in a way interpenetrating spaces of the interior and the exterior, as well as the space of this separation itself. In one of the streets of Braga (Portugal), you can find a house the wooden façade ow which, decorated with plaiting, is a kind of spectacle of opening and closing. Made up of dozens of small shutters, the surface is superimposed at a certain distance on the actual wall of the building, making its edge an additional space with the permeability depending on the weather conditions, the light intensity or the different needs of the inhabitants of the house. It is them who decide how this edge of the building will look, how much it will reveal, how much it will allow passers-by to see. The interior of the street and the interior of the house intermingle in a controlled, variable way. The edge of this extraordinary building offers the possibility of creating countless combinations of openings and closings, filtering image, light, sound through its stratified structure.

10 J. Tanizaki, *Pochwała cienia*, transl. H.Lipszyc, Kraków 2016, p. 39.

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Fig. 3. Braga, photo: Iwona Kalenik.

Carlo Scarpa, an Italian architect and professor at the School of Architecture in Venice, who attached great importance to details, combinations, and choice of materials, looked with sensitivity at the problem of departing from the materiality of late 20th-century architecture, noting that the sense of space is not communicated by pictorial order, but always by physical phenomena, that is, by the matter, the sense of mass, the weight of the wall[11]. The carefully planned architectural elements, the sequences of thoughtful spaces of his buildings are an extremely nuanced theatre on the scale of the room and the building they frame[12]. According to Scarpa, spatial relationships are created above all by all the openings, crevices, niches, folds, small architectural gestures in the mass of walls and therefore in the area of the edges of buildings. In the spaces of buildings, children's playgrounds and public spaces he designed, this idea is very clearly visible.

When we find ourselves in the urban interiors of Venice, we very quickly feel and understand the validity of these observations. The outer surfaces of the walls of the buildings, but also the floors, are a kind of reliefs imprinting their patterns on the interiors of canals, passages, small streets or squares, courts and courtyards. It is perhaps thanks to these nuanced façade forms that we have the feeling of being in an unusual space.

11 C. Scarpa, *Furnishings*, [in:] *Carlo Scarpa. Complete works*, ed. F. Dal Co, G. Mazzariol, London 1986, p. 282.
12 M.A. Steane, *The Architecture of Light. Recent Approaches to Designing with Natural Light*, Abingdon 2011, p. 57.

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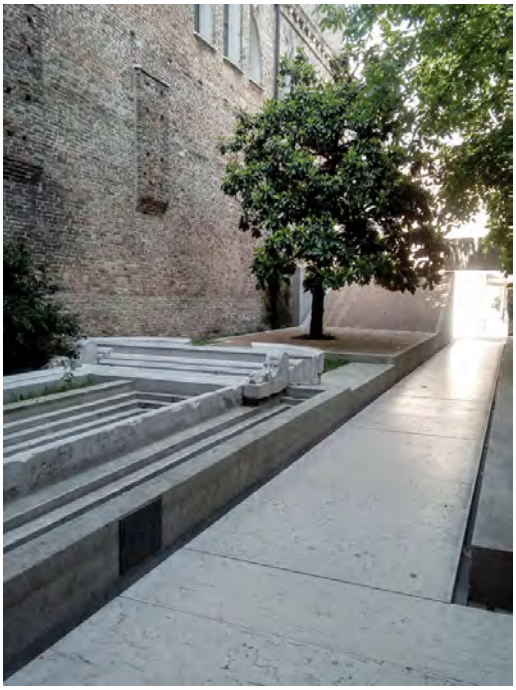

Fig. 4. Venice, photo: Iwona Kalenik.

Experiencing the edge

Robert McCarter writes about the vitally important experience of the interior as the source of the experience of architecture in general. Analysing various views, statements and texts on architecture, he proves that in the embodied experience of the interior, the space literally surrounds us with its mass, engaging all the senses and creating a feeling of haptic intimacy and closeness. It is precisely the tectonics of the surfaces of the walls, which McCarter considers to be the key to creating experiences. He thus comes closer to a purely spatial concept, in which walls are no longer seen as structural elements, but are given a void-forming role. As written by Robert McCarter in his book *The space within. Interior experience as the origin of architecture*, the relationship between inside and outside is complemented by the relationship between the solid and the void, in which the shape of the void is entirely dependent on the solid: the shape of the mass. The space receives its shape and therefore its visibility as a result of its relationship with the wall. The space emerges when the walls are established[13]. This professional architect and educator takes a deeper look at architecture, focusing its definition around the tradition of building and place-making, while leaving style and aesthetics aside. He considers that in this sense, architecture is much less interested in what a building looks like and

13 R. McCarter, *The Space Within. Interior Experience as the Origin of Architecture*, London 2016, p. 74.

much more interested in how its spaces are organised, how they are constructed and how they affect the experience of the residents[14].

Interestingly, he devotes much space in his reflections to boundaries understood as frames, forms of a definite mass being "in between". However, he does not use the concept of an edge, but of a boundary treated as an area and relates it to walls, which brings him closer to treating the walls as separate spatial creations similar to Christopher Alexander.

In the context of place, Tim Ingold's concept seems very interesting. He visualises the world and the human in it as a mutual entanglement, intertwining. According to him, we may be embodied, but our bodies are not limited or closed; they rather expand, grow in many directions along paths of entanglement in the fabric of the world[15].

Strongly contesting the concept of place as an area defined by form and meaning, characterised by some kind of a "middle", Ingold leans towards the idea that places rather happen, appear, they are the result of a continuous "weaving" of space. Here Ingold touches upon the question of continuity of space and its layering, a kind of palimpsest that happens in the urban space every day. He gets close to the idea that architecture is a kind of process, a sequence of experiences, which is only framed in material terms. Such a perspective is far from the purely visual, aesthetising and essentially passive perception of the surrounding reality so commonly present in the contemporary design.

> Architecture is less and less a response to the life processes occurring within it. This has led to a situation where the surrounding space is neutral and inert as it does not receive or generate life[16].

It seems that the contemporary city needs to return to a gradual build-up, to the construction of scenes of life, framed by clear frames: walls, inner walls that contain a kind of relief, an imprint of the space they form. This can be supported by attaching more attention to designing the edges in such a way that they become carriers of the identity of the place the verges of which they form, as well as by stitching together disconnected areas and finding a framework for the zone **in between** by giving the edges appropriate forms and meanings.

14 Sam Fox School of Design & Visual Arts, Washington University in St.Luis: https://samfoxschool.wustl.edu/people/faculty/169-robert-mc-carter [accessed: 01/03/2022].
15 T. Ingold, *Splatać otwarty świat*, transl. E. Klekot, D. Wąsik, Kraków 2018, p. 93.
16 S.Z. Sosak, *W poszukiwaniu scen, których nie widać*, p. 39.

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The additional inner parenthesis [] in the bibliographic entry contains the year of the first issue, which allows you to get a better idea of the period from which the text originated.

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Joanna Łapińska, PhD
Academy of Fine Arts in Kraków

THREE LANDSCAPE-INSPIRED IMAGINARY SPACES. FROM THE SERIES *FOUND IN THE LANDSCAPE*

Art research paper

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Abstract

The article is a continuation of a series presenting the results of scientific and artistic research on the reading of spaces perceived in nature. The theoretical considerations expounded in the previous issues have been transferred to creative activities: interior design incorporating the principles of biophilia, which resulted from the application of three methods of intertextual interpretation of nature: imitation of the form (alluding to the external appearance), mimicking of the principle of operation, and negation (alluding to immanent features of the object of inspiration and undermining them at the same time). A design path encompassing various artistic means is presented. The spaces found in the landscape are installations that can become the basis for the design of residential and utility interior architecture.

Keywords

interior architecture, landscape, installation, biophilia, intertextuality

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Introduction

> ...it is a more worthy thing to imitate the works of nature, which are the true images embodied in reality, than to imitate the actions and the words of men[1].

Nature as a source of inspiration is like an inexhaustible well, with water constantly flowing in. However, it is never the same water as Heraclitus wrote, back in his time. A human work is constant by its very nature, and it the action of the environment (light, humidity) exposes it to transformations. Therefore, the search for inspiration in the landscape leads to original solutions in each case.

> … Truly this science [painting] is a legitimate daughter of nature, for painting is born of nature. Or to put it more correctly, let us say that painting is the granddaughter of nature, for all manifest things are born of nature, and among these is painting. We can rightly call painting the granddaughter of nature and the close relative to God[2].

In these words, which elevate painting from nature, Leonardo da Vinci referred to Thomas Aquinas's idea concerning the properties of the Holy Trinity, in which the philosopher, following St Augustine, attributes "beauty" to the Son of God. Today, we can say that not only painting, but also other means of expression, including architecture, imitate the divine nature, thanks to which they can be qualified, after Dion of Prusa (called Chrysostom – Golden-Mouthed) as a source of the concept of deity in humans3.

The architectural projects which I described in earlier issues of „inAW Journal. Multidisciplinary Academic Magazine" often serve as places of worship and pilgrimage. Inspiration in nature makes them more accessible to the public, easier to assimilate, more comprehensible. They come from the well-known world of nature, they are a translation of its section into a different – human language.

Japanese architects' works, mentioned in issue 3, originated from the use of three methods of interpretation of nature: imitation of the form (alluding to the external appearance), mimicking of the principle of operation, and negation (alluding to immanent features of the object of inspiration and undermining them at the same time). These methods became the basis for the creation of three authorial concept designs which are described below, supplemented with digital and drawing forms of recording ideas, as well as photographs of sketch models.

1 L. da Vinci, *Traktat o malarstwie*, [in:] *Myśliciele, kronikarze i artyści o sztuce. Od starożytności do 1500 roku*, ed. J. Białostocki, Gdańsk 2001, p. 424.
2 L. da Vinci, *Traktat o malarstwie*, p. 423.
3 W. Tatarkiewicz, *Historia estetyki*, vol. 1: *Estetyka starożytna,* Warszawa 2009, p. 335.

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Imitation of the form. Decayed wood

[…]
Everything here is small, near, accessible.
I can press volcanoes with my fingertip,
stroke the poles without thick mittens,
I can with a single glance
encompass every desert

with the river lying just beside it [...][4].

The description of the map, poetically phrased by Wisława Szymborska, is very close to my way of reading the spaces recorded in photographs. Here, too, lines can change into rivers, planes into plazas, stones into mountains and houses; a moment later, the same signs become paths, floors, tables, and wardrobes. It all depends on the adopted scale, which is not specified, as in the case of maps. There is no top-down limitation for imaginary spaces. They reveal themselves along with the desire for a new place, the sensing of the desired configuration of solids, materials, and light.

Fig. 1. Sketches of an interior inspired by decayed wood, 2022, J. Łapińska.

4 W. Szymborska, *Mapa*, [in:] *Wybór poezji*, Wrocław 2019, pp. 459–460. [English translation by Clare Cavanagh and Stanisław Barańczak, in: Wisława Szymborska, Poems, New and Collected, Faber & Faber, London 1999 – transl].

Two lumps of decayed wood separated by a carpet of dense moss created a composition that arouses many associations. On a macro scale, they could be two buildings that let in light in different ways, or a residential house with the façade obscured by the horizontal rhythm of the blinds and a gazebo covered with vertical slats. On a micro scale, the gazebo turned into a coffee table, while the other piece became a seat. The final version was situated somewhere in between. The triangular block is a mezzanine that can be reduced – in the case of the lower interior – to a light installation suspended under the ceiling. Oak boards, untreated, with the bark left on them, are connected with a black steel structure which goes down to the floor in the form of columns. Covering the boards with a glass pane from the top allows us to appreciate the beauty of the material while maintaining the comfort of its use; in addition, it lets light through in the vertical plane. The other block was interpreted as a cover-up of unwanted space, e.g., a bathroom or a kitchen. The horizontal strips of boards with bark left on them allow the light to flow while maintaining the privacy of the user of the unwanted space. This block can also become a bookcase separating two zones. Green moss was interpreted as a carpet in an unusual, irregular shape. A wooden bench was placed on it, introducing the impression of movement into the composition. The floor could be made of glass – for bolder users – with natural pebbles placed underneath, but light grey polished granite will also work. The walls and ceiling are in off-white. The linear illumination integrated in the mezzanine, between the boards, is directed downwards. The upper space above the mezzanine is illuminated by a standing lamp with a shade made of fabric in the same colour as the carpet.

Contrasts of materials are the main feature of this space. The roughness and imperfection of the rhythmically laid untreated oak boards with bark, referring to the delamination of decayed wood, contrast with the softness (in terms of both material and shape) of the carpet, laid on a perfectly smooth floor. Kengo Kuma used boards of this type in the construction of the Mont Blanc base camp. There, this material is treated as a vertical rhythm obscuring the glass façade: integrating the building with its surroundings and limiting the flow of light into the interior. In my design, the boards filter the light as well; however, they are the basic formal and sensual element that builds up the atmosphere of the interior. The slits left between them allow light to flow in both directions, with a significant width of the boards ensuring privacy and preventing the space from being overlit. Kengo Kuma obtained a similar effect, although in a more geometric way, at the Stone Museum in Nasu (Tochigi, Japan). There, the light gets in through evenly distributed slits in the blind-like structure of a stone wall.

Fig. 2. To the left, the interior of the Stone Museum in Nasu (Tochigi, Japan) designed by Kengo Kuma, photo by Peppe Maisto, https://divisare.com/projects/105503-kengo-kuma-and-associates-peppe-maisto-stone-museum [accessed 25 February 2022]. To the right, the space between the glass façade and the cover-up made of planks in the Mont Blanc base camp, according to the design by Kengo Kuma, photo Michel Denancé, https://divisare.com/projects/315751-kengo-kuma-and-associates-michel-denance-mont-blanc-base-camp [accessed 25 February 2022].

The materials used in the project inspired by decayed wood are natural and create a warm, relaxing atmosphere characteristic of the forest environment. The dynamic system of biomorphic bodies and rhythms brings movement into the interior, ensuring a sense of simultaneous complexity and order. The mezzanine lowers the ceiling and sections off a more intimate zone, responding to the need for shelter. The rhythmical arrangement of the boards, letting in the light and painting the shadow lines, introduces an atmosphere of mystery. Nevertheless, thanks to the direct translation of the space noticed in the landscape into the architectural language, it seems less complicated, easier to perceive.

Mimicking the principle of operation. Bystra Brook

[…]

You have saved houses from fire, you have carried off

houses and trees, forests and towns alike.

[…]

Gnawing stone, feeding rainbows,

In the sweat and the dew of the pyramids and lilacs.

How light the raindrop's contents are.

How gently the world touches me.

Whenever wherever whatever has happened

Is written down on the waters of Babel.[5]

5 W. Szymborska, *Woda*, [in:] *Wybór poezji*, p. 118. [English translation by Clare Cavanagh and Stanisław Barańczak, in: Wisława Szymborska, Poems, New and Collected, Faber & Faber, London 1999 – transl].

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The basic characteristic of water is its fluidity, variability, and instability. *Panta rhei*, thus nobody can step in the same river twice. It is in constant motion, even when its surface is immobile. It contains all the waters of the world. It accepts whatever falls into it. It is capable of moving things and does not always give them back. A mountain brook never seems to be still. It flows in an incessant, fast current, bypassing obstacles or sweeping them ("gnawing stone"). Thrusting forward all the time, heedless of everything around.

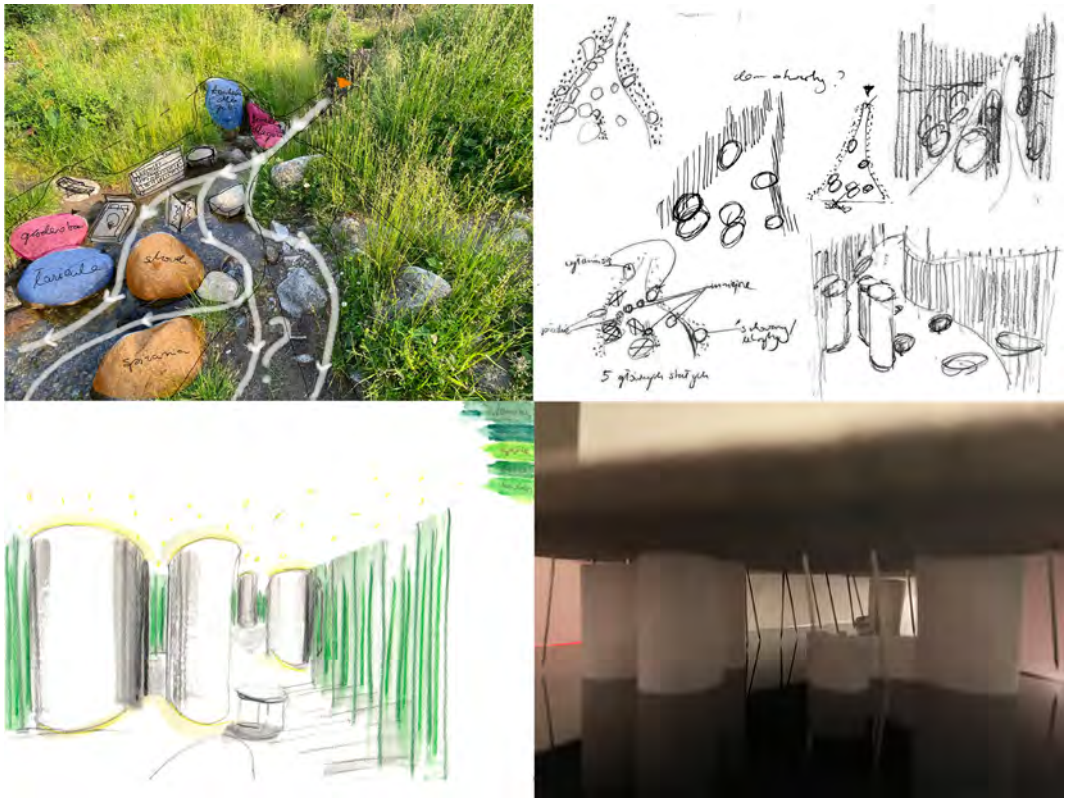

Fig. 3. Sketches of an interior inspired by the Bystra Brook, 2022, J. Łapińska.

The designed space is based on a photograph of a fragment of a landscape with the Bystra Brook in Zakopane. The space replicates its layout without becoming its literal formal interpretation, as the case was for the previous project. The inspiration came from the variability and fluidity of the water, opposed to the persistence of the stones. Vertical rhythms of the grass enclose the space, complement it by marking a boundary.

The plane of the water in the photograph corresponds to a flexible space in the design – it remains empty in the arrangement, taking on any form and function possible to implement without closing it. It was divided into sub-zones by placing solid bodies inspired by boulders and stones. Its widening shape, dictated by the spillage of water on flat terrain, creates sub-zones of different sizes which can

serve as a place of work, rest, and recreation, an area of meetings or partial retreat. The dark, polished granite floor reflects the surroundings, containing them like the water contains the sky.

Boulders and stones, i.e., permanent places, allow for the implementation of a full program of a living space, but also some types of utility space, such as a bookshop, clothing shop, children's playground. The present project relates to the living space, so the individual bodies house: a bathroom with a dressing room, a pantry, a storage room and a toilet for guests. According to the first design decisions, the bodies were not to touch the ceiling, which would strengthen the impression of having been put in the open space, while maintaining the detached nature of their location. For structural and functional reasons, however, they are connected with the ceiling; still they can be cut off visually by withdrawing the cornice and letting in lines of light. They were designed to be built of cardboard-gypsum boards painted off-white. Smaller stones, which can move with high water flow, have been interpreted as semi-permanent elements of the arrangement: larger furniture and partitions.

The rhythm of the grass was reproduced thanks to the use of densely spaced structural columns with a small cross-section, supporting the ceiling. Between some of the columns, the visitor can move like a ladybird among the stalks.

The space can be illuminated zonally with spotlights integrated into the ceiling. The arrangement of points inspired by the rhythm of grass stalks, does not build a specific form, determine directions, or suggest a specific way of using the space.

The flexible space between the bodies-stones implements the principles of biophilia to a large extent. Thanks to this approach, the interior can be perceived positively. The lack of tight partitions allows to maintain thermal variability and air flow. The eye can wander across planes situated in different distances, exploring surprising views and perspectives. Numerous corners and recesses arouse the sense of mystery and provide shelter at the same time. Variable lighting, divided into zones, builds an atmosphere close to nature, with diffuse, dynamic light.

A similar principle of liquid space was implemented by the SANAA architectural team in the Rolex Learning Center in Lausanne (Switzerland) and in The River Building – Grace Farms in New Canaan, CT (USA). An open plan with separate necessary zones allowed for the creation of a space where places are determined by users depending on their needs and disposition.

Fig. 4. To the left, the interior of the Rolex Learning Center in Lausanne (Switzerland), https://www.architectural-review.com/essays/lausanne-switzerland-sanaas-rolex-learning-centre-opens [accessed 25 February 2022]. To the right, a view of The River Building – Grace Farms in New Canaan, CT (USA) designed by SANNA, https://projects.archiexpo.com/project-29424.html [accessed 25 February 2022].

The space created as a result of the interpretation of the mode of operation of a fragment of landscape carries many meanings; however, the forms and materials are not as unambiguous as they were in the case of a project created by direct imitation of nature. The solids have been simplified, and the colours limited to shades of grey, allowing for greater flexibility of the space.

Negation. Clouds

[…]
the clouds will part
in the cleared-up sky
and they'll be once more
what clouds overhead ought to be:
lofty and rather lighthearted
in their likeness to things
drying in the sun—
isles of bliss,
lambs,
cauliflowers,
diapers[6].

Clouds are an alternative form of water, fleeting, but also variable. Light and shiny, they float just beneath the stars, obscuring the sky, casting a shadow. They take various forms: from densely convoluted cumuli to flaccid circus streaks; from strati covering the world with a grey blanket to cirrocumuli

6 W. Szymborska, *Do arki*, [in:] *Wybór poezji*, p. 306. [English translation by Clare Cavanagh and Stanisław Barańczak, in: Wisława Szymborska, Poems, New and Collected, Faber & Faber, London 1999 – transl].

resembling tiny lambs to cumulonimbi of extremely rich forms, bringing cities, mountains, and volcanoes to our mind. Their charm often inspires designers, which can be exemplified by the *Blur Building* Diller/Scofidio+Renfro pavilion presented at EXPO 2002 in Switzerland, the *Cloud Pavilion* in Tokyo from 2021 by Sou Fujimoto, the *Cloud Cities* by Tomas Saraceno and the levitating tea pavilion by Kengo Kuma. In 2021, on the occasion of the Tokyo Olympics, Junya Ishigami produced his *Kokage-gumo* installation, inspired by clouds as well; unlike the previous examples, it undermines the physical and visual lightness of what is above us. Using charred wood, he created a structure filling the void between the clouds, depicting rather their shadow, vesting it with materiality, density, and weight.

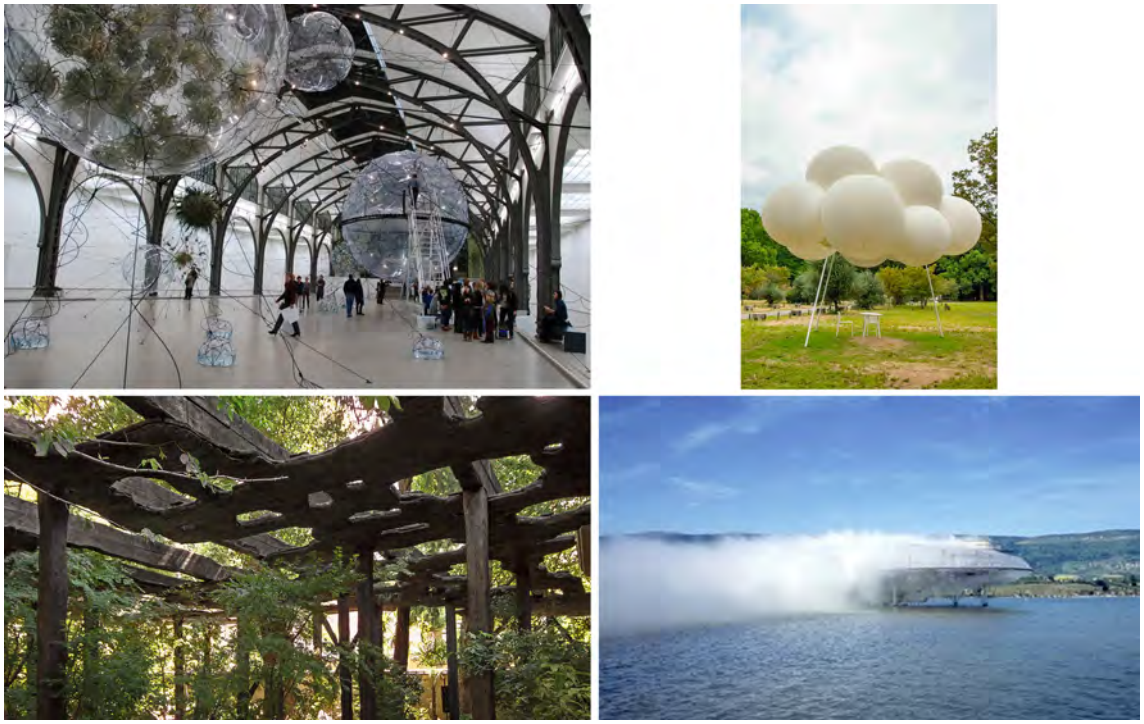

Fig. 5. In the upper row: to the left, *Cloud Cities* by Tomas Saraceno, https://www.metalocus.es/en/news/tomas-saraceno-cloud-cities [accessed 25 February 2022]; on the right, the *Cloud Pavilion* in Tokyo in 2021. Sou Fujimoto, https://www.interactiongreen.com/cloud-pavilion-sou-fujimoto/sou-fujimoto-cloud-pavilion/ [accessed 25 February 2022]. Bottom row: to the left, *Kokage-gumo* by Junya Ishigami, https://arquitecturaviva.com/works/kokage-gumo-kundan [accessed 25 February 2022]; to the right, the *Blur Building* Diller/Scofidio+Renfro, https://www.designingbuildings.co.uk/wiki/File:Blurbuilding2 [accessed 25 February 2022].

Inspiration is the source from which inspiration was once drawn; today, we rather talk about interpreting properties. However, interpretation does not necessarily mean full affirmation. It can also take the form of negating the perceived feature or emphasising the negative, as was the case with *Kokage-gumo*.

Umberto Eco, in his essay *On the Shoulders of Giants*, explains the mechanism present in art history and consisting in the rejection of the immediately preceding style in favour of the even earlier one. He explains it by man's innate tendency to rebel against his parents, supporting it with numerous examples from history and literature.

> Without bothering the psychoanalysts, we do admit that sons are inclined to kill their fathers[7].

After rejecting the fathers' ideology, one can base one's own actions on the reasoning of grandfathers, who are already far enough away. This is also the genesis of the emergence of new directions in art: patricide.

Negative interpretation is one of the actions coming precisely from that current. Denial of a characteristic property is a contestation that undermines the existing state of reality, puts other people's imagination to the test, puts the author in a higher position in relation to the rest of society – as a selected individual, as one who could look at something at a different angle, understand it differently.

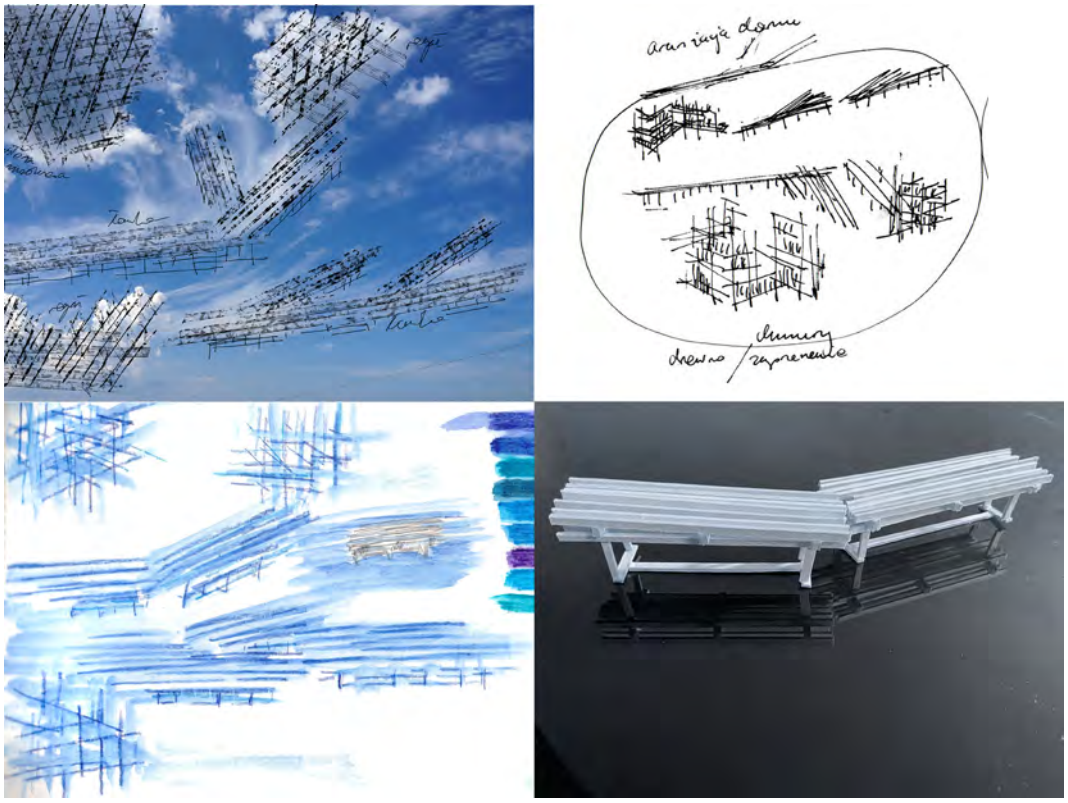

Fig. 6. Sketches of an interior inspired by clouds, 2022, J. Łapińska.

Not to look too far, clouds have also become the source of inspiration for the last project described here: in the blue sky, white cirrus threads scattered by the wind, eddying between the tangled rolls of

7 U. Eco, *Na ramionach olbrzymów*, Warszawa 2019, p. 11.

cumulonimbi. An obvious interpretation in this case would be a white, light-permeable installation suspended above the heads of passers-by. Negating the basic feature of clouds as floating in the sky, the described design brought clouds to the ground, preserving the visual lightness using a very earthly material, which is wood.

Cirrus threads turned out to be the basic form of shaping the solids, translated into the design language in the form of wooden lintels. Rhythmically laid, straight sections built smooth lines of two benches consisting of modules set together throughout the room. The same material was also used to construct modules consisting of larger bodies, corresponding to cumulous clouds, which can function as a bookcase, a table, or a cover-up for the entrance to a smaller room. The use of modules in building a form introduces both complexity and order: both features desirable in a biophilic-oriented architecture.

White-coloured matte wood cuts off against the background of a graphite-coloured floor made of polished granite. Walls in a white tone constitute a neutral background. Linear lighting replicates the rhythm of the benches, becoming a line of clouds on the ceiling.

Using biomorphic forms whose system was inspired by clouds, this installation may become the basis for further development of the design towards a residential or utility interior.

Summary

A work of architecture (an interior), the source of which lies in nature, is never a "vague «glimpse» of inspiration by nature"[8].

Interaction-oriented, designed not only to be admired, but also to be used, it is the result of the conscious introduction of many factors and becomes an intertextual work. The *design patterns* theory, initiated by Christopher Alexander, orders these factors into systems – patterns that an architect deliberately introduces into a project. One of such pattern systems is biophilia, characterised, inter alia, in the article *Found in the Landscape – Introduced into the Interior. Biophilic Space in the Context of Isolation*[9]. Literally translated as "the love of life and all its forms", it defines 14 patterns referring to nature in different ways which, if introduced to a design, positively influence its perception by users.

The three interior design concepts described above encompass these patterns, based on three selected design methods based on inspiration by nature. The first of them – imitating the form – can probably

8 B. Modrzewski, A. Szkołut, *Biofilia – teoria i praktyka projektowa*, 2014, https://www.researchgate.net/publication/290818656_BIOFILIA_-_TEORIA_I_PRAKTYKA_PROJEKTOWA [accessed 28 February 2021], p. 186.

9 J. Łapińska, *Odnalezione w krajobrazie – wprowadzone do wnętrza. Przestrzeń biofiliczna w kontekście izolacji*, "inAW Journal – Multidisciplinary Academic Magazine", 1 (2021), pp. 122–138, https://doi.org/10.52652/inaw.62, https://system.inawjournal.pl/index.php/inaw/article/view/62/95 [accessed 23 September 2021].

refer to every fragment of the landscape. A skilled eye, combined with imagination, is capable of processing the image and reading three-dimensional space in it in many different ways, depending on the adopted scale. Treating the source of inspiration as a set of properties that can be undermined requires a conscious choice of a section of landscape with distinctive features. Such a method makes sense provided that the number of source elements is kept to a minimum, as in the case of the clouds. The middle method – deliberately mentioned in the last place here – interpreting the principle of operation observed in nature, is the most demanding one. However, it can yield the most satisfying results. It requires discerning not only the beauty of nature, but also the utility characteristic of a particular element or phenomenon. At the research stage, the design process should lead to full synthesis, so that the created space is clear, defined and does not raise formal and utility objections.

To sum up, design methods using the interpretation of sections of landscape in different ways, incorporating inspirations from literature – in this case, Wisława Szymborska's poetry – and integrating the patterns of biophilia, implement the creative assumptions of interior architecture on an uneven, albeit always satisfactory level. Such an intertextual approach allows to obtain original solutions verging on the artistic installation. Those solutions can become the basis of a holistic interior design of both residential and public spaces.

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USE OF ACOUSTIC COEFFICIENTS FOR SOUNDSCAPE ANALYSIS

Art research paper

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Abstract

The work aims to investigate whether contemporary acoustic indicators can be applied to soundscape monitoring with a particular focus on the protection of enclaves of silence present in the urban environments. The study includes the following coefficients: acoustic complexity index (ACI), normalized difference soundscape index (NDSI), bioacoustic index (BI), acoustic diversity index (ADI), acoustic evenness index (AEI). As part of the work, a database of 90 sound recordings was created and subjectively divided into three groups: quiet places, places of entertainment and noisy places. At this stage, it was shown that the most common distinction was between recordings from quiet places and places of entertainment. For the BI coefficient, no group could be distinguished.

Keywords

acoustic complexity index (ACI), normalized difference soundscape index (NDSI), bioacoustic index (BI), acoustic diversity index (ADI), acoustic evenness index (AEI), soundscape and acoustic ecology.

Introduction

The term soundscape was introduced by Alvin Lucier, but it was actually the composer R. Murray Schafer[1] who defined the concept of the sound environment at a given time and in a given place understood in a holistic manner. The emergence of the concept of 'soundscape' brought to life a scientific discipline that analyses the relationship between humans and their environment through sound.[2] This was followed by the establishment of soundscape ecology, which also deals with the assignment of soundscape to its geographical context. The studies conducted in this field identify anthropogenic and biological sound patterns and the interactions between them. Moreover, researchers emphasise the need to develop tools to study these patterns and their relationship with the environment.[3] The analysis of the entire natural environment in the context of acoustics is defined by the term 'acoustic ecology'. Researchers in this field are organised in two scientific societies: The International Society of Ecoacoustics[4] and the World Forum for Acoustic Ecology.[5] The main area of interest in ecoacoustics is the study of anthropogenic, biophonic and geophonic sounds, as well as their mutual relationships and impact on the environment. One of the tasks of the acoustic ecology is to promote an interdisciplinary approach to the development of tools for data acquisition and analysis by combining competences in microelectronics, signal processing and information technology.

The present paper undertakes the analysis of ninety audio samples. Data was collected in the form of WAV files. Eighty-three recordings from all around the world were downloaded from the BBC Sound Effects website,[6] the remaining ones were recorded in Kraków (Poland) in the autumn of 2021.

The basic tool for analysing the collected data was a library written in the R environment,[7] which enables the calculation of the values of indicators used in acoustic ecology. The established database of sound files was subjectively divided into three groups: quiet places, places of entertainment and noisy places. This division was made by listening to each file and analysing the spectrograms of the recorded soundscapes.

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6 https://sound-effects.bbcrewind.co.uk/search [accessed: 02/02/2022]

7 L.J. Villanueva-Rivera, B.C. Pijanowski, *Package 'soundecology'*, 5 March 2018, http://github.com/ljvillanueva/soundecology/issues [accessed: 02/02/2022]

The aim of the conducted research is to verify the usefulness of the method in monitoring soundscapes and specially designed enclaves of silence in cities. Enclave of silence is a space separated from the unwanted sounds of the city. Spaces with such qualities can be created naturally, through the appropriate arrangement of buildings and vegetation in the city.

Due to the rapid development of infrastructure in cities, its inhabitants are increasingly exposed to an unfriendly soundscape, which has a negative impact on their health.[8] The development of research into acoustic ecology can help to design more liveable spaces for urban residents.

Description of indicators used in acoustic ecology

ACI is the index of acoustic complexity. It was developed in 2008 by A. Farina and D. Morri[9] to carry out soundscape analysis from the perspective of birdsong diversity. The definition of this coefficient assumes that biophonic sounds are characterised by a high variability of intensity, while anthropogenic sounds present relatively constant values. ACI is designed to be insensitive to man-made noise interference and the distance of the recorder from the sound source. Studies carried out by the authors of this index in the Tuscan-Emilian Apennines showed a strong positive correlation between the value of ACI and the diversity in the species of birds present in the analysed recordings. This trend increases with the length of the time steps of the samples analysed due to the possibility of including the full singing of a given bird in a longer recording.

ADI [10] is the index of acoustic diversity. Its value increases with the uniformity of the signal for different frequencies. A uniform signal, for example one that is noised over the entire frequency band, will give a high value for this coefficient, while a pure tone (all the energy concentrated in one band) will give a result closer to 0. The highest values of this index occur in the case of recordings with a high content of geophonic and anthropogenic sounds, such as wind or truck passing, or for samples from very quiet recordings representing little variation between the frequency bands. The lowest values were observed for recordings characterised by the dominance of a narrow frequency band, such as the noise of nocturnal insects. According to the study by L.J. Villanueva-Rivera[9] this coefficient can be applied in the frequency range of 0–10 kHz and calculates the Shanon entropy for the given recording. The calculation algorithm involves dividing the frequency spectrum into 10 equal discrete intervals of 1 kHz width and evaluating the proportion of FFT blocks that contain energy above a specified threshold (by default it is 50 dBFS) in each discrete frequency interval.

8 Directive 2002/49/ED of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise.

9 N. Pieretti, A. Farina, D. Morri, ”A new methodology to infer the singing activity of an avian community: The Acoustic Complexity Index (ACI)”, *Ecological Indicators*, 11 (2010), issue 3, pp. 868–873. doi: 10.1016/j.ecolind.2010.11.005.

10 L.J. Villanueva-Rivera, B.C. Pijanowski, J. Doucette, B. Pekin, ”A primer of acoustic analysis for landscape ecologists”, *Landscape Ecology*, 26 (2011), issue 9, pp. 1233–1246. doi: 10.1007/s10980-011-9636-9.

NDSI is the index of normalised difference in soundscape. It enables the determination of the level of anthropogenic disturbance in the soundscape by calculating the ratio of man-made sounds to animal-made sounds in the analysed recording. The NDSI coefficient values at a given location can be variable depending on the time of day and year, so it can be useful for observing changes occurring in the soundscape. The research conducted by S.H. Gage,[11] B.M. Napoletano and M.C. Cooper, which consisted of analysing a number of recordings collected at several locations showed that mechanical sounds occur most frequently between 1 and 2 kHz, while biophonic sounds occur in the 2–8 kHz range. P. Devos assumed in his work[12] a range of sounds emitted by animals in the 2–11 kHz band.[13]

BI is the index of bioacoustics. It was developed by N.T. Boelman.[14] It is calculated on the basis of the occurrence of a spectral power value above the threshold in the frequency band of 2–8 kHz or 2–11 kHz. This is a function of both the amplitude and the number of occupied frequencies in the 2-8 kHz or 2–11 kHz band. It illustrates the bioacoustic activity. The value of the coefficient depends on the quietest discrete frequency interval with a width of 1 kHz. Higher values of this coefficient indicate a discrepancy between the loudest and the quietest range. The highest values of this index were obtained for the sound of cicadas, which are characterised by high amplitude and its minimum variation between the consecutive discrete frequency intervals.

AEI is the index of acoustic evenness[9]. Acoustically rich habitats may represent low values for this coefficient, as there the variation in sound intensity between frequency bands in acoustically saturated landscapes is low. This index is related to ADI, but has an inverse distribution of values: its higher values indicate greater inequality between discrete frequency intervals, while its high values are identified with the dominance of a narrow frequency band. The resulting distribution of the different frequency intervals is indexed with the use of the Gini index. The index ranges from 0 to 1.

Description of the sound samples selected for analysis

The set of the collected sound samples was divided into three categories: quiet places, places for entertainment and noisy places. The recordings mostly came from the Natural History Unit.[15] Sample soundscape recordings classified as quiet places included soundscapes from the following locations:

- St Paul's cathedral in London,

11 S.H. Gage, B.M. Napoletano, M.C. Cooper, "Assessment of ecosystem biodiversity by acoustic diversity indices", *Journal of the Acoustical Society of America*, 109 (2001), issue 5, p. 2430.
12 P. Devos, *Soundecology indicators applied to urban soundscapes*, Conference: Inter Noise 2016, Hamburg, [https://www.ingentaconnect.com/content/ince/incecp;jsessionid=192bkrfsi4e91.x-ic-live-03] [accessed: 02/02/2022].
13 S.H. Gage, B.M. Napoletano, M.C. Cooper, *Assessment of ecosystem biodiversity by acoustic diversity indices*.
14 N.T. Boelman, G.P. Asner, P.J. Hart, R.E. Martin, "Multi-trophic invasion resistance in Hawaii: bioacoustics, field surveys, and airborne remote sensing", *Ecological Applications*, 17 (2007), pp. 2137–2144.
15 BBC.com https://sound-effects.bbcrewind.co.uk/search [accessed: 05/01/2022].

- African beach on a calm day,
- botanical garden from Oceania,
- Asian forest near the sea,
- Asian meadow at dawn,
- desert in Asia,
- lake area in North America,
- monsoon forest in Asia.

The recorded signals include the singing of different species of birds, the sounds of different species of insects, the sound of the sea, the sound of the wind, the silence in the cathedral and in the library, whispers.

Examples of sound samples classified as places of entertainment include:

- horse racing venue,
- French restaurant,
- bar,
- Barong dance,
- Cameroon music,
- playground,
- excerpts from the festival,
- tribal music in Irian Jaya,
- street music,
- soundscape of the Wawel Hill in Kraków, recordings made by Kinga Sapieja as part of her engineering thesis.

The soundscape of the noisy places included:

- busy street,
- butter factory,
- workshop,
- construction site,

- motorway,
- car race,
- road works,
- King's Cross railway station.

Indicator analysis with the use of the Kruskal-Wallis test

The calculated acoustic ecology indicators do not come from a population with a normal distribution, which was verified using the Shapiro-Wilk test. The Kruskal-Wallis test[16] was used to verify that sound samples recorded in places characterised by quiet, entertainment and noise were distinguishable. This is a non-parametric version of the classic single-agent ANOVA and analyses more than two groups. According to the documentation, in the MATLAB environment this test assumes that all samples come from a population with the same continuous distribution for observations that are mutually independent.

The null hypothesis and the alternative hypothesis were formulated:

Null hypothesis:

H0: F(x) = F0(x) – all samples come from a population with the same continuous distribution.

Alternative hypothesis:

H1: F(x) ≠ F0(x) – not all samples come from a population with the same continuous distribution.

Conclusion:

In all the cases where the *p* value is less than $\alpha = 0.05$, it was possible to make a distinction between the adopted groups.

The sound is spatial, which is why the tests were carried out for both right and left channel recordings and for samples created by averaging these channels. In the cases where the *p* value was less than $\alpha = 0.05$, post hoc tests were performed to show which groups were distinguishable. The results of the analysis are shown in Table 1.

16 A. BenSaïda, *Shapiro-Wilk and Shapiro-Francia normality tests*, https://www.mathworks.com/matlabcentral/fileexchange/13964-shapiro-wilk-and-shapiro-francia-normality-tests [accessed: 05/01/2022].

Channel	ACI	NDSI	BI	ADI	AE
Left	No distinction between groups	Distinguishable peace and entertainment	No distinction between groups	Distinguishable noise and entertainment	Distinguishable noise and entertainment
Right	Distinguishable peace and noise	Distinguishable peace and entertainment	No distinction between groups	Distinguishable peace and entertainment	Distinguishable peace and entertainment
After averaging	Distinguishable peace and noise	Distinguishable peace and entertainment	No distinction between groups	Distinguishable noise and entertainment	Distinguishable peace and entertainment

Table 1. Summary of all distinguishable groups for all tested coefficients

Conclusions

ACI is the only index to distinguish between quiet and noise. NDSI coefficient distinguished between recordings from quiet places and entertainment places for each channel and for the channels after averaging. In the case of the BI, it was not possible to distinguish between any of the groups regardless of the channel analysed. The ADI and AEI coefficients distinguished between noise and entertainment or quiet and entertainment depending on the channel studied. The most frequently distinguished groups are quiet and entertainment, and the least frequently distinguished are quiet and noise. In no case were all three sites able to be separated from each other, which means that for further research the sample set needs to be enlarged or research into new coefficients related to acoustic ecology needs to be initiated. After research, it seems that soundscape should be divided into classes in some different way. Classes should be associated with certain groups of acoustic events, such as traffic or street music. However, it is difficult to determine at this point in time how many such groups there should be and which acoustic events should they included. This will be the subject of further work. However, after the conducted research, it is apparent that none of the coefficients mentioned in the article can currently be used to protect the enclaves of silence.

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PRIDE AND DESIRE: EXPLORING EMOTIONS IN THE USERS' EVALUATION OF PRODUCTS USING AN ADAPTED VERSION OF THE PREMO RESEARCH TOOL

Art research paper

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Abstract

Design is a field of a dual nature, including both technical aspects of products and aesthetics. Nowadays, with the wide range of tasks undertaken by designers, it is more accurately to interpret product aesthetics as aesthetic experience, which is closely related to the emotions generated by artefacts as well as their images in advertising, marketing or culture. The ability to study the emotions aroused by products can be useful for representatives of many disciplines, including designers.

This article presents an empirical study of the emotions aroused by the appearance of products carried out with the use of an adapted version of the PrEmo tool, within the master's course for design students at the Eugeniusz Geppert Academy of Art and Design in Wrocław. It is divided into two parts: an introduction providing the literature review and a report on the empirical study.

Keywords

design, aesthetics, emotions, analysis of correspondence

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Introduction

Aesthetics in design

Whoever has been interested in design is well aware of the "fundamental duality"[1] of this field, which, on the one hand, solves functional problems and, on the other, tries to improve the appearance of products and the overall impression they arouse. Both these aspects are important in design work and inextricably linked with each other.

In relation to design considered as a method of creating artefacts to populate the "artificial world" (in opposition to the natural world), there has always been a dichotomy between design seen as styling, changing fashion, and design understood as problem solving. The tension between aesthetic requirements and functional needs has been and still is a phenomenon analysed by the theoreticians and practitioners of design.

Andy Hamilton, professor at Durham University and director of the Aesthetics, Ethics and Politics Research Cluster, analyses the dual nature of design in his article on the aesthetics of design, noting, for example, that it is impossible to dismiss the aesthetic aspect when examining the classic pieces of design. On the other hand, the ways in which usability problems are solved, and thus the popularity of functional products among users, may well determine their place among the icons of design.

Hamilton takes the phone designed by Henry Dreyfuss as an example. This is actually a good case: the 302 phone is one of the first products that was be designed in the modern sense of the word. Reportedly, the decision-makers at Bell Laboratories rejected the designer's proposal to carry out the design process in collaboration with engineers from the very beginning; they believed that this would limit the 'artistry' of creative design proposals. In the end, it turned out that the proposals submitted by other designers did not meet the phone manufacturer's expectations and Dreyfuss was allowed to design it 'from the inside out'.

1 A. Hamilton, *The Aesthetics of Design: Problem-solving versus Fashion and Design*, https://www.academia.edu/11976004/Aesthetics_of_Design [accessed: 28/10/2021], p. 2.

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Il. 1. H. Dreyfuss, 302 telephone, ca 1937,
https://www.cooperhewitt.org/2014/11/06/model-302-telephone-henry-dreyfuss/ [accessed: 19/02/2022].

The product is durable, functional and equipped with innovations: a rotary dial for dialling, automatic connection and interruption of the call when picking up and hanging up the handset, a place to put the card with the phone number. It also has some unquestionable aesthetic advantages: the slightly concave pyramid-like form of the casing and the semi-circular shapes of the microphone and speaker which arouse positive emotions.[2] The design method chosen by Dreyfuss allowed functional and aesthetic effects to intertwine and reinforce each other: the concave walls of the telephone make it easier to read the numerals on the dial from any perspective, the thickest point of the handset's organic line prompts where to grip it, while the cable emerging from one end of the handset subtly indicates which end is to be placed against the ear. The two latter examples represent the phenomenon of affordance.[3]

But there are more contemporary examples, that can certainly be included in the canon of design icons, such as the G-Force vacuum cleaner by James Dyson. This device, using the functional innovation of cyclonic separation invented by the designer, was described in his memoirs as "the first impressionist vacuum cleaner".[4] In contrast to standard colour schemes used for home appliances, Dyson chose for the first commercial model of his vacuum cleaner pink and purple: the "colours of Provence".[5] As a result, a revolutionary functional innovation was underlined by a new aesthetic.

2 Sometimes associated with the ears of Mickey Mouse.
3 See W. Lidwell, G. Manacsa, *Deconstructing product design. Exploring the form, function, usability, sustainability and commercial success of 100 amazing products*, Beverly, MA 2011, p. 118.
4 J. Dyson, G. Coren, *Against the Odds. An autobiography*, London 1998, p. 164.
5 J. Dyson, G. Coren, *Against the Odds*.

Il. 2. Bagless vacuum cleaner, James Dyson, 1980s,
https://www.ssplprints.com/image/97015/dyson-g-force-cyclonic-vacuum-cleaner-1990
[accessed: 19/02/2022].

It is worth recalling at this point the MAYA principle formulated by the American designer and stylist Raymond Loewy. The name of the principle is an acronym of *Most Advanced Yet Acceptable* – which assumes that the most commercially successful designs are those in which advanced innovation is accompanied by an aesthetic that is cutting-edge yet recognisable enough to be accepted by the users. The *Variable Balans* kneeling chair designed by the Norwegian industrial designer Peter Opsvik in 1976 is a perfect illustration of the MAYA principle.

Il. 3. Variable Balans kneeling chair, 1979,
http://collectiononline.design-museum.de/#/en/object/21103?_k=3a3jtf [accessed: 23/02/2022].

The project of this kneeling chair was the result of the designer's several-year research into the natural sitting position of humans, during which he came to the conclusion that even when sitting, people do not remain motionless, but are constantly moving. Opsvik thus created an ergonomic piece of seating that allows to change position and preserve the natural curves of the human spine. And although this construction offers a certain affordance – the seating person intuitively feels where to put their knees – from the aesthetic perspective it is a utilitarian product, devoid of references to emotion, and, above all, failing to meet the requirements of the MAYA principle: "it was perhaps too unusual for mainstream acceptance".[6]

The complex relationship between aesthetics and functionality includes the unexpected phenomena, and while one would hardly expect a design icon to be actually an object that represent functional deficiencies, the author of *Aesthetics of Design* reveals that the original Mini Morris rusted quickly and Wright's houses leaked.[7]

There is no doubt that aesthetic and the question of problem solving influence each other. "The best-designed objects seem to solve problems with a sense of style".[8] Of course, there are borderline phenomena that cannot be easily classified as design or excluded from this category with equal certainty. Hamilton quotes the example of experimenting with the chemical composition of detergents: an activity that cannot be counted as design-related, even though it is, in principle, a problem-solving initiative. Problem solving in design should include some aesthetic component: even motors hidden inside machines are potentially seen by operators or engineers, so they can be counted as part of the world of design.[9]

Prasad Boradkar, professor emeritus at Arizona State University, in his book *Designing Things. A Critical Introduction to the Culture of Objects* emphasises that working on the aesthetics of artefacts is one of the fundamental tasks of design practice, although he also adds that, according to cultural studies scholars, it also takes the form of deceiving and seducing consumers, who are, by the way, co-creators of styles, tastes and fashions. Boradkar argues in his text that

> As the profession of industrial design broadens the boundaries of its concerns, and as the assignments undertaken by the industrial design firms often include entire systems of interactions between people and the world, products are being considered in terms of experiences rather than objects. In relation to such a notion of products, the [...] definition of aesthetics as **aesthetic experience**[10] or a state of mind might be the most suitable to explore in relation to design.[11]

6 W. Lidwell, G. Manacsa, *Deconstructing product design*, p. 201.
7 A. Hamilton, *The Aesthetics of Design*, p. 3.
8 A. Hamilton, *The Aesthetics of Design*, p. 3.
9 A. Hamilton, *The Aesthetics of Design*, p. 4.
10 Highlights by the author.
11 P. Boradkar, *Designing Things. A Critical Introduction to the Culture of Objects*, London–New York 2014, p. 130.

According to Paul Hekkert, Professor of Form Theory at the Delft University of Technology, the typical experience of a designed product includes three components: cognitive, aesthetic and emotional. They are all interconnected and experienced together as a single entity (sensory delight, semantic interpretation and emotional engagement):

> [...] a tentative definition of product experience would be: the entire set of effects that is elicited by the interaction between a user and a product, including the degree to which all our senses are gratified (aesthetic experience), the meanings we attach to the product (experience of meaning), and the feelings and emotions that are elicited (emotional experience).[12]

Aesthetics and functionality are not in opposition to each other, the relationship between them in a given product can be represented as a point on a straight line, with aesthetics at one end and functionality at the other. The decision where to place the emphasis on the axis between aesthetics and functionality was made by individual designers, according to their personal feeling, style and taste, but also in reference to current trends, to the spirit of a given era illustrated by the well-known modernist maxim "form follows function"[13] in its several modifications.

Design and emotions

In 2006 Hartmut Esslinger, founder of the design agency Frogdesign, reformulated the traditional motto defining interests in function in relation to other aspects of design and proposed the following principle: "form follows emotion".

This expression resulted from reflections on the state of design in the 1980s and the dynamic development of the high-tech industry. Faithful application of the functionalism theory and the Dieter Rams' principles of good design made the designers' activities began to be characterised by universal, essentialist aesthetics, and products intended for the mass market often looked like technical devices. Esslinger considered this a negative phenomenon and strove to introduce emotions into the relationship between humans and designed devices.[14]

This approach led the German designer to start working with Apple; this collaboration was crowned with the development and launch of the Apple IIc computer in 1984. This first computer of the company designed in the Snow White style became an icon of design and a model for the next generations of designers.[15]

12 P. Hekkert, *Design aesthetics: principles of pleasure in design*, "Psychology Science", 48 (2006), issue 2, p. 160, https://www.academia.edu/4961005/Design_aesthetics_principles_of_pleasure_in_design [accessed: 15/03/2021].

13 After all, this modernist slogan resulted in the 'essentialist', ornament-free aesthetic of the projects designed by Dieter Rams and other designers from the Ulm School of Design.

14 The so-called Aesthetics-Usability Effect.

15 See https://www.red-dot-design-museum.de/essen/ausstellungen/design-grundlagen/designprinzipien/form-follows-emotion [accessed: 01/12/2021].

The design of the Apple IIc computer was driven primarily by the manufacturer's breakthrough concept to make the products stand out with contemporary styling. Esslinger and his co-workers took part in a competition announced by the Steve Jobs' company and proposed the use of an innovative design language, eventually used for an entire product line.[16]

Il. 4. MacIntosh IIci computer, 1989, photo: Ben Boldt, https://en.wikipedia.org/w/index.php?title=File:Macintosh_IIci.png [accessed: 19/02/2022].

The case of MacIntosh IIci, for example, features a series of parallel grooves that hide air vents and a disc drive drawer, which enables keeping the whole form clean. On the front of the unit, the grooves are arranged asymmetrically so that the balance of the composition is maintained. Even the fact that the edges are chamfered at the front, while at the back they are aligned sharply without chamfering, is supposed to soften the perspective accentuated by the series of parallel lines on the top wall of the case and make the object look smaller than it really is. Esslinger and his team also introduced a distinctive three-dimensional Apple logo, as well as a broken white colour called Fog, which made the computers easily recognisable around the world. The product was well thought-out in terms of functionality; one of its noteworthy features was the easy removal of the cover and the possibility to change the position of the 'feet' that slide into the grooves to use the computer in landscape or portrait orientation. This consistent design language was applied to all the peripheral appliances: parallel lines of grooves appear on the keyboard, the dedicated mouse and even the end of the power cable.[17]

The Snow White design language comprised about 10 elements, used in various configurations in a range of Apple products until the early 1990s, when the industrial design department of the company gradually began to withdraw them.[18] A device designed in this way, with minimised visual noise, composed like a work of art and encouraging user interaction, embodied the design idea expressed in the slogan "form results from emotion" or "form follows emotion".

16 See https://en.google-info.in/3608414/1/snow-white-design-language.html [accessed: 16/12/2021]. The connection between the apple and Snow White could have been inspired by the fairy tale by Brothers Grimm.

17 Ruben de Rijcke, *The Snow White design language*, The Computer Archive, DEND Media Services, https://www.youtube.com/watch?v=h_6DKvyaP_I [accessed: 14/12/2021]. See also: https://euipo.europa.eu/ohimportal/pl/dea-2018-lifetime [accessed: 14/12/2021].

18 The entire list of elements of the Snow White design language can be found, among others, at https://en.google-info.in/3608414/1/snow-white-design-language.html [accessed: 16/12/2021].

Emotional design initiated by the creative work of teams such as Frogdesign has been taken up by other designers and scientists; one of the most prominent representatives of them is Donald Norman,[19] scientist, engineer, cognitive psychologist and designer. In his publications, Norman was very explicit about the role of emotion in design, writing, among other things, that products can be more than the sum of the functions they perform.[20]

As Norman argued, this is due to the complexity of the functioning of the human brain and the functions of thinking, which can generally be divided into unconscious (fast and automatic, controlling the learned behaviour) and conscious (slow, controlled and activated in new, dangerous or non-standard situations).[21] Norman pointed out that thought processes and emotions cannot be separated. Thoughts arouse emotions, emotions make you think.[22]

The model of processing information in the brain proposed by Norman consists of three levels. The primary level concerns direct perception: sound, visual aspects, texture and smell.[23] The second level is behavioural, or, in other words: it relates to the efficiency of use. Efficiency of use can be understood as practicality and following the learned patterns, i.e. fulfilling expectations of functionality. The third level of processing information in the brain is called reflexive and it includes various types of reactions related to the object's history of use, intellectual reception, prestige in a broad sense or feelings of nostalgia. It is not a level that is triggered spontaneously and immediately, as "reflection is a cognitive, deep and time-consuming process".[24]

The study conducted at the Chair of Design of the Academy of Art and Design in Wrocław in 2017 with the use of Norman's three levels of information processing in the brain, clearly proved that emotions emerge at each of these three levels: in response to impressions from direct perception, in experiencing the product during use, or in connection with intellectual reception at the reflective level.[25]

19 M. van Hout, *Getting Emotional with… Hartmut Esslinger*, „Design @Emotion", 2006, https://www.design-emotion.com/2006/08/15/getting-emotional-with-hartmut-esslinger/ [accessed: 16/12/2021]: "I know, like and respect Don. However, as we introduced «emotional design» 40 years ago, it makes me very happy when other strategists, designers, and usability specialists like Don join our mission."

20 D.A. Norman, *Wzornictwo i emocje. Dlaczego kochamy i nienawidzimy rzeczy powszednie*, transl. D.Skalska-Stefańska, Warszawa 2015, p. 91.

21 D. Norman, *Dizajn na co dzień*, transl. D. Malina, Kraków 2018, p. 69.

22 D. Norman, *Dizajn na co dzień*, p. 67.

23 D. Norman, *Dizajn na co dzień*, p. 69.

24 D. Norman, *Dizajn na co dzień*, p. 73.

25 B. Ludwiczak, *Emocje i praktyczność w recepcji pojazdów przez projektantów*, "Systemy Wspomagania w Inżynierii Produkcji. Komunikacja w Obszarach Sztuki i Techniki", 9 (2020), issue 1.

How to study the emotions aroused by the aesthetic experience of products

So, if assuming the user's emotional response when designing artefacts is so important, a new issue arises: can these emotions be studied and measured?

This question has been asked by, among others, the consumer behaviour researchers who have found that emotions aroused by products increase the pleasure of buying, owning and using those products. In addition, it is often argued that the value of products associated with either experience or emotion has the potential to make them stand out in the market, as products are currently similar in terms of quality, price and technical features. In some purchasing decisions, emotional arguments can play decisive role.

One of the researchers working on the issue of design for emotion and user well-being, as well as the possibilities of measuring emotional experience is Pieter Desmet, professor of Design for Experience at the Delft University of Technology. His main research interests focus on understanding why and how designed products evoke emotions, as well as how design can improve the well-being of individual users and communities.[26]

According to Desmet, the "enjoyment of use", i.e. the pleasure experienced when using a product, belongs to the realm of emotion, not reason. However, analysing the emotional aspects of the use of a given product is complicated by the fact that the experience itself is difficult to be captured. The difficulty is exacerbated by the fact that the above-mentioned "enjoyment of use" is not a single emotion, but probably the result of a wider number of positive emotions.[27]

Desmet gives as an example the emotions that might be felt by someone watching a film. Of course, one of the emotions is the joy of having a good time, enjoying a modern form of entertainment. At the same time, this person "will experience all kinds of emotions, such as fear, amusement, anger, relief, disappointment, hope, etcetera".[28] Instead of one isolated emotion, we would have here a combination of emotions that contribute to the sensation of pleasure like 'joy'. As Desmet concludes, presumably the same applies to other instances of 'joy': whether laughing together with someone at a joke, using a mobile phone or interacting with a computer.

Aware that studying the process by which emotions arise or are aroused will enable a better understanding of the sources of pleasure derived from interacting with products, which can translate into

26 https://www.tudelft.nl/io/over-io/personen/desmet-pma [accessed: 17/02/2022].

27 P. Desmet, *Measuring Emotions: Development and Application of an Instrument to Measure Emotional Responses to Products*, Dordrecht 2013, p. 1, https://www.researchgate.net/publication/313757692_Measuring_emotion_Development_and_application_of_an_instrument_to_Measure_Emotional_Responses_to_Products?enrichId=rgreq-4e-9771061be7eef1692befb8e9f31b5a-XXX&enrichSource=Y292ZXJQYWdlOzMxMzc1NzY5MjtBUzo2NjAyNzMwOTAyODU1NzFAMTUzNDQzMjc4MDM0NQ%3D%3D&el=1_x_2&_esc=publicationCoverPdf [accessed: 09/072020].

28 P. Desmet, *Measuring Emotions*, p. 1.

more effective design, the Dutch researcher initiated research dedicated to developing a tool to measure emotional responses. Its assumptions included the possibility of measuring subtle (low intensity) emotions and mixed emotions, i.e. the simultaneous presence of more than one emotion.[29]

When working on the new emotion measurement tool, Desmet took into account the state of emotion research, starting with a definition:

> [...] at present the most favoured solutions is to say that emotions are best treated as a multifaceted phenomenon consisting of the following components: behavioural reactions (e.g. approaching), expressive reactions (e.g. smiling), physiological reactions (e.g. heart pounding), and subjective feelings (e.g. feeling amused).[30]

The problem is that most tools for measuring emotions only focus on one of the components mentioned.

Existing methods for measuring emotions can be divided into non-verbal and verbal. The non-verbal methods measure the expressive or physiological component of emotion. Expressive reactions are associated with facial expressions, sounds or body postures accompanying the occurrence of a given emotion (anger may be associated with a fixed gaze, drawn-down eyebrows and lips, short, vigorous movements, sometimes a sharp, high-pitched sound). Physiological reactions accompanying emotions may include heart rate, blood pressure and dilated pupils.

The non-verbal measurement of emotions has many advantages. First of all, by its very definition, it is independent of the language spoken by the people being measured and can therefore be used in different cultural backgrounds. They are also among the relatively discrete methods, the measurements performed are not burdensome for the research participants. Another advantage they represent is objectivity, as they do not depend on participants' conscious self-assessment.

However, the non-verbal emotions are also associated with certain limitations: they only allow the study of basic emotions (such as anger, fear or joy). They are also unsuitable for the study of mixed emotions and therefore not entirely applicable to the study of emotions aroused by products.[31]

The above-mentioned limitations of non-verbal methods are offset by verbal methods, which generally measure the subjective feeling of the emotional component. Subjective feelings, for example a sense of inspiration or happiness, reflect an awareness of the emotional state someone is in, that is, a subjective emotional experience. Such subjective feelings can only be measured with a self-questionnaire. In the most commonly used surveys respondents describe their emotions using either a cale or verbal descriptions.

29 P. Desmet, *Measuring Emotions*, p. 3.
30 P. Desmet, *Measuring Emotions*, p. 4.
31 P. Desmet, *Measuring Emotions*, pp. 4–5.

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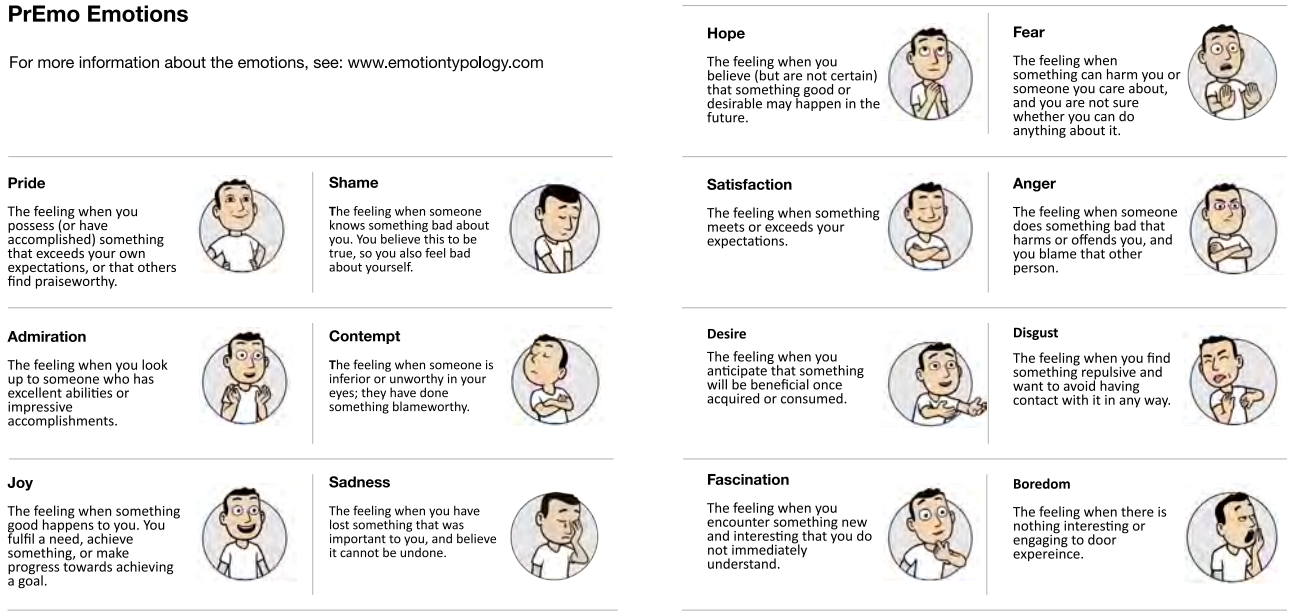
Verbal methods also have their advantages and disadvantages. Advantages include the fact that they enable the measurement of any set of emotions, even the mixed emotions. In contrast, verbal methods are limited by the fact that they are difficult to apply in different cultures.[32]

Given the shortcomings of the methods developed so far, Pieter Desmet and his team created their own research tool with the intention of combining the advantages of verbal and non-verbal methods. The assumption was to enable the measurement of their own mixed emotions, but without the participants having to verbalise them.



Il. 5. Representing different emotions with facial expressions and gestures in the PrEmo tool, https://zenodo.org/record/3727497/files/PrEmo-card-manual.pdf [accessed: 19/02/2022].

PrEmo, a non-verbal self-questionnaire measuring emotions evoked by products, was created on the basis of the innate human ability to interpret emotions based on facial expressions.[33] Participants in the study do not have to describe their emotions in words; they only mark the emotions they feel by selecting appropriate animated character drawings that clearly illustrate the relevant emotions using gestures, facial expressions and sounds.

The effectiveness of PrEmo was tested in repeated experiments and the tool was refined based on the results. As Desmet emphasises, the analysis of feelings aroused by designed products can allow designers to control the achievement of the effects desired as a result of the design process; moreover, it will allow them to communicate their intentions to other members of the team working on the project. Even the appearance of negative emotions does not necessarily disqualify the product: for

32 P. Desmet, *Measuring Emotions*, pp. 3–4.
33 https://diopd.org/premo/ [accessed: 13/07/2020].

some people, feeling conflicting emotions can be as attractive as riding a rollercoaster. Skilful manipulation of the emotions aroused by a product can result in designs that are original, interesting and rich in opportunities for interaction. The awareness of these issues seems to be useful also for design students.

Empirical study of emotions aroused by the appearance of products with the use of adapted emotion measurement tool called PrEmo

As part of the course Semantics of the Form in the Chair of Design of the Eugeniusz Geppert Academy of Art and Design in Wrocław, a research experiment was carried out with the use of adapted emotion measurement tool called PrEmo, the aim of which was to investigate emotions aroused by the appearance of selected car models.

Aim of the experiment

The aim of the analysis is to group car brands according to the emotions of people looking at them on photographs.

Test sample and course of the experiment

After listening to a lecture on aesthetics in design, emotions in design, and experiments conducted by the Dutch designer and university lecturer Pieter Desmet, a group of students participating in the course Semantics of Form decided that the group of products to be analysed would consist of cars.[34]

The students were also left free to choose the specific car models; as the course had five participants, the Mural board (the classes were conducted on-line) displayed a set of 15 car models.

They included: six vehicles belonging to the 'sport' category (Aston Martin DB5, Mustang Mach-E, Mazda MX-5, Subaru Impreza STI, Lamborghini Huracan, Mustang Shelby GT500), two vehicles belonging to the 'family' category (Volkswagen Passat, Fiat 125p), four cars belonging to the 'city' category (Nissan Cube III, Mini One, Fiat 126p, Smart Roadster), two vans (Volkswagen Transporter I, Opel Zafira Tourer) and one SUV: Dacia Duster.

The questionnaire scheme was prepared by the lecturer, after which one of the students placed the images of the cars in the questionnaire. The emotions that respondents had to choose from were taken from the PrEmo tool and included seven positive emotions: pride, admiration, joy, hope, satisfaction,

34 This came as a surprise to the lecturer, who had expected a different product category to be indicated. However, the students' decision seems to confirm the uniqueness of this group of means of transport in evoking emotional responses in users, consumers and observers.

desire, fascination, as well as seven negative emotions: shame, dislike, sadness, fear, anger, aversion and boredom.

The questionnaire was filled by the course participants, their friends and families, as well as by participants in some of the first- and second-year foreign language classes. In the end this represented the group of 45 people, of which ¼ were men and ¾ were women. The majority (91%) were young people, aged 20-30, with slightly over half being design related (students of design or designer by profession, 53.3%) and nearly half (46.7%) were non-design related.

Methodology of analysis (correspondence analysis)

Due to the type of variables (nominal variables), correspondence analysis was used. Correspondence analysis is a method of visualising in a two-dimensional coordinate system the co-occurrence of categories of two nominal variables.[35] The analysis was performed in the PS Imago software, following the procedure described in the manual *Analiza klienta* (Client analysis).[36]

Results

The following section presents the results of the analysis carried out. First, a correspondence table is presented describing the joint distribution of the two studied characteristics, i.e. the car brand and the emotions of the person looking at the car.

35 M. Rószkiewicz, *Analiza klienta*, Kraków, p. 142.
36 M. Rószkiewicz, *Analiza klienta*.

Brand	Emotions								
	Pride	Admiration	Joy	Shame	Dislike	Sadness	Hope	Satisfaction	Desire
Aston Martin DB5	5	26	6	0	1	0	1	10	9
Mustang Mach-E	2	10	3	0	10	1	4	5	6
Fiat 125p	5	10	11	1	4	0	0	5	2
Mazda MX-5	0	2	9	5	13	1	0	1	1
Nissan Cube III	0	0	2	5	21	4	1	0	1
Smart Roadster	0	4	0	1	17	3	1	0	0
Volkswagen Transporter I	7	19	26	1	1	1	5	12	15
Mini One	1	7	11	2	2	0	5	11	9
Fiat 126p	12	9	16	3	4	1	4	8	7
Subaru Impreza STI	3	7	5	2	12	1	2	9	3
Volkswagen Passat	2	4	3	1	5	0	3	5	7
Dacia Duster	7	5	3	3	5	2	0	2	5
Lamborghini Huracan	2	14	5	0	7	0	1	9	11
Mustang Shelby GT500	5	18	7	0	5	1	3	8	17
Opel Zafira Tourer	0	1	1	1	14	2	2	2	1
Marginal total of actives	51	136	108	25	121	17	32	87	94

Table 1. Correspondence table describing the joint distribution of the studied characteristics, source: own materials.

Brand	Emotions					
	Fascination	Fear	Anger	Aversion	Boredom	Marginal total of actives
Aston Martin DB5	21	0	0	0	5	84
Mustang Mach-E	11	3	1	8	9	73
Fiat 125p	9	0	0	1	8	56
Mazda MX-5	6	0	2	17	6	63
Nissan Cube III	4	4	10	27	11	90
Smart Roadster	4	3	2	14	10	59
Volkswagen Transporter I	22	2	0	0	2	113
Mini One	7	1	1	2	11	70
Fiat 126p	11	1	0	2	5	83
Subaru Impreza STI	11	4	4	6	9	78
Volkswagen Passat	5	0	2	4	23	64
Dacia Duster	6	1	5	4	13	61
Lamborghini Huracan	18	6	4	3	3	83
Mustang Shelby GT500	20	5	1	3	3	96
Opel Zafira Tourer	1	2	0	11	28	66
Marginal total of actives	156	32	32	102	146	1139

Table 1 (continued). Correspondence table describing the joint distribution of the studied characteristics, source: own materials.

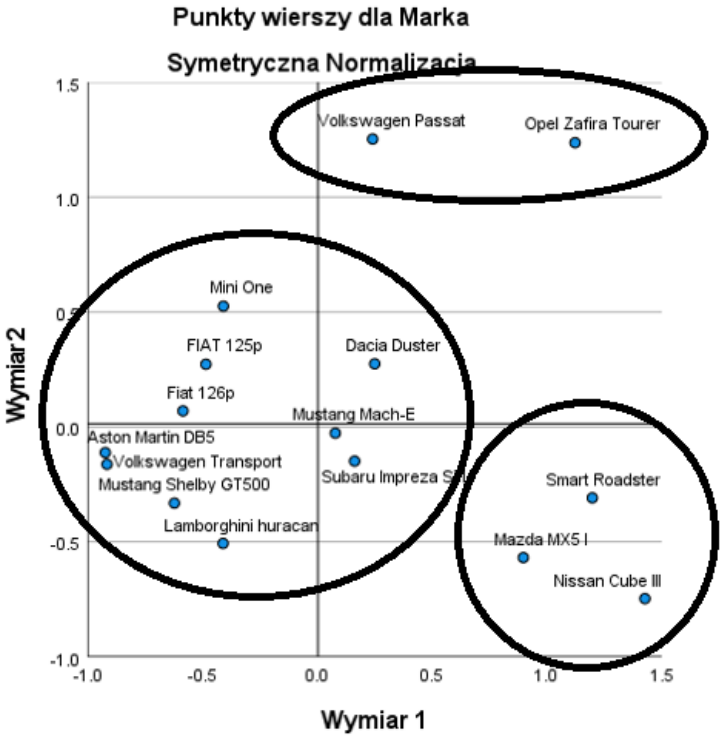
Table 2 shows all the possible dimensions, based on 15 car models and 14 emotions aroused while the participant looked at them. There are 13 dimensions in total and each of them is associated with a singular value, according to which the decomposition of the correspondence matrix was carried out.

Dimension	Distinctive value	Inertia	Chi--square	Relevance	Inertia ratio		Confidence – a distinctive value	
					Explained	Cumulated	Standard deviation	Correlation 2
1	.600	.359			.579	.579	.021	.073
2	.302	.091			.147	.726	.035	
3	.256	.066			.106	.832		
4	.183	.033			.054	.886		
5	.170	.029			.046	.932		
6	.132	.017			.028	.960		
7	.107	.011			.018	.978		
8	.081	.006			.010	.989		
9	.065	.004			.007	.996		
10	.042	.002			.003	.998		
11	.024	.001			.001	.999		
12	.017	.000			.000	1.000		
13	.009	.000			.000	1.000		
Total		.621	706.897	.000a	1.000	1.000		
and 182 degrees of freedom								

Table 2. All dimensions that can be determined, source: own materials.

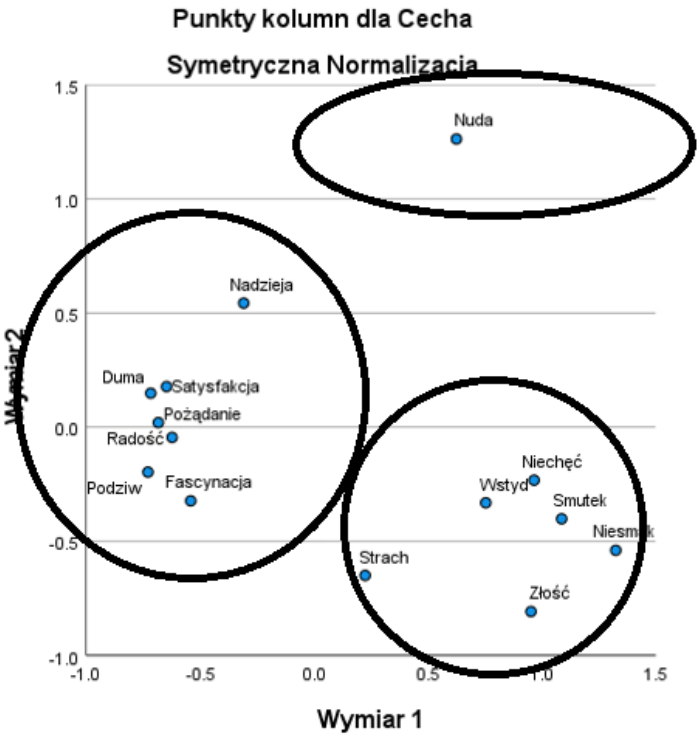
Each dimension was characterised by a dispersion score, or inertia. The inertia coefficient enables the assessment of the degree of reproduction of the information contained in the correspondence table. The greater its value, the greater the degree of information restoration. The cumulative value of explained inertia for the two dimensions is 0.726, which means that the first two dimensions reproduce 72.6% of the information contained in the correspondence table, which is a good result.[37]

The place of the brands and their attributes in the coordinate system explains the relationship of the car brand to the emotions of the person looking at the given car. For clarity, the distribution of scores for the variable 'car brand' and 'emotions' are shown in two separate graphs.



Graph 1. Distribution of scores for the variable 'car brand', source: own materials.

37 M. Rószkiewicz, *Analiza klienta*, p. 142 and other.



Graph 2. Distribution of scores for the variable 'emotions', source: own materials.

Based on the analysis, car brands can be divided into three groups. First group are boring cars; it includes Volkswagen Passat and Opel Zafira Tourer. Second group consists of brands that evoke negative emotions such as dislike, fear, anger or aversion. These include Smart Roadster, Mazda MX-5 and Nissan Cube III. The rest of the cars evoke positive emotions such as hope, satisfaction, fascination, joy or desire.

Discussion

Correspondence analysis is a data visualisation method used, among other things, in marketing to determine the characteristics that users associate with selected products.

One dominant negative emotion, namely boredom, appeared in relation to a group consisting of two family cars: Volkswagen Passat and Opel Zafira Tourer. These cars belong to the segment of brands considered as stable, functional but not particularly exciting in terms of form. The result of the survey confirms this reputation.

The second group of vehicles arousing the remaining negative emotions is varied in the nature of the form. Nissan Cube III, sometimes called 'a box on wheels', and Smart Roadster belong to utilitarian and practical designs, but the silhouette of Mazda MX-5 represents a completely different style.

However, in the group of people surveyed, this car evoked many negative emotions: for example dislike, anger, aversion or even sadness. At this point the findings are difficult to be interpreted.

The third group is most diverse in terms of design and character. It can be divided into three sub-groups: cars with a contemporary form expressing speed, power, luxury or technological advancement; a group of cars with a historical form (Fiat 125p, Fiat 126p, Volkswagen Transporter); or effectively referring to historical predecessors (Mini One) and the Dacia Duster: a contemporary, rather conservatively designed SUV. Although the 'success' of the latter model is difficult to explain, the positive emotions aroused by the cars of the 'historical' group probably prove that cars are among those products that are difficult to be evaluated solely on the basis of aesthetics; that in the evaluation of vehicles, using the Norman's terminology, the brain very quickly moves from the primary level to the reflexive level and so the emotions reported by the participants of the study are a reaction not only to the external appearance but also to the memories, knowledge and positive associations that arise when looking at the given object.

The respondents also mentioned a number of other emotions they felt when looking at the photos of the cars in the questionnaire. These included amusement, sentiment, interest or lack of affection. However, these were responses reported by individual respondents only.

The research experiment carried out with the use of an adapted version of the PrEmo research tool made it possible to group car brands according to the emotions accompanying people looking at them on photographs. The results of the experiment may partly confirm initial expectations, and partly turned out to be surprising, giving future designers material to think about and reflect on the form of the designed artefacts. This experience has already proved useful to students to plan research in the design process during their diploma assignments.

I would like to thank doctor Przemysław Tomczyk for his help in using correspondence analysis to develop the research results.

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DESIGN FOR CHILDREN IN THE PERSPECTIVE OF MEDICAL PRODUCTS. REFLECTIONS FROM THE SPECIALIST AREA IN RELATION TO THE DESIGN CHALLENGES OF THE FUTURE

Art research paper

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Abstract

The article deals with the aspect of contemporary directions in the design of products for children, focusing in particular on the equipment for rehabilitation and from the field of medicine for the youngest users. Selected examples and some elements of this vast issue are discussed. The aim of the study is to reflect on the impact of design on the well-being of young patients who face the need to interact with the medical environment. The background of designing this type of solutions is the general topic of designing products for children. These themes are set in the context of contemporary design and the long-term impact of design solutions on people, which is the content of the author's summarising reflections.

Keywords

design for children, rehabilitation products, strategies in design, medical design, attractiveness of children's products, new design challenges

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Introduction

> If you can assess the child's rejoicing and its intensity, you will readily notice that the supreme joy is that of a difficulty surmounted, a goal attained and a mystery uncovered, the exaltation of triumph and the happiness of independence, proficiency and power.[1]
>
> Janusz Korczak

The above quotation can be an interesting inspiration when designing for children. Would it not be great if designed objects had this kind of effect: awakening natural curiosity, presenting the child with well-chosen difficulties that will allow them to build a sense of independence and self-confidence?

It is worth asking ourselves whether these words of Korczak match the direction followed by the design for the youngest. Modernity offers convenient shortcuts in ever new fields of life, regardless of the age of the user. When designing with the children in mind, it is worth taking a special look at the environment of their development. The products they use will influence the way they perceive and react to the world around them (also later as adults).

We produce the tools with which we courageously transform the world, but this does not work one way only. Let us quote Marshall McLuhan, who stated that "we shape our tools and then they shape us".[2] Consciously or unconsciously, throughout our lives we choose objects that have a real impact on the mental and physical quality of our life: they can stimulate the development or the loss of agility. Particularly important are here the choices made in shaping the developmental environment of children.

Designing for children

Childhood is a learning-oriented period, which means that the influence exerted on a child through design can be significant. Designing toys and educational products is a particular challenge as it requires to take into consideration the physical variability, the user's ability to adapt, the formation of thought processes, skills and the development of cognitive mechanisms. This translates into difficulties but also opportunities. Sometimes, the visual layer of the children's products dominates the design, even though children very actively perceive the world with all their senses. Adults use the sense of sight to identify the surrounding phenomena more quickly, which is due to their previously accumulated experience.

1 J. Korczak, *How to Love a Child. The Child in the Family*, transl. Jerzy Bachrach, https://www.januszkorczak.ca/legacy/CombinedMaterials.pdf [accessed: 12/05/2022], s. 130.

2 T. Walczyk, *Poznanie ucieleśnione w rzeczywistości wirtualnej*, "Kultura i Wartości", 21 (2017), p. 106, https://journals.umcs.pl/kw/article/view/5483/4143 [accessed: 28/01/2022].

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Sight separates you from the world, while perception with other senses allows to experience it more deeply[3], this is one of the thoughts from the renowned book *The Eyes of the Skin. Architecture and the Senses* by Juhani Pallasmaa. When you look at the children's toys on the shelves in shops, they compete for attention with visual message. The child's interest in a toy at first contact is quite different from the attractiveness of such an object in the long term. Another interesting phenomenon in this context are the so-called timeless toys, which seem invariably attractive to children, regardless of the times. The simple form, usually enabling manipulation and discovering new features of the object, allows for the improvement of skills and the realisation of the children's universal developmental needs.

It is also worth mentioning that some products are considered as not justified by children's real developmental needs. These include, for example, knee pads for crawling, a helmet or cushion (attached behind the child's head) for protection when learning to walk or the baby walker itself, as well as products related to baby nutrition. This group consists of all sorts of eating facilitators, i.e. sets of crockery and cutlery for healthy children, which relieve them of the need to acquire precise grasping skills.

These products are intended to serve the child, usually by protecting them and offering support. Judging by the wide offer of such products on the market, there is a considerable demand for them. However, it is worth noting that they are criticised by the pedagogical community as regards the validity of their functions. Manufacturers exploit the strong natural urge of parents to protect their children and provide them with the best conditions for development. This is why articles for healthy children are often full of solutions that are overly relieving and easing, which, as a result, delays the little user's development. Overcoming age-appropriate difficulties is the foundation of acquiring new skills, while avoiding them translates into problems in the child's normal development. The abundance that children are nowadays surrounded puts down their motivation to act.

The design of objects for children is aimed at obtaining the most attractive appearance possible (no matter if it is about a cup, a toy or a piece of furniture), which results in an oversaturation of stimuli. It has been proved that a large number of toys in a child's environment extinguish the desire for discovery, exploration of the environment and inventiveness. Children who are overwhelmed by an excessive number of stimuli do not develop proper cognitive mechanisms.[4]

3 See J. Pallasmaa, *Oczy skóry. Architektura i zmysły*, transl. M. Choptiany, Kraków 2012, pp. 30, 33.
4 See M. Kielar-Turska, *Obraz dziecka w rozwoju*, https://p54waw.szkolnastrona.pl/index.php?c=getfile&id=70, s. 9, [accessed: 13/03/2022].

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Medical products for children

This special area of design requires interdisciplinary design teams. Tangible benefits have been observed from adapting products as well as medical and waiting rooms to the children's needs. It is recommended that this type of premises reminds the child of familiar spaces (e.g. nursery playrooms), so to reduce the uncertainty when confronted with unfamiliar medical procedures. Allowing children to play makes them fill the waiting time for appointments and shortens its perceived duration. Elements of interior design that can increase emotional reactions, such as large colour contrasts and lighting, are reduced. Disturbing noises from medical equipment in offices are also avoided.[5] Moreover, attempts are being made to adapt medical equipment to the specific perception of the child. This approach may seem impractical, but it has a reasonable basis. The child, who is at the stage of building up their experiences, experiences situations that are new to them in an intense and emotional way. Good childhood experiences can reduce aversion to medical facilities and their future avoidance by adults, which can translate into benefits for the preventive health care.

When looking at different solutions in the area of child-directed medicine, different design strategies can be noted, which will be presented below together with some illustrating examples.

Examples of designing for children with disabilities

One of the design practices in the sphere of medical products is to not only ensure that the function of the product is met but also to take into account the well-being of the child, so that they do not feel inferior because of their disability and are not excluded from their peer group. Giving a medical device intense colours or a form resembling a toy allows such devices to be accepted in the child's everyday life, as they can then represent an attractive 'gadget' for the peer group.

5 See *Stomatologia wieku rozwojowego. Psychologiczne aspekty kontaktu lekarz stomatolog–pacjent dziecięcy*, M. Szpringer-Nodzak, M. Wochna-Sobańskaj (eds.), Warsaw 2003, p. 248.

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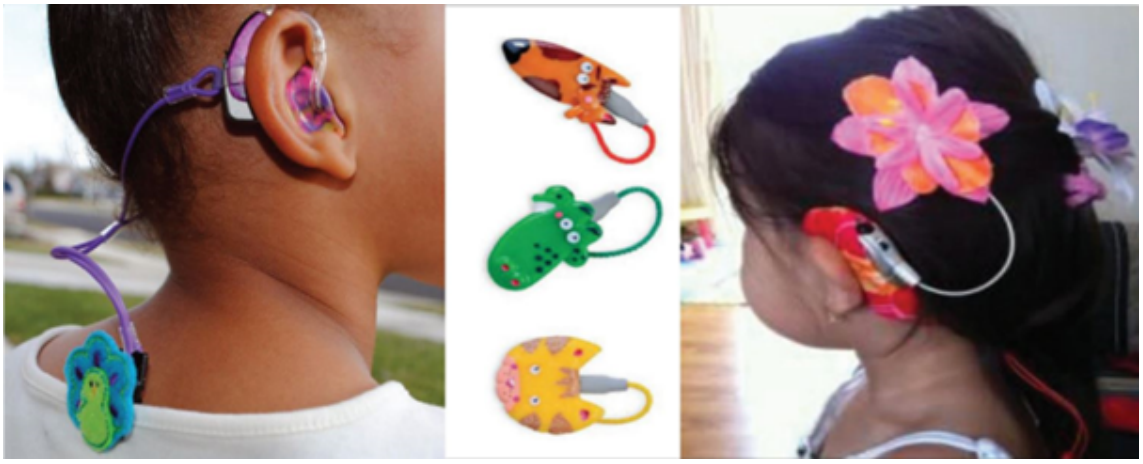

Il. 1. Personalised hearing aid for a child Westone Company NWSDHH; these types of products are often personalised, e.g. by carers; they are not a mass-produced item, www.northwestschool.com/files/2016/09/Ear-Gear-Protection-Devices.pdf [accessed: 14 January 2022].

Il. 2. Atomic Lab – 3D printed mechanical hands and arms. A project called Limbs, which supplied more than 800 prostheses worldwide between 2016 and 2018, www.livescience.com/49939-3d-printed-organs-and-prosthetics-reconstruct-healthcare.html [accessed: 29 January 2022].

Examples of toy objects used to make the medical procedures more familiar

These products are characterised by their scale tailored to the child, giving a sense of control. This procedure satisfies the natural need for playful repetition, imitation of a situation transferred from reality. The use of symbolic objects enables to familiarise the child with the subsequent stages of a medical procedure. The child can thus control the given situation (on a modified scale and with roles reversed).

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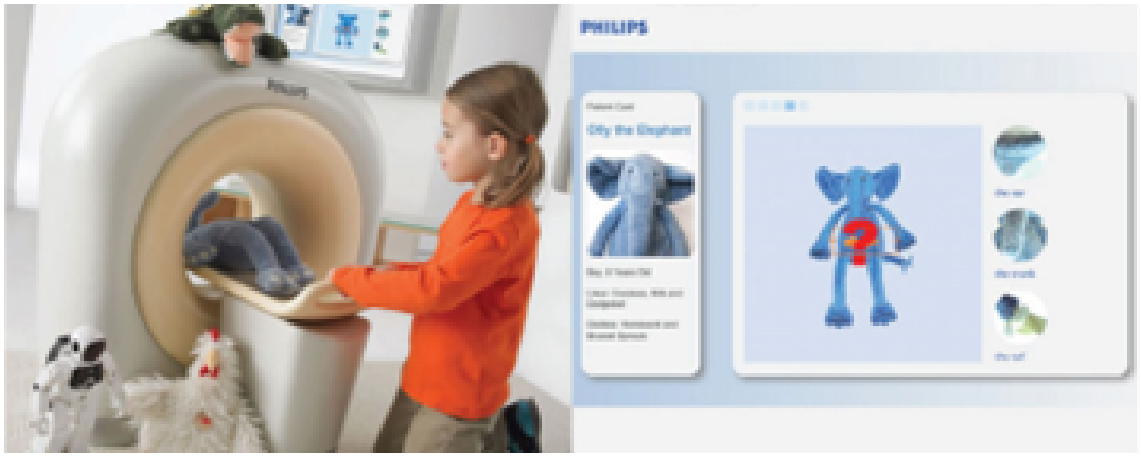
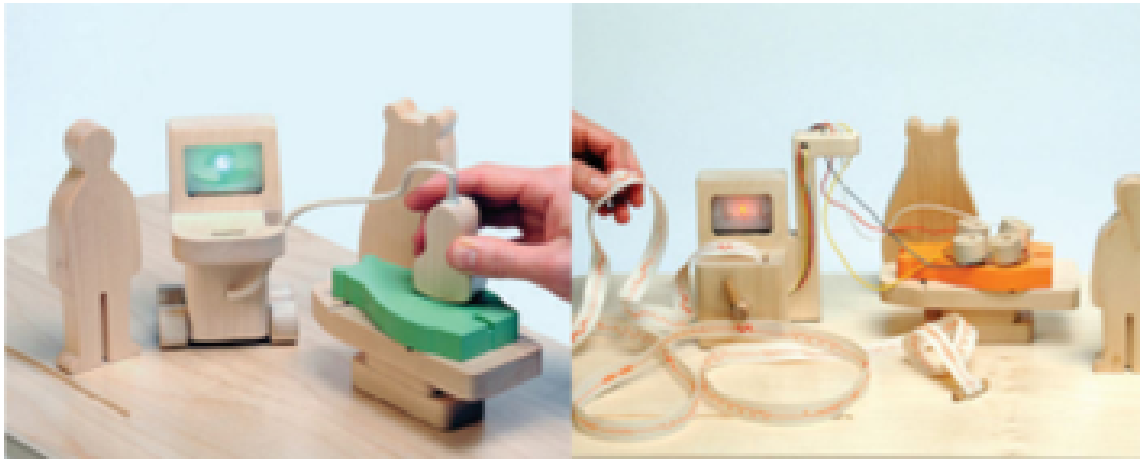


Il. 3. A scaled-down model of a CT scanner: a product designed for use in a hospital together with four 'plush patients' is an educational kit that explains the principle of operation of this diagnostic device. KittenScanner for paediatric patients at UCSF Benioff Children's Hospital in Mission Bay, placed in the radiology department waiting room as part of the Ambient Experience project, www.radiology.ucsf.edu/blog/ucsf-introduces-kittenscanner-pediatric-patients [accessed: 13 December 2021].



Il. 4. Set of wooden toys: a product designed for Advocate Hope Children's Hospital in Oak Lawn, Illinois by Hikaru Imamura, www.core77.com/posts/23057/hikaru-imamuras-toys-make-hospitals-a-little-less-scary-23057 [accessed: 20 December 2021].

Visual modification of medical devices

This design strategy consists in modifying the visual character of medical devices, for example through appropriate styling that draws the child into a game: a play scenario, in which the rules are aligned to the plan of the medical procedure, so that the procedure run smoothly and spare the patient the fear of the unknown. The aim is to guide the child's behaviour during the examination.

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Il. 5. GE Adventure Series: a product of the American company GE Healthcare. The project consisted not only of the appearance of the CT scanners, but also involved the introduction of play scenarios in which the children were encouraged to remain still during the examination. The child played at hiding from the pirates by remaining completely motionless. This enabled obtaining a valuable examination result, which eliminated the need to administer sedative drugs. The pilot project at UPMC Children's Hospital in Pittsburgh, USA, was successful, www.resonvate.com/reimagining-medical-imaging-with-experience-design/ [accessed: 23 January 2022].

Il. 6. Mobilett Mira: a mobile X-ray machine equipped with a Siemens wireless detector. It is presented as one of the smallest mobile x-ray systems on the market, which is why it is often assigned to be used in the paediatric wards. The company has prepared a version that is designed in a more child-friendly manner, www.medgadget.com/2011/03/mobilett_mira_mobile_wireless_xray_from_siemens.html [accessed: 23 January 2022].

The examples of designing for children in the medical field include also some controversial cases. The boundary of styling is sometimes difficult to be clearly defined, as it depends on individual sensitivity or circumstances of use.

In the author's opinion, particular doubts may be raised by solutions, which concern, for example, the juxtaposition of negative stimuli, such as pain connected with the procedure, with positive stimuli

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presented in the visual layer of products. This applies to toy-like objects that are actually instruments for performing the treatment (e.g. syringes shaped like airplanes or catheters with animal-like attachments). As a result, the child prepared to play experiences pain. Similar concerns may be raised by medical masks with smiles printed on them. Here, the invariability of the expressed emotions communicated by means of graphics may prove grossly inadequate to the situation of the child and their emotional state changing due to the circumstances.

In the author's opinion, the above examples of product styling expose the child to the loss of confidence and increased number of anxiogenic situations. In conclusion, it is not the objects themselves, but the objects in the hands of people with the right attitude and knowledge, that can help the child cope with difficult situations.

Exercise and rehabilitation products for children: design strategies

A special feature of rehabilitation products is that they are used for long periods of time filled with effort and discomfort or pain sensations that occur during exercise with the particular device. Apart from the physical discomfort, there is also the question of monotony of repetitive and long-lasting activities, which is definitely contrary to the children's nature. This may be problematic when it comes to engage the young patient in therapeutic activities. In addition, the effectiveness of the exercises may be affected by the mood of the day, the child's disposition or the place of exercise (home or facility). These difficulties are faced by the physiotherapists and carers on a daily basis. It is worth looking for solutions, i.e. tools that would help strengthen the children's motivation. Play is an effective way of encouraging exercise, but it must not be too strenuous or time-consuming for the staff.

The visual appeal of the item alone is not enough when the aim is to keep the exercises regular. The first feeling on contact with the object, which was important in the medical products presented earlier, loses its importance in this context. In the case of the rehabilitation products, contact with the user must be considered from a long-term perspective. Any qualities that can enhance the positive emotions associated with exercise will matter. This area promotes the design focused on human in a holistic way, i.e. taking into account not only the physical aspect of exercise, but also the emotions that they provoke.

An interesting attempt to address the problem of children's lack of motivation for rehabilitation exercises is described in the article *How to Use Low-Cost Devices as Teaching Materials for Children with Different Disabilities*.[6]

6 See Ch. Lin, *How to Use Low-Cost Devices as Teaching Materials for Children with Different Disabilities*, [in:] *Assistive Technologies*, ed. F. Auat Cheein, 2012, https://www.intechopen.com/books/assistive-technologies/application-of-interactive-design-as-teaching-materials [accessed: 6/02/2022].

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The authors of the project aimed to create a low-cost rehabilitation programme based on interaction. The study was conducted on children with infantile cerebral palsy who required daily rehabilitation. A device of very simple structure and using commonly available, low-cost electronic components was designed to provide positive feedback during exercise. The device was a wireless computer control system made up of emitters and a controller. Emitters were attached, for example, to a cap or band placed on a limb in need of rehabilitation. By performing a therapeutic movement, the child could control the images displayed on the monitor (switch personalised slides with graphic material). The results of the study definitely confirmed the increase in motivation for physical activity and the effectiveness of the daily rehabilitation programme thus implemented. The solution was aimed at the possibility of individualising the programme's operation and keeping its costs as low as possible (below USD 35).

Similar solutions are entering the commercial market for rehabilitation products. They are also being studied at the Polish universities. An interesting example for that is the research project *Interactive devices for lower limb rehabilitation* ran at the Silesian University of Technology. This time rehabilitation was based on a play: a computer game controlled by specially constructed pedals.[7]

Research into rehabilitation games is an emerging field offering significant benefits. It combines the paths of interdisciplinary areas that can help create solutions that are more effective than those used to date. When applied to electronic technology, it makes it a precious ally. There is a specialisation in this direction, namely the product concept that is specifically aimed at the so-called biofeedback. It seems to be breaking new ground in the area of the communication of human with high-tech environments. Importantly, it allows to respect the individual psychophysical conditions of each user. Below is an example of a research conducted in this area. It is not specifically aimed at the child user, but the principle of its operation (in the author's opinion) provides an interesting solution for users of all ages. The project, described in the article *Calm Technology for Biofeedback: Why and How?* is dedicated to an unusual piece of furniture: an interactive product that facilitates relaxation through breathing practice.[8] Its designers were looking for a way of the product-user communication other than the visual one.

7 See D. Tejszerska, M. Gzik, W. Wolański, D. Gąsiorek, B. Gzik-Zroska, *Interaktywne urządzenia do rehabilitacji kończyn dolnych*, "Modelowanie Inżynierskie", 38 (2009), pp. 244, 247.

8 L. Feijs, F. Delbressine, *Calm Technology for Biofeedback: Why and How*, Proceedings from the DeSForM conference Semantics of Form and Movement, Sense and Sensitivity, Eindhoven 2017, https://pure.tue.nl/ws/portalfiles/portal/79502233/calm.pdf [accessed: 16/05/2021] pp. 17, 18, 21.

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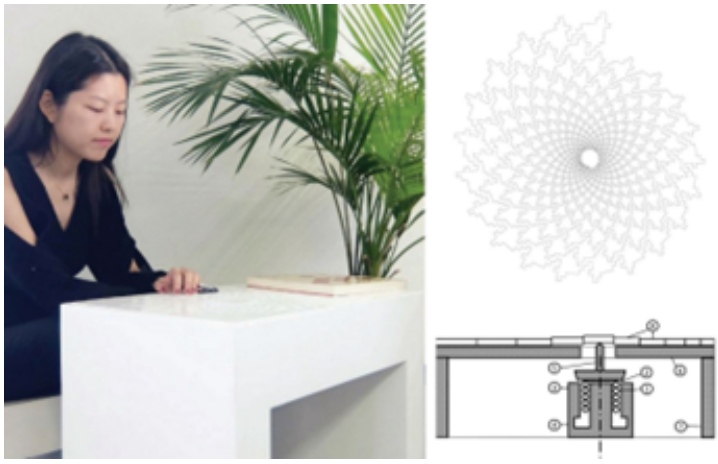

Il. 7. Research project *Calm Technology for Biofeedback: Why and How?* by L. Feijs and F. Delbressine, Department of Industrial Design, Eindhoven University of Technology, https://pure.tue.nl/ws/portalfiles/portal/79502233/calm.pdf [accessed: 27 February 2022].

The interactive system is built into a table, the top of which serves as a kind of interface. It allows to visualise the breathing cycle by subtly changing the shape of the tabletop plane by moving up and down the spirally arranged modules. The user observes the changing shape of the tabletop and the rhythm of the subtly moving surface; places their hand on it, closes their eyes and feels the gentle movement. Initially, the breathing is adapted to the rhythm of the moving tabletop surface, and then the system gradually, automatically, moves into feedback mode. The sensor clip attached to the user's finger records changes in heart rate, which increases on inhalation and decreases slightly on exhalation. Based on this data, the system adjusts the course of the breathing session. The amplitude of movement of the tabletop segments increases when the heart rate is slower, which means greater calm. The user exercise is aimed at maximising the amplitude of the tabletop movement. The table was designed by Sander Lucas and is produced by the LUCAS & LUCAS studio in Eindhoven.

The direction shown with these projects offers new possibilities and an alternative to the current solutions based on visual messages, for example through the omnipresent touch screens, which contribute to overloading the user with visual stimuli.

The latest design solutions are inspired by the holistic knowledge about human. Thanks to the significant technological opportunities, this can be a source of greater changes in the approach to design, which would be beneficial especially in the case of the for long-term user contact with a given product. Designing responsive objects and environments requires a deep understanding of the physical and mental aspects involved in shaping the human environment. This is why it makes sense to take into consideration the close contact between the designer and the material from the very beginning of the creative process, as the first contacts with the form under development give access to a valuable resource of knowledge.

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Contemporary design direction: reflections based on the area in question

Every object that we 'add' to our reality begins to affect us also in the areas for which it was not initially designed. This is why an interdisciplinary approach to design is growing in importance, and the direction of design in the recent years can be described as human-centred. Is this really the case? Although user research is gaining in popularity, but it is focused mainly on consumer needs. Design puts at its heart people's needs, or rather their desires, which does not always match with what is really beneficial to them. Technological solutions are usually aimed at making things faster and easier. Design thus seeks to reduce the effort involved in human functioning in the world in a visible and measurable way. If something can be done more simply, people will generally do it that way. This mechanism allowed us, in the process of evolution, to save energy and minimise the biological costs of the activities undertaken. It is also a powerful motivation for invention of all kinds. We can assume that the results of consumer research, that are the basis for the future design of products and services, will contain user preferences for reduced involvement in everyday activities. However, this is where the paradox comes in, as the body needs an effort optimised to individual capabilities.

In nature, there are many mechanisms of adaptation to periodic resource scarcity and the need for effort. A demanding environment mobilises the body's strengths, recovery capacity and resilience. In the long run, people perform worse in affluence and deprived of the need of motivation, i.e. in the state we actually all strive to achieve. This is why the excess and overproduction, typical for modern times, hit a weak spot in our evolutionary adaptation. The phenomenon of civilisational diseases should serve as a warning in this sphere. Indeed, the current design trend focuses on people, but mostly on their comfort. Is this the very purpose for which we need science, technology and design? What we use to call the "user's needs" often take the form of cravings. In the book by D.A. Norman entitled *Emotional Design: Why We Love (or Hate) Everyday Things* we can read that cravings are sometimes stronger than the need.[9] Perhaps it is indeed worth asking ourselves: what are the needs of modern human?

In the context of sustainable development and the humanisation of technology, we can refer also to the famous formulation of Victor Papanek: "There are professions more harmful than industrial design, but only a few."[10]

The author is convinced that design can actually save us, but only if it does not serve only to satisfy the cravings and build shortcuts that bring short-term benefits. This is not a voice against development. It should be noted that the essence here is a deeper, holistic view of the real needs of human beings

9 Cf. D.A. Norman, *Wzornictwo i emocje. Dlaczego kochamy lub nienawidzimy rzeczy powszednie*, transl. D.Skalska-Stefańska, Warsaw 2015, p. 43.
10 V. Papanek, *Design for the Real World: Human Ecology and Social Change*.

and the diversity of ways in which people function in the world. There are and will be no ready-made answers or templates; what there is, instead, is a space for designers and technology development.

Special attention should be paid to design related to products designed for children, the elderly or for the purposes of rehabilitation. In these areas, design brings a particular experience that can be extended to design in general, and serves as an interesting source of innovation. When designing for the above-mentioned groups, there is a need to take particular account of the issues from the sphere of psychology, psychophysiology, ergonomics and the individuality of the user. The research area of product-user relations is important also in the longer term. The perspective of the consequences of using the given product in the long term allows to discover an interesting design area. It is then that the product actually starts to respond to the users' needs. These are elements that will be a good and probably necessary complement to the use of high technology solutions. The humanistic aspect of design plays a significant role here. It is often marginalised faced with the technical dimension associated with innovation. However, overlooking this side of design results in creating human-unfriendly environments. The strength and value of design relies on the coexistence and balance of both these aspects.

Summary

The intention of the author of this article was to present selected examples from a specialist area that can inspire thinking about the challenges of the future faced by the designers. Products in these areas will engage the user in long-term, often arduous activities, which will show clearly how important is good design in this domain. This is interesting, as human attention and time are currently the particularly desirable values when it comes to design.

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A CERTAIN PLACE ON THE INTERNET. REDDIT PLACE

Art research paper

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Abstract

An analysis of the place-phenomenon called The Place from the point of view of cultural, technological and organisational performance as understood by McKenzie, and noting that this phenomenon was a reflection and unintentional simulation of our aspirations in the physical (non-virtual) world. Passing through the cycle of life: birth, growth and death, it remains a digital record symbolising power, war, creation and destruction.

Keywords

r/place, reddit, cultural performance, technological performance, organisational performance

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Internet is a new virtual reality in which the 'analogue' norms and customs are implemented.

When addressing the topic of human presence in the world of Internet, it is important to distinguish between three realities: physical, electronic and virtual. Physical reality is what surrounded man before the invention of the computer: it is the environment in which human live. Virtual reality is somewhat physical, because it operates on physical units, it is perceived by the human senses in the same way as the real world; however, in the present paper, it means the world happening in virtual space, which includes, among other things, the space of video games, software, as well as the Internet and all the elements it consists of. The electronic world means hardware: all the equipment which enables the perception of virtual world: computers, smartphones, tools used for augmented reality.

Fig. 1. Relationships between the realities in which human live. 1. real world, 2. electronic world, 3. digital world. Author's scheme.

In the present paper I will analyse the phenomenon-place called r/place from the perspective of cultural, technological and organisational performance as defined by McKenzie.

Front page of Internet

When you type the search term 'reddit' into Google, the first link available bears the title: "reddit: the front page of Internet". On the linked website we can read: "Reddit is home to thousands of communities, endless conversation, and authentic human connection."[1] It is a space where there is a kind of collection and mixture of everything, where every registered user posts their content: photo, music, text, link. Reddit is divided into subreddits, i.e. separate thematic spaces: from those dedicated to travels and technology, through the topics of pop culture and current world events, up to very abstract topics, such as: r/BreadStapledToTrees, r/ChairUnderWater, r/TreesSuckingOnThings, r/MonksLookingAtBeer. Currently, i.e. as of 2021, there are over 2.8 million subreddits, including

1 https://www.redditinc.com [accessed: 16 July 2021].

over 130,000 active ones (having at least 5 new posts or comments per day).[2] It is not only a place, it is also a meeting, a virtual space-time allowing the exchange of ideas and on-line resources.

r/place

On 1 April 2017, April Fool's Day, the following message was posted on Reddit:

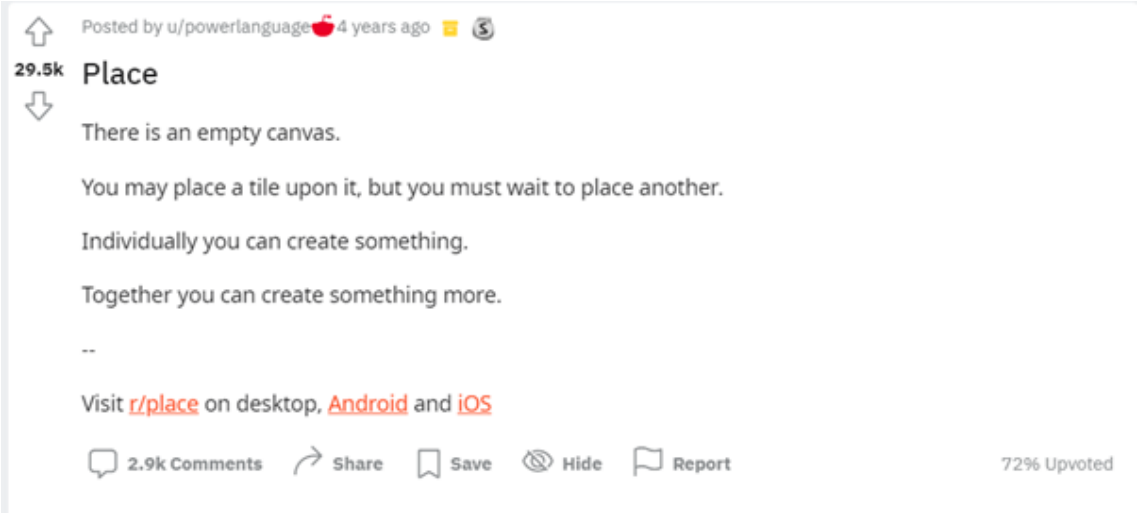

Fig. 2. r/place, announcement of the experiment on Reddit, https://www.reddit.com/r/announcements/comments/62mesr/place/ [accessed: 16/07/2021].

It was a blank white grid of 1000 × 1000 pixels, totalling one million squares that could be filled with one of 16 colours of your choice. Anyone with a Reddit account was able to take part in the event between 1 and 3 April 2017. Ultimately, 1.2 million Reddit users decided to participate. The rules were simple: each user could choose an empty space and place one pixel of the chosen colour anywhere on the grid, including where someone had already placed something. This action could be repeated every 5–20 minutes.

Initially, the canvas was filled in a chaotic, random and unplanned way, but as the event went on, many people belonging to particular subreddits started to form specific groups. What we can admire as the final work was mostly created by hundreds of users collaborating with each other. Many elements had to be drawn or processed again as pixels could be overwritten throughout the event. Some images were created by already existing and active subreddit communities, for example the large red square with black text, a quote from the *Star Wars* prequel, placed in the middle of the canvas was created by the r/PrequelMemes group formed to create memes about the *Star Wars* universe. There are also plenty of communities created precisely from the desire to create something in The Place

2 Ying L., *10 Reddit Statistics Every Marketer Should Know In 2021 [Infographic]*, 2011, https://www.oberlo.com/blog/reddit-statistics [accessed: 16 July 2021].

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– for example r/TheBlueCorner, a group that wanted to paint in blue as much of the bottom right-hand corner as possible, or r/MonaLisaClan, which drew a pixelated version of Leonardo da Vinci's *Mona Lisa*.

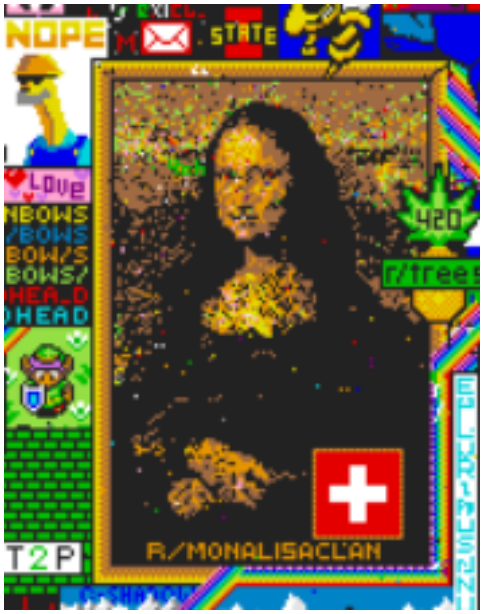

Fig. 3. Mona Lisa by r/MonaLisaClan, https://www.generalistlab.com/wp-content/uploads/2020/06/Final--canvas-from-The-Place-Reddit-Experiment.png [accessed: 30/09/2021].

Fig. 4. Board with the quote from the Star Wars prequel, https://www.generalistlab.com/wp-content/uploads/2020/06/Final-canvas-from-The-Place-Reddit-Experiment.png [accessed: 30/09/2021].

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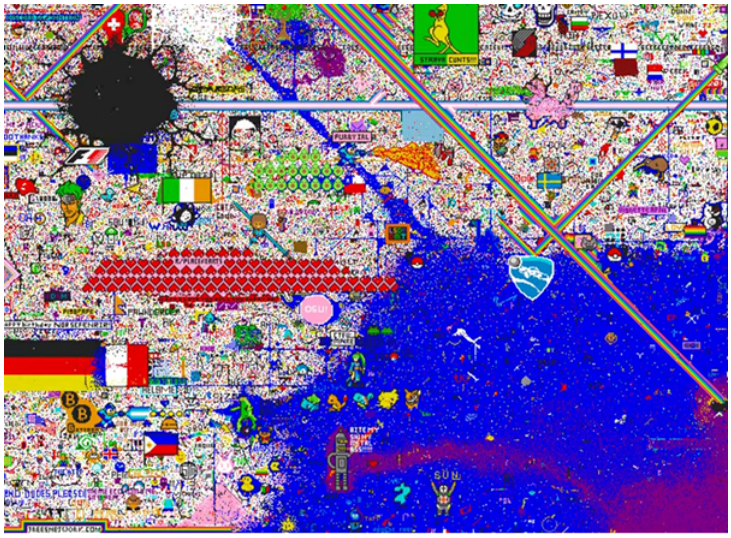

Fig. 5. Blue Corner, https://youtu.be/XnRCZK3KjUY [accessed: 30/09/2021].

Users can be divided into three main groups. The first consists of Creators. Their main goal was to create something that was not a mass of random pixels. The participants very quickly realised that in order to achieve this, they had to join forces. They shared common interests, such as video games, Pokemons, sports teams or their country of origin. From on the database created after the event, we can learn that the Germans preferred yellow, red and black, the Dutch preferred orange, while the Australians preferred green and yellow.[3] One of the largest flags drawn was the German one, which began to grow towards the small French flag. Despite objections from some users to spare the neighbouring flag ("last time we did... well let's say it didn't work out that great in the end"[4]), the German stripes absorbed the French ones.

Participant gathered in groups to create, but also to destroy. A group of Destroyers know as r/theblackvoid tried to paint every pixel black, and one of the users compared this destruction to the invigorating effect of fires on the forest ecosystem and the inherent element of life.[5] They started their destruction in the middle of the canvas with a single black pixel, devouring all the effects of the Creators' work encountered along the way.

3 u/Drunken_Economist, *Place Datasets (April Fools 2017)*, [in:] r/redditdata, Reddit, 2017, https://www.reddit.com/r/redditdata/comments/6640ru/place_datasets_april_fools_2017/ [accessed: 21/09/2021].

4 Cuthbertson A., *Reddit Place*: *The Internet's best Experiment Yet*, "Newsweek", 2017, https://www.newsweek.com/reddit-place-internet-experiment-579049 [accessed: 21/09/2021].

5 u/zwolfp, *I used to hate the Void but watching the time-lapses I see they're a vital part of the r/place ecosystem. Like a forest fire making way for new life*, [in:] r/place, reddit, 2017, https://www.reddit.com/r/place/comments/636xjc/i_used_to_hate_the_void_but_watching_the/dfrron8/ [accessed: 21/09/2021].

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One of the alliances wrote its own manifesto entitled *We're Your Friends Now. A history of the friendships that made The Green Lattice great,*[6] which includes treaties, rules of diplomacy, a description of the group, as well as a history of the battles and skirmishes that happened during the whole event.

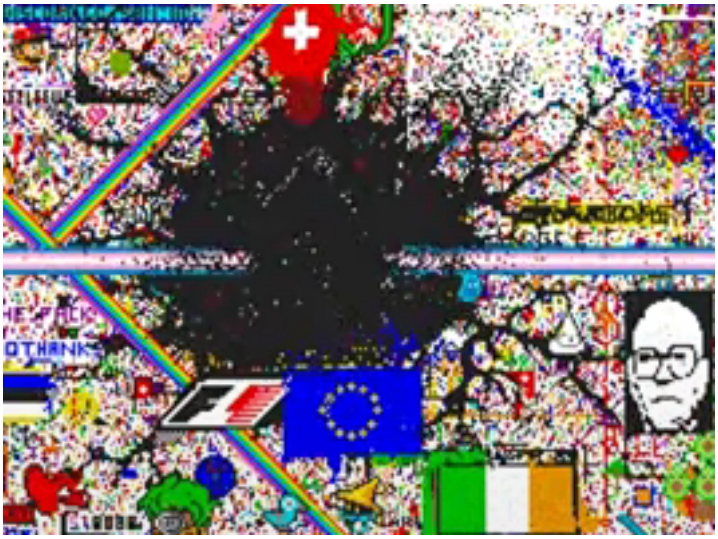

Fig. 6. The destructive actions of the r/theblackvoid group, https://youtu.be/XnRCZK3KjUY [accessed: 30/09/2021].

Fig. 7. Stages of creation of the Black Void, https://www.reddit.com/r/RotMG/comments/62vmbg/the_void_consumes_all_xpost_from_rplace/ [accessed: 30/09/2021].

The third faction was called the Defenders. Some of them initially belonged to the group of Destroyers, who tried to paint as large area as possible in blue (r/BlueCorner), red (r/RedCorner) or green (r/GreenLattice). The other participants began to fight these factions by drawing their own elements on the solid patches of colour. The supporters of solid colours retreated and decided to douse the newly created paintings with colours, thus combining different elements into one. In the Defenders group, you can also find factions or individual users who used to clean the existing images of unwanted pixels or helped other groups fight the Black Void consuming everything around them.

6 Jojo6311, *We're Your Friends Now. A history of the friendships that made The Green Lattice great. The story of the Green Lattice from Jojo6311, a moderator of the community*, 2017, https://docs.google.com/document/d/1qbdTWoXblOBSwp-J8TGBiRBlKm8PEFAApWM7zZaDb8MU/edit [accessed: 21/09/2021].

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During the 72 hours of the event, groups united and broke up, alliances were formed, wars were declared, and the drawn representations of different interests and passions were defended. Timelapse of the experiment can be viewed on YouTube (https://youtu.be/XnRCZK3KjUY).

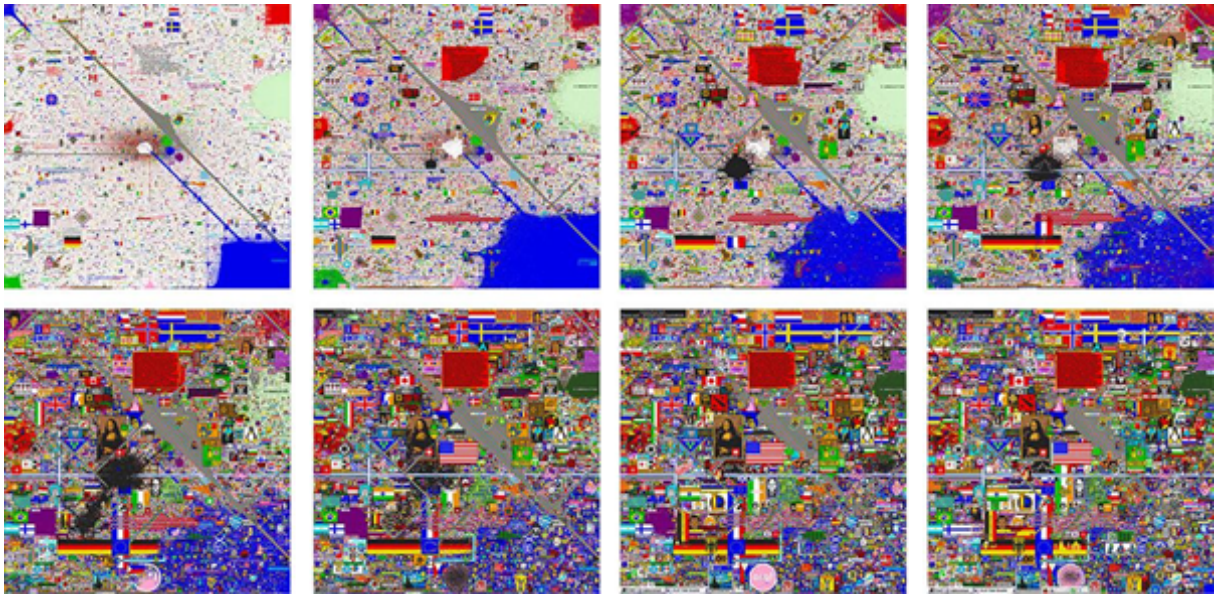

Fig. 8. Stages of the development of r/place, https://youtu.be/XnRCZK3KjUY [accessed: 30/09/2021].

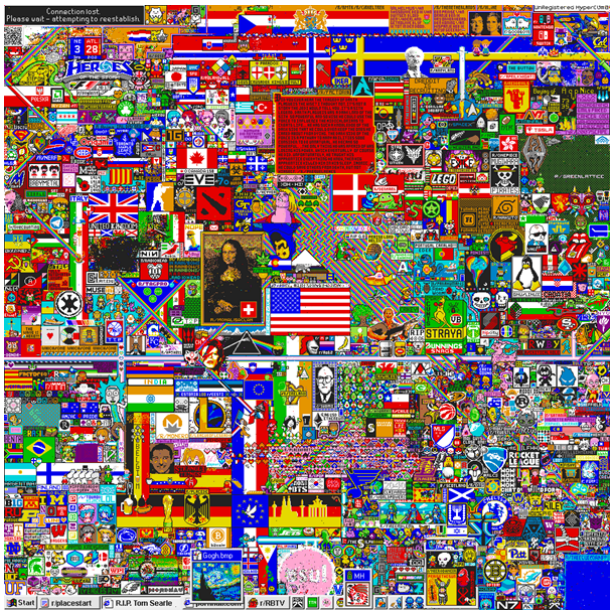

Fig. 9. Result of the r/place experiment, https://www.generalistlab.com/wp-content/uploads/2020/06/Final--canvas-from-The-Place-Reddit-Experiment.png [accessed: 30/09/2021].

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Description from the point of view of cultural performance

> The field of cultural performance, defined over the last half century, encompasses a wide range of activities conducted around the world. They include traditional and experimental theatre; various rites and ceremonies, mass events such as parades and festivals; ballroom, classical and experimental dance; oral transmission of literature (e.g. speeches and public readings); folk traditions of rhapsody and storytelling; aesthetic practices of everyday life such as plays and social life; political demonstrations and social movements.[7]

Performance as understood by McKenzie goes beyond the sphere of ceremonies, rituals, music, dance, theatre or film. It has been used by anthropologists as a tool to study rituals, while the sociologists used it to study the efficiency of social interactions. The whole world is one big global performance, and r/place is a phenomenon-place that focuses this global performance like a lens. It was a reflection and unintentional simulation of aspirations from the physical (non-virtual) world.

In r/place, users did not even have a virtual body that could act as a substitute for a sense of presence. Although each of them was represented only by a single pixel in one of 16 colours, they behaved as if they were in the real world: they gathered in groups, formed alliances, fought with other groups, and acted independently without even having a body of their own. Although the whole process took place in the form of a game in a virtual world, human behaviour did not differ from that encountered on a daily basis, in the world of physical reality, both from the global and local perspectives. The site became a lens through which various elements from the physical world passed into the virtual world and created a mini-civilisation. These elements manifested themselves not only in their physicality, like the national flags, Leonardo da Vinci's *Mona Lisa* painting or images of cartoon characters, but also in what drives us to act: relationships, alliances, desires, goals.

> [...] physical space determines human, and electronic space is determined by them.[8]

The r/place is a place where users realise their goals, treat it as their personal site, have the possibility to create the world, perform themselves. The Internet is a transposition, a re-writing of physical reality into virtual reality in a different time-space dimension.

> The Internet and cyberspace offer new ways of creating identities and new spaces for self representation.[9]

People experience the r/place space as their own, as a world in itself. As time passes, rules and norms are developed and corrected, while the incorrect behaviour is defined. „Perform – or else: be socially normalized".[10] At the same time, users, stepping out of the borders of the traditional (non-virtual) society and its established roles, move into the liminal zone to play roles in a metaphorical world that only came into existence because they took up the challenge and performed. The players did

7 McKenzie J., transl. Kubikowski T., *Performuj albo… od dyscypliny do performansu*, Kraków 2011, pp. 37–38.
8 Myoo S., *Ontoelektronika*, Kraków 2013, p. 48.
9 Stöckl A., *The Internet, Cyberspace and Anthropology*, *The* "Cambridge Journal of Anthropology", 23 (2003), No. 3, p. 67, on-line: https://www.jstor.org/stable/23820336 [accessed: 03/08/2021].
10 McKenzie J., *Perform or... Else. From Discipline to performance*, New York 2001, p. 9.

not accept the roles they were arbitrarily imposed on. They acted without a master of ceremony that would guide them through the process of entering into their new roles. These emerged during the process. The longer it lasted, the more the roles became constituted.

According to J. McKenzie, challenge is one of the most common gestures of performativity. This challenge was launched by the creators of r/place and taken up by the users: the challenge to take part in an experiment; the challenge to ask yourself, as a user, what status you occupy in the reddit society, to respond to the existing order, defend it or question it.

As the experiment progressed, users got increasingly engaged in activities[11] assigned to particular groups: Creators, Destroyers and Defenders. Just like on the "Forbes" cover cited by McKenzie, which became the starting point for his reflections. We can repeat after McKenzie: "Perform – or else..." you will be thrown out of the borders, your representation will disappear, you will no longer take part in the game.

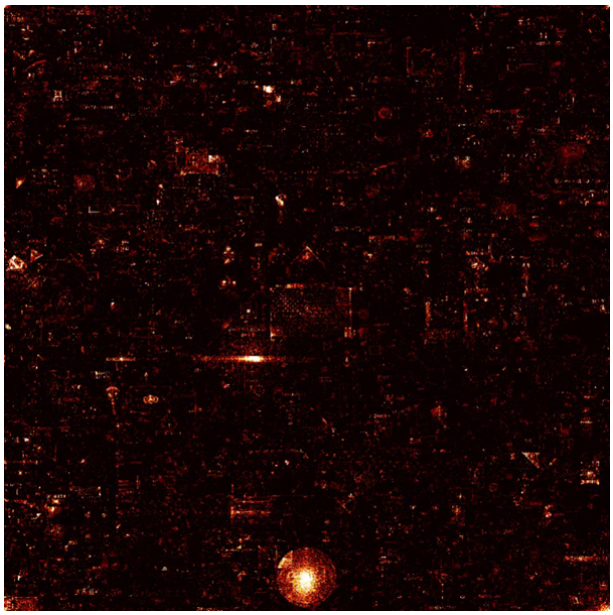

Fig. 10. Map of the activity of r/place, https://i.imgur.com/a95XXDz.gifv [accessed: 30/09/2021].

Description from the perspective of technological performance

Body is the primary medium that the performer focuses on and works with, the intrinsic ingredient-tool of performance that is experienced precisely through the body.[12] The emergence of the virtual reality in the Internet, in which the existence of the physical body has been transferred into another

11 Activity Map, https://i.imgur.com/a95XXDz.gifv [accessed: 30/09/2021].
12 Wachowski J., *Performans*, Gdańsk 2011, p. 235.

dimension of existence and reality, has caused many areas of life, including art, to move into the virtual world. This process includes also the performance.

According to McKenzie, the technological performance can be understood as efficiency and effectiveness. In this particular case, we can understand it as the efficiency of communication between the different users and its effectiveness manifested in making alliances, conquering space, winning wars and achieving the goals set. This is made possible by the high-performance technology, which manifests itself in "sports cars, stereos and missile systems".[13] Technological performance is most evident in devices designed by engineers, technicians and computer scientists in the computer, electronics and telecommunications industries.[14]

When we talk about r/place considered as a place-phenomenon, we cannot overlook its technological aspect, which made it possible to organise happen. Here the technology is only the space in which the performance takes place. It is a construction, a space-time continuum, on which the time-space is spread. Humans lose their face and body and are replaced by the graphic representation of the binary code: a pixel. Their being during this meeting is divided into time intervals measured as one second and single pixels. Being here and now is not continuous, it is discrete. Humans are dynamic, different at every moment, changing with every second and every pixel, coexisting with other users.

Description from the perspective of organisational performance

Organisational performance is related to the operation of large enterprises and the management systems that operate there and are geared towards efficiency, productivity and the functioning of the entire corporation. McKenzie mentions the performance management and contrasts it with Taylorism – a vertical type of hierarchy where decisions are made at the highest levels and employees do their work without having a say in how it is organised or done. Performative management is a horizontal type of hierarchy in which the emphasis is put on working together as a team to develop methods of action, and creativity in approaching problem solving so that work can be done more effectively and efficiently.

This kind of collaboration was already assumed at the outset by the creators of the experiment, when they posted the message announcing r/place:

> Individually you can create something.
>
> Together you can create more.

13 McKenzie J., *Perform or... Else*, p. 10.
14 McKenzie J., *Perform or... Else*, p. 11.

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Although initially everyone acted on their own, trying to discover the specificity of the place, users very quickly gather in groups, and groups formed alliances in which a horizontal hierarchy emerged. They finalised their projects through discussion, creatively responding to changes introduced by the groups of Destroyers or coexisting with other groups of Creators.

***

The three aforementioned types of performance: cultural, technological and organisational intermingle, together forming a global performance. The performance organised the entire life happening on a virtual world-canvas of 1000 × 1000 pixels. This is evident in the increasingly effective, efficient world of r/place, where goals were achieved faster and the performance was happening faster as well. Passing through the cycle of life: birth, growth and death, it remains a digital record symbolising power, war, creation and destruction.

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u/powerlanguage, *Place*, [in:] r/announcements, reddit, 2017, https://www.reddit.com/r/announcements/comments/62mesr/place/ [accessed: 16/07/2021].

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https://www.redditinc.com [accessed: 16/07/2021].

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SMART CONTROL OR DESIGN IN THE FACE OF THE MISUSE OF SMARTPHONES BY PUPILS

Art research paper

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Abstract

The article addresses the topic of the misuse of mobile phones by pupils at school and presents, as a response to this phenomenon, an original project from the field of mindful design. In line with the idea of empathetic design, the authors study the difficulties and needs of pupils and teachers in order to accurately identify the core of the problem. They confront the questions – arising from the chosen design path marked by empathy – which accompanied them during several months of work. Do pupils recognise the problem of the misuse of smartphones at school? Does this issue also affect teachers, and if yes, to what extent? What emotions accompany them? Does external control effectively counter the problem? What design methods and solutions can be applied in effective media education? Drawing on sound research, reports and educational projects, the designers critically analyse the misguided tools and methods, used in existing solutions, as well as the good practice. They combine knowledge from the fields of contemporary education, psychology and design using new technologies. They seek to identify the optimal way to counteract pupils' destructive digital media habits by presenting a solution from the field of mindful design developed on the basis of contemporary research and educational premises.

Keywords

empathetic design, *mindful design,* smartphone in school, efficiency, interpersonal interactions among pupils, self-monitoring, intrinsic motivation, Faraday cage, gamification, *team-based learning*, behavioural design, interaction, hybrid design

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The misuse of smartphones by pupils is a rampant phenomenon in the school environment, and the subject of several discussions and disputes. It is not difficult to see that this phenomenon has a negative impact on pupils' interpersonal relations, concentration or relationships with teachers. It is also impossible to ignore the long-term negative effects of the misuse of mobile phones, linked to the dangers of the internet, i.e. phonoholism or cyberbullying, which have further consequences that disrupt the psycho-physical well-being of pupils. Both the issue itself and the scale of its impact on the school environment are well known to the authors of this article; the first fruit of their exploration of this topic is the prototype of the OFF DESK interactive desk for the youngest, which rationalises smartphone use (designed as part of the master's thesis of one of the authors with the supervision of the other). This school desk is equipped with a Faraday cage designed to store a mobile phone during lessons. By generating audio-visual impulses when the smartphone from the Faraday cage is put down or taken out, the desk stimulates the child to learn and work. The idea behind OFF DESK oscillates around struggling with the problem of reduced efficiency caused by the unwise use of mobile devices. The major aim is to get the youngest users into the habit of putting the smartphone away while they are at school and work, in order to avoid the problem of unwise use of mobile devices in their later life.

Fig. 1. OFF DESK, photo: M. Płachetka.

Fig. 2. OFF DESK detail, photo: M. Płachetka.

The confrontation of the above prototype project with the school environment, as well as the qualitative research conducted jointly by the authors of the article, inspired them to a further design process, resulting in the solution called SMART CONTROL described in the present article.

This qualitative research consisted of a series of in-depth interviews with three pupils, four female teachers and four female headmistresses, conducted either by video interview or within a real-life meeting. The interviews were problem-based and empathy-driven. They were conducted in the form of an open, natural conversation. They consisted of a number of main questions about problems, needs, attempts made to solve difficulties and the interviewee's feelings and opinions on the subject, as well as follow-up questions that deepened the intriguing topic. The questions directed at the pupils focused on efficiency and concentration during lessons, as well as the pupils' interpersonal relationships. Teachers were asked about their teaching and classroom experience, while headmistresses were asked about the organisation of their classes and the biggest problems perceived among pupils. In every interview, the topic of smartphones – considered both as a problem and pupils' primary leisure tool – came up.

The interdisciplinary and empathetic approach to the problem resulted in an interesting design process, full of twists and turns, as well as confrontations with people representing different positions, all connected to the school or digital environment. Several months of work brought the design of an interactive piece of school furniture, accompanied by a scenario from the field of media education, which will be presented in detail in the final part of the article.

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Empathy in design

Design today is no longer seen only through the prism of aesthetic qualities and usability. User emotions are increasingly important. Beauty and utility are not the only qualities of utilitarian objects; the ability to understand behaviour and social patterns is gaining in importance.

This applies to utilitarian objects as well as architecture, interior design, landscape or other creative activities. Empathy became the foundation to build exceptional design solutions. As Victor Papanek mentions, the designer should be guided by empathy at every stage of creation, both at the beginning: during the initial discussions with audiences, users and other stakeholders about their problems, needs and feelings, and at the later design stages, where the ability to understand the emotions and behaviour of potential users interacting with the final product must be demonstrated. The emotional sphere of the user, the way they interact with the object and the psychophysical properties of the product, is important in the reception of designed objects. Having taken these values into account, the designer can influence any audience in the chosen way.[1]

Fig. 3. Pupils towards smartphones, source: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

Pupils towards smartphones

The dangers related to the unwise use of smartphones primarily affect primary school pupils (grades 4–8) and secondary school pupils. According to the Sensory Suggestibility Test (SST) scale formulated by Gheorghiu, Hodapp & Lidwig in 1975,[2] younger people are characterised by greater susceptibility to media influence than adults.[3] The seriousness of the problem is fuelled by the fact that these people are at the stage of adolescence, i.e. the period when they build valuable relationships, form their worldview and lifestyle. The attitude of rebellion against the rules in force, typical for this group, also plays a significant role. Any bans are seen as an attack on personal freedom and therefore fail as

1 D.A. Norman, *Wzornictwo i emocje. Dlaczego kochamy lub nienawidzimy rzeczy powszednie*, Warszawa 2015.
2 R. Polczyk, *Skala Sugestybilności Sensorycznej — narzędzie do badania podatności na sugestie*, E. Zdankiewicz-Scigała, T. Maruszewski, *Wokół psychomanipulacji*, Warszawa 2003
3 B. Kozaczuk, *Wykorzystywanie wizerunku jednostki w celu intencjonalnego oddziaływania na dzieci i dorosłych*, Warsaw 2011, https://czasopisma.ignatianum.edu.pl/eetp/article/view/855/944 [accessed: 29/03/2022].

a method of combating the misuse of smartphones at school. Given that "the average age of starting to use one's own mobile phone regularly is 10 years, and 7–8 years in large urban areas," measures to rationalise the use of smartphones should be dedicated to this age group. The results of a nationwide survey carried out among young people aged 12–19, say, among other things, that 86.6% of pupils regularly use smartphones,[4] a third of teenagers admit to being addicted to social media, 10% of participants are in a relationship with someone they only know on-line, 20% admit to posting untruthful content about themselves on their profile and a quarter of those surveyed feel overwhelmed by the overload of information coming out of the internet. Moreover, it appears that about 14% of the Polish youth suffer from FOMO syndrome (the need to be on-line all the time due to the fear of being left out), half of the respondents feel the need to react immediately to incoming messages and notifications, and 28% feel anxious when they are not up to date with what others are doing on-line.[5]

It turns out that excessive use of mobile phones is the most important problem among all e-addictions. It received the majority of answers in all the groups surveyed, i.e. 83.4% teachers and 65.4% pupils, as well as 55.5% parents.[6] Let us add that it is the most important issue (88.8% of indications) in the lives of pupils among many other problems not only related to e-addiction.[7] The group described is referred to as the *always-on* generation due to the need to be on-line all the time. The reason for this is the lack of alternatives for spending time and the lack of knowledge about the dangers and mechanism of addiction. Pupils also find it difficult to concentrate, which is partly due to overstimulation, ineffective teaching methods, inadequate motivation of pupils, as well as inappropriate relationships with teachers and phonoholism. A worrying feature of the pupils is also their difficulty in establishing and maintaining direct relationships with friends. The easy and quick communication offered by smartphones, in which emotions can be hidden, replaces real contact with peers. Over time, the social skills that are so important at this age can become cumbersome and confronting another person face to face can cause fear. Increased activity in social media demonstrates the strong influence of peer interaction and their on-line activities. One in five teenagers, when comparing themselves with others, rate their lives as not very happy, and 20% of participants admit to publishing untruthful content about themselves to meet the demands of the on-line community.[8] Another urgent issues are

4 *Wzory korzystania ze smartfona*, https://dbamomojzasieg.pl/wp-content/uploads/2021/03/Wzory-korzystania-ze-smartfona.png [accessed: 29/03/2022].

5 M. Dębski, M. Bigaj, *Młodzi Cyfrowi. Nowe technologie. Relacje. Dobrostan.* https://dbamomojzasieg.pl/wp-content/uploads/2019/12/Mlodzi-Cyfrowi.-Nowe-technologie.-Relacje.-Dobrostan_ksiazka.pdf [accessed: 29/03/2022].

6 Najwyższa Izba Kontroli, Delegatura w Kielcach, *Informacja o wynikach kontroli. Przeciwdziałanie e-uzależnieniu dzieci i młodzieży*, Kielce 2016, https://www.nik.gov.pl/plik/id,12563,vp,14960.pdf [accessed: 29/03/2022].

7 M. Dębski, *Wykres nr 37. Ważność problemów w życiu uczniów (%) – Odpowiedzi nauczycieli*, [in:] *Nałogowe korzystanie z telefonów komórkowych. Szczegółowa charakterystyka zjawiska fonoholizmu w Polsce. Raport z badań*, Gdynia 2016, p. 115, https://www.lol1.pl/wp-content/uploads/2017/04/Nalogowe-korzystanie-z-telefonow-komorkowych.-RAPORT-Z-BADAN.pdf [accessed: 29/03/2022].

8 M. Dębski, M. Bigaj, *Młodzi Cyfrowi. Nowe technologie*, p. 11.

provided by the HBSC 2020 Report,[9] which analyses data on the physical health, social relationships and mental well-being of 227,441 pupils aged 11, 13 and 15 from 45 countries in North America and Europe. In Poland, most of the results are worrying. Polish teenagers have the highest rate of negative self-perception, which experts say is a result of less physical exercise. They are also in the top ten for high intensity use of electronic communication tools. Smartphones are contributing to a decline in happiness and satisfaction with life. According to research, there has been an increase in depression and suicide cases among teenagers since 2012. Mobile technology contributes to relationship problems, objectification, sexualisation, impaired adulthood, obesity or the rise of ADHD.[10]

Fig. 4. Negative consequences of the misuse of smartphones, source: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

On the needs of pupils: self-control as the key to success

A key pupils' need, identified by the designers (as evidenced by the authors' qualitative research and the *Młodzi Cyfrowi (Young Digitals)* report) is the acquisition of self-control skills regarding the use of mobile phones in the school environment. The absence of these skills is a common phenomenon. The problem of the misuse of smartphones is recognised by the pupils themselves, with 25% of those surveyed feeling overwhelmed by the excess of information flowing out of the internet. The need for self-control is also evidenced by the widespread FOMO syndrome, involving around 14% of pupils.[11] Moreover, "84.2% of pupils use smartphones during breaks between lessons", while "33.7% of pupils admit that they very often use their mobile phone in lessons for private purposes".[12] According to dr Łukasz Srokowski, expert of the cyber-safety project 'cyfrowobezpieczni.pl' and founder of the author's schools Navigo, it is more or less up to the age of seven that parents control their children's contact with digital media. Between the ages of 7 and 11 there is a growing problem of losing self-control in the context of using smartphones, and from the age of 13 upwards, a lot of social needs

9 J. Mazur, *Jakie są polskie nastolatki? Raport HBSC 2020*, https://imid.med.pl/pl/aktualnosci/jakie-sa-polskie-nastolatki-raport-hbsc-2020 [accessed: 29/03/2022].
10 K. Lewestam, *Jak naprawić internet? Zombifikacja dzieci. O pladze smartfonów.,* https://magazynpismo.pl/cykle-pisma/jak-naprawicinternet/zombie-fonoholizm-dzieci-smartfon/# [accessed: 29/03/2022].
11 M. Dębski, M. Bigaj, *Młodzi Cyfrowi. Nowe technologie*, p. 13.
12 *Smartfon w szkole*, https://dbamomojzasieg.pl/wp-content/uploads/2021/03/smartfon-w-szkole.png [accessed: 29/03/2022].

are satisfied on-line.[13] According to the NASK report, "as respondents get older, the length of time they spend using the Internet increases, and this relates to all the surveyed locations, i.e. at home, at school, on the way, with friends, in public places". Let us highlight that the highest percentages were recorded in the 'school' and 'on the way from home to school' categories.[14] Smartphones and mobile phones, on the other hand, are the most common devices offering mobile access.[15] As pointed out by dr Srokowski, self-control, i.e. the ability to give up what we impulsively want to do now in favour of what will be better for us in the long term, is a trait that influences success and happiness in life. According to him, the ability to restrain instant gratification is particularly important in the context of digital media.[16] This is because they are the source of many dysfunctions both in the area of the pupils' psycho-physical condition and in the area of social relations.[17]

Unfortunately, contemporary primary school in Poland does not support pupils in practising self-control in this area. The most common solution is to introduce more or less radical regulations specifying the use of mobile devices on the school premises. A clear gap in Polish primary schools is represented by the "lack of action on even very simple, basic issues such as talking to pupils about what they do on the Internet or talking about how to react in case of threats".[18] The results of the 2018 EU Kids Online Polish research report clearly show that there are still too few media education initiatives, at least in the area of formal education. Moreover, the in-depth interviews conducted by the designers with primary school pupils confirmed that radical bans on the use of mobile devices based on external control (monitoring, confiscation of phones by teachers) actually have the opposite effect. These observations are in line with the opinion of dr Łukasz Srokowski, who argues that the more external control increases, the greater the risk that a child's internal control will decrease. Unfortunately, as the above data and conclusions show, Polish school do not dispose of tools or methods to strengthen pupils' self-control in the use of mobile phones. This absence has far-reaching negative consequences in the areas of social relations, efficiency and the psycho-physical condition of schoolchildren. According to experts, the key to ensuring pupils' relative psychological well-being is to draw their attention to the safety of using new technologies[19] and the importance of personal, face-to-face interactions.[20]

13 Ł. Srokowski, *Webinar. Dzieci w wieku 7-11 lat w cyfrowym świecie*, https://www.facebook.com/watch/live/?ref=watch_permalink&v=260943112464375 [accessed: 29/03/2022].
14 NASK, *Raport z badania Nastolatki 3.0*, Warsaw 2017, p. 9, https://docplayer.pl/57655488-Raport-z-badania-nastolatki-3-0-raport-z-badania-nastolatki-3-0.html [accessed: 29 March 2022].
15 J. Pyżalski, *Polskie badanie EU Kids Online. Najważniejsze wyniki i wnioski*, Poznań 2019, p. 20, https://fundacja.orange.pl/files/user_files/EU_Kids_Online_2019_v2.pdf [accessed: 29/03/2022].
16 Ł. Srokowski, *Webinar. Dzieci w wieku 7-11 lat w cyfrowym świecie*.
17 M. Dębski, M. Bigaj, *Młodzi Cyfrowi. Nowe technologie. Relacje. Dobrostan.*, p. 17, https://dbamomojzasieg.pl/wp-content/uploads/2019/12/Mlodzi-Cyfrowi.-Nowe-technologie.-Relacje.-Dobrostan_ksiazka.pdf [accessed: 29/03/2022].
18 J. Pyżalski, *Polskie badanie EU Kids Online*, pp. 50–51.
19 M. Dębski, *Nałogowe korzystanie z telefonów komórkowych. Szczegółowa charakterystyka zjawiska fonoholizmu w Polsce. Raport z badań – skrót*, Gdynia 2017, p. 42, https://dbamomojzasieg.pl/wp-content/uploads/2016/04/Na%C5%82ogowe-korzystanie-z-telefonow-komorkowych.pdf [accessed: 29/03/2022].
20 M. Dębski, *Nałogowe korzystanie z telefonów komórkowych… – skrót*, p. 14.

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Teachers towards smartphones

The problem identified affects also indirectly primary (grades 5–8) and secondary school teachers. Their main task as organisers, managers and guardians of the education and teaching process at school is to prepare the young generation for life and work in the society. This requires an adequate level of teachers' education, their constant concern for intellectual development, but also the support provided by the school establishment in which they work.[21] Given the cross-section of ages of the children they teach (10–19 years old), they have major influence on the pupils. They are involved in the most difficult stage of young adolescence, which can be problematic. It requires teachers to constantly strive to and be able to form relationships with different types of personalities and to face different adversities. The most important problem among pupils noted by teachers is the excessive use of mobile phones (88.8% of responses). "96.4% of teachers admit that it is possible to become addicted to a mobile phone," which indicates a high awareness of the problem, while "one out of four teachers (28.9%) declared knowing more than 10 people who could be described as phonoholics".[22]

> The main consequences of the excessive use of phone indicated by the teachers include problems with concentration (68.7%) and neglecting school duties (64.4%). Teachers also cited among the frequent effects general exhaustion (44%), hyperactivity (43%) and being on the phone all time long (42%). [23]

23.7% of the respondents admitted that they sometimes use their mobile phones for private purposes during classes.[24] Furthermore, "16.1% of teachers admitted they had been the victim of cyber harassment by a pupil at least once in their life".[25] Teachers do not have the conditions and tools to transfer their knowledge on this topic.[26] They have to follow the rules of the restrictive regulations of educational establishments, where the most common solution are to impose controlling attitudes on pupils regarding their use of smartphones.[27]

On the teachers' needs: developing media education as a way to promote self-control

A key need of primary and secondary school teachers identified by the designers is to acquire the competences, conditions and tools to implement media education, especially in the area of building pupils' self-control relating to the use of smartphones. "86.7% of teachers agree that classes on

21 D. Wiktor, *Rola nauczyciela w wychowaniu*, https://www.profesor.pl/publikacja,4122,Artykuly,Rola-nauczyciela-wwychowaniu [accessed: 29/03/2022].
22 M. Dębski, *Nałogowe korzystanie z telefonów komórkowych… – skrót*, p. 39.
23 M. Dębski, *Nałogowe korzystanie z telefonów komórkowych*, p. 119.
24 M. Dębski, *Nałogowe korzystanie z telefonów komórkowych*, p. 116.
25 *Smartfon a nauczyciele*, https://dbamomojzasieg.pl/wp-content/uploads/2021/03/smartfon-a-nauczyciele.png [accessed: 29/03/2022].
26 M. Dębski, *Nałogowe korzystanie z telefonów komórkowych… – skrót*, p. 40.
27 J. Pyżalski, *Polskie badanie EU Kids Online*, pp. 49–51.

phonoholism, as well as Internet and mobile phone addiction should be part of their schools' curricula." They themselves rate their knowledge in this area as "sufficient plus".[28]

Fig. 5. Teacher rates their knowledge of media education at 3+, source: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

Top-down regulations on the use of mobile phones in the school environment put the teacher in the role of exerting control over pupils who do not comply with the rules, which is often a source of dissatisfaction on both sides.

Fig. 6. School caretaker, source: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

There is a lack of knowledge and competence and a lack of space for alternative attitudes based on constructive dialogue with the pupil and the building of their self-control. This is indicated primarily by the opinion of teachers regarding the specific regulations in place: 56% of teachers are in favour of a complete ban on smartphones in schools, 17.5% are strongly opposed, 17.4% answer "rather not" and 9.1% have no clear opinion on this topic.[29] Several important issues such as the understanding of educational and pedagogical goals, teachers' professional digital knowledge and their preparation for the use of technology remain neglected. Unfortunately, in the Polish school education system, the issue of media education, underpinned by professional pedagogical knowledge, is ignored or

28 *Smartfon a nauczyciele*, https://dbamomojzasieg.pl/wp-content/uploads/2021/03/smartfon-a-nauczyciele.png [accessed: 29/03/2022].
29 M. Dębski, *Nałogowe korzystanie z telefonów komórkowych*, p. 116.

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marginalised. The sphere of introducing technology into schools is often limited to taking care of the infrastructure and the quality of the equipment. What is ignored is the sphere of the social dimension of the introduction of technology, as well as the attitudes and competences of the participants in this process. There are also relatively few pedagogical solutions that make technology an effective educational tool. Well thought-out combination of traditional didactic solutions with digital ones is a rarity,[30] which makes the quality of Polish education diverge from European standards.

Pupils in the face of contemporary attempts to tackle smartphone abuse

Fig. 7. Forbidden fruit is always the sweetest, source: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

At present, a key problem for pupils is the lack of self-control regarding the use of mobile phones in the school environment. The short-term impact of the problem contributes to reduced concentration during classes and avoidance of establishing real relationships with other pupils during breaks. Furthermore, the negative impact of the problem affects not only the smartphone users themselves, but also, as a so-called bad example, influences other pupils, causing a 'chain reaction' in the misuse of mobile phones. Lack of self-control also has far-reaching negative consequences both in terms of social competences (such as poorer interpersonal relations among pupils, self-isolation, atrophy of peer and family bonds, inability to spend time in a creative way, neglect of school and family duties, cyberbullying), and in terms of the psycho-physical condition of the pupils themselves (addiction to the use of communication tools, poor learning effectiveness, low self-esteem, the feeling of lack of influence on the surrounding world, or even anxiety typical for withdrawal syndrome, irritability, disruption of the reward system, problems with concentration, lack of sleep, problems with eyesight, changes in the vertebrae), which is confirmed by nationwide surveys conducted among pupils and teachers and the social experiment cited in the article *poz@siecią*[31]. Another concerning fact, highli-

30 J. Pyżalski, *Polskie badanie EU Kids Online*, p. 43.
31 M. Dębski, *Nałogowe korzystanie z telefonów komórkowych… – skrót*, pp. 43-56.

ghted by Adam Almer in his book *Irrresistible: the rise of addictive technology and the business of keeping us hooked*, is that the environment of the digital age is conducive to addiction.[32]

School establishments in Poland are currently trying to deal with this problem by introducing more or less radical rules regulating the conditions for bringing mobile phones and other electronic devices onto school premises and using them. What is characteristic and confirmed by the authors' observations, methods based on external control (monitoring and a total ban on mobile phones) are completely ineffective. This is in line with a psychological assumption that has been commonly known for decades, that repression, restrictions and external sanctions usually have the opposite effect and that the mechanism of the forbidden fruit does not work - when we prohibit children from using smartphones, we only encourage them to do so.[33] Unfortunately, most of the solutions offered today dedicated to limiting children's use of mobile devices are based on external control. In Polish schools, monitoring (cameras in school corridors) and supervision by teachers is a common measure. An interesting example are casings produced by the American company YONDR, made of materials that protect against electrostatic fields and having a safety clip that prevents the phone from being pulled out of the cover without the use of a special unlocking station.[34] However, the product, which is used in schools and at events, is not welcomed by many pupils criticising restrictions on personal freedom, as shown, among other things, by statements from a video summarising the use of YONDR at San Lorenzo High School in California.[35] Deactivation of phones with a physical device is after all based on a top-down order introduced by the school management. The persons authorised to unlock the covers are teachers, not pupils. Similar solutions, i.e. covers blocking the GSM and GPS signals, are available in Poland, but they have never been widely used at schools. Applications such as Google Family Link or Fee Parental Control are also based on a principle similar to YONDR. Decisions about when children use their phones are put in the hands of parents. However, these are not tools dedicated to the school environment, as it is impossible to enforce pupils to install an app that cuts off power or Internet access on their smartphone for school time.

The most effective methods for dealing with the abuse of mobile devices by pupils so far are based on rationalisation and media education. There are school establishments, teaching initiatives and projects that propose systemic solutions which enable making better use of digital tools to support pupils' development, while keeping children safe and teaching them the principles of wise use of the Internet and digital devices. We can cite here for example such projects as *Cyfrowobezpieczni (Digitally*

32 A. Alter, *Irrresistible: the rise of addictive technology and the business of keeping us hooked,* transl. A. Gomola, Kraków 2018, p. 12.
33 Ł. Srokowski, *Webinar. Dzieci w wieku 7-11 lat w cyfrowym świecie*.
34 https://www.overyondr.com/howitworks [accessed: 30/03/2022].
35 https://www.youtube.com/watch?v=rcDbJwZ7G9k [accessed: 30/03/2022].

Safe)[36] or *Edukacja medialna (Media Education)*.[37] However, these initiatives are still a minority. Well thought-out combination of traditional teaching solutions with digital ones is still a relatively rare phenomenon.

It is worth mentioning that on the Polish market, we can find telephone lockers designed for school and office facilities. However, this is not a piece of furniture that deactivates mobile devices, and it was created primarily for anti-theft protection.

Teachers towards contemporary attempts to tackle smartphone abuse

Currently one of the major problems of primary and secondary school teachers is the lack of competences, conditions and tools to implement media education, especially in the area of building pupils' self-control relating to the use of mobile phones. This results in the fact that the teacher is virtually excluded from the digital world visited by the pupils: an important part of the culture and interests of the younger generation. In addition, the top-down restrictions introduced by most educational institutions (with regard to the use of mobile phones by pupils) assign teachers the role of gatekeepers, controlling the use of smartphones by pupils, which has a negative impact on the quality of the relationship between teachers and pupils. As many as 51.7% of teachers set rules regarding the use of mobile phones at school, 27% of them check that pupils have their phones switched off and 25% take mobile phones away from pupils for some time.[38] The negative consequences of teachers' lack of competence in transferring media knowledge, especially in the area of self-control regarding pupils' smartphone use, include poorer teacher job satisfaction, poorer performance and low efficiency, poorer quality of relationships between pupils, as well as an overall impact on the deterioration of the atmosphere in the school environment.

Currently, as the research cited above indicates, a large proportion of teachers are coping with the problem by implementing radical measures to prevent pupils from using smartphones. However, the introduction of a penalty system does not bring good results. Some use prohibition, others – as indicated, among other things, by the qualitative interviews conducted by the authors – try to stick to the culture of constructive dialogue. The latter work together with the children to set rules for phone use at school and stick to these rules themselves. Trying to be wise leaders, they create a culture of values. For example, during a workshop conducted in one of the partner primary schools, a box into which the children put their phones for a period of time during classes was developed together with the pupils. As it turns out, activities carried out in an interesting way, often based on dialogue and pupils' interests, can have a motivating power.

36 https://www.cyfrowobezpieczni.pl/ [accessed: 30/03/2022].
37 https://edukacjamedialna.edu.pl/lekcje/ [accessed: 30/03/2022].
38 J. Pyżalski, *Polskie badanie EU Kids Online*, p. 50.

The issue of media education underpinned by professional pedagogical knowledge is unfortunately still neglected or marginalised in the Polish school education system.[39]

Seeking solutions in the field of design – SMART CONTROL

The authors defined as the heart of the problem the lack of self-control of primary and secondary school pupils regarding the use of smartphones at school. This lack has a negative impact on learning performance and the quality of interpersonal relationships. The problem also indirectly affects teachers who do not have the conditions and tools to transfer their knowledge in this area – as indicated by the studies cited above. As the above discussion has shown, external obligation is a futile tool in the fight against the misuse of smartphones.

And what if we gave control back to the pupils? Faced with the needs of the pupils, the designers created a solution concept based on putting control in the hands of young people. Based on the belief that digital technologies can only be beneficial if they are implemented on the basis of a well-structured pedagogical concepts, the authors decided to reflectively integrate traditional teaching solutions, based on the principles of partnership and teamwork, with physical devices and digital media. The added value is to provide pupils with an environment that would enable training self-control in the use of mobile phones at school, which in the long term will result in a sense of influence on the world around them, better relationships with other pupils, teachers, family, better learning performance and the development of creative leisure skills. In addition, learning self-control, trained in the school environment, can inspire in a positive way to engage in activities in the environment outside school.

The authors assumed the possibility of involving teachers in the use of the solution (used for teaching purposes), giving them space to enhance their own professional satisfaction, build healthy relationships with pupils and increase the quality of their classes and inter-class activities, which could take place with mobile devices completely switched off. The added value is to provide teachers with the conditions and tools for transferring media education knowledge, especially in the area of building pupils' self-control relating to the use of mobile phones. The designers decided to include the integral role of the teacher as a mentor in the process, rather than someone passively transferring knowledge. This will shift the initiative and active role to the pupils, which can have a positive impact on their intrinsic motivation.[40]

The overarching aim of the project is to teach primary and secondary school pupils self-control in the use of mobile phones and to create the conditions that would stimulate intrinsic motivation and cooperation in this area through collective action by the whole class.

39 J. Pyżalski, *Polskie badanie EU Kids Online*, pp. 50–51.
40 B. Tołwińska, *Motywacja dzieci do uczenia się (problemy dzieci, rola dorosłych)*, Białystok 2009, p. 202, 203.

The indirect aim is to offset the negative effects of the misuse of mobile phones, such as reduced efficiency or the deterioration of direct relationships between pupils.

The *SMART CONTROL* solution aims to fill an existing gap in current methods of tackling this issue. The innovation consists of a design solution (working within a specially designed scenario from the field of media education) that stimulates pupils' motivation to put down their smartphones while at school, developed in the spirit of gamification, behavioural design, *mindful design* and *team-based learning* promoted by Larry Michaelsen[41].

The main idea is to create and implement in primary and secondary schools modular smartphone lockers with a mobile device deactivation function and software that counts the deactivation time. The resting time of the smartphones will be converted into a specific number of points, for which the pupils will be rewarded at each stage, until they reach the final goal set together in the follow-up activities and the Design Thinking workshops.

Testing the effectiveness of *SMART CONTROL* will be based on the following activities:

- Use of the software monitoring smartphone activity during the use of lockers.
- Use of a summarising survey or the gamification analysis model developed by the UFAL researchers.[42]

Fig. 8. Pillars of *SMART CONTROL*, authors' design.
(From left: intrinsic motivation, self-control)

41 L. Michaelsen, M. Sweet, *The essential elements of team-based learning*, https://www.researchgate.net/publication/227687640_The_essential_elements_of_team-based_learning [accessed: 30 March 2022].

42 K. Tenório, D. Dermeval, *Gamification Analytics Model for Teachers*, https://www.researchgate.net/publication/347773531_Gamification_Analytics_Model_for_Teachers [accessed: 30 March 2022].

Smartphone lockers

Fig. 9. *SMART CONTROL* – smartphone lockers, authors' design.

These modular mobile phone lockers will be designed for both pupils and teachers. Their basic idea is to combine the function of deactivating mobile devices, software that counts the time phones are kept in individual lockers and the summation of the overall time mobile devices are put away. A suitably designed system of combining individual modules will enable personal lockers to be grouped together according to the number of people in a class. Each locker will block access to external electrical fields, so the smartphone placed inside will be virtually inoperable. Information about the state of standby of the smartphone inside the locker will be manifested by interactive lighting of the appropriate colour, located on the front of the locker. It is assumed that the mechanics of the lockers will be based on an interactive system integrated into their physical form. A single technology module (for one class) will consist of mini-scales, Arduino Mini microcontrollers, a Raspberry Pi microcontroller, as well as an interactive lighting and display counting the resting time of the smartphone(s). Technology that monitors smartphones resting time will overtly report on the project's progress.

The *SMART CONTROL* design solution, drawing inspiration from the self-determination theory of Richard M. Ryan and Edward L. Deci, aims to enhance self-control through intrinsic motivation based on autonomy, competence and bonds.[43] Its main assumption is to leave the decision to put the phone down to the pupils and to build intrinsic motivation through gamification strategies[44] and *team-based learning*.

43 R.M. Ryan, E.L. Deci, *Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being*, https://selfdeterminationtheory.org/SDT/documents/2000_RyanDeci_SDT.pdf [accessed: 30 March 2022].

44 M. Sailer, J.U. Hense, S.K. Mayr, H. Mandl, *How gamification motivates: An experimental study of the effects of specific game design elements on psychological need satisfaction* https://www.sciencedirect.com/science/article/pii/S074756321630855X [accessed: 30 March 2022].

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Fig. 10. *SMART CONTROL* - retail, smartphone lockers, authors' design.

Innovative features of *SMART CONTROL*

Research conducted by Walter Mischel, author of the book *The Marshmallow Test: Mastering Self--Control* , prove that self-control is one of the key tools to help cope with addiction problems, which has an indirect effect on better social functioning and improved self-esteem.[45] Its absence in terms of smartphone use can cause irreversible consequences, such as poorer interpersonal relationships, cyberbullying, FOMO, inability to spend time in a creative way or even addiction, and – by extension – anxiety typical for the withdrawal syndrome.

Fig. 11. Marshmallow Test, source: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

As pointed out by dr Łukasz Srokowski, one of the possible ways for teaching children self-control is to give them the opportunity to take control over their use of the digital world. This is also confirmed

45 W. Mischel, *The Marshmallow Test: Mastering Self-Control (Test Marshmallow. O pożytkach płynących z samokontroli)*, Sopot 2015.

by Mikołaj Marcela, who argues that education can be directed in such a way that children want to acquire knowledge themselves and are prepared for the challenges of the future.[46]

SMART CONTROL proposes alternative problem-solving methods, focusing on strengthening self-control by stimulating self-determination, which is in line with the aforementioned model of intrinsic motivation created by Ryan and Deci, based on autonomy, purpose and mastery.

The methods used in the innovation are based on the ideas of gamification, behavioural design, teamwork and the premise of *Mindful Design*.

Fig. 12. *SMART CONTROL* = gamification + *team-based learning* + behavioural design + *mindful design*, authors' design.

Fig. 13. Gamification, sources: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

Gamification

Authors of the innovative *SMART CONTROL* lockers assume, following Adam Alter, that the principles encouraging children to play on a smartphone can be used also as motivation for learning.[47]

46 M. Marcela, *Jak nie zwariować ze swoim dzieckiem?*, https://www.ojcowskastronamocy.pl/jak-nie-zwariowac-ze-swoim-dzieckiem-mikolaj-marcela-osm-podcast-056/ [accessed: 30/03/2022].

47 A. Alter, *Irresistible: the rise of addictive technology and the business of keeping us hooked*, chapter 12: *Gamification*.

They strive to provide pupils with opportunities to achieve small successes, which show that working on oneself is worth the effort.

While the gamification model is mainly used in the field of marketing, it is currently rarely used in education, as education using game methodology is a relatively new domain.[48] Its effectiveness in this field is described, among other things, by Adam Alter in the already mentioned book *Irrresistible: the rise of addictive technology and the business of keeping us hooked.* [49]. According to the author, on the global market there are relatively few physical devices that would support self-control, while solutions treating people for smartphone addiction and behavioural addictions are still in the early stage. Some of them, for example the Pavlok armband,[50] act through negative feedback, others, such as Matheus MOTI device[51], act through gratification. However, these solutions are too recent to speak about their effectiveness. Some hope, as evidenced by the good results of tests carried out in the use of such products, is offered by social products realised in the spirit of gamification. One of examples of such products can be found in Stockholm, where a glass container turned into a slot machine has increased the number of people throwing bottles into the correct container from 2 to 100.[52] This fact suggests that the application of this type of solution in education, underpinned by ideas of behavioural design, could be a breakthrough innovation.

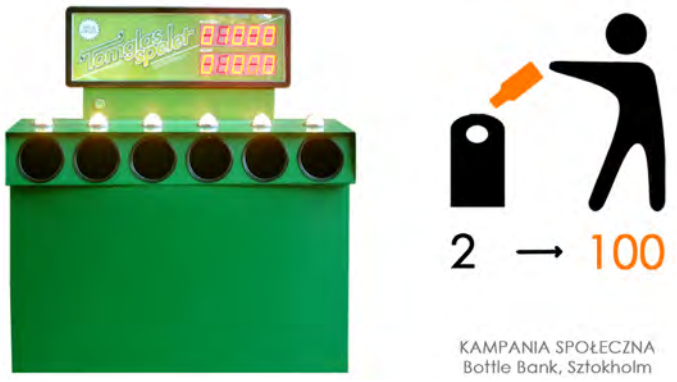

Fig. 14. Bottle Bank social campaign, source: https://m.facebook.com/thefuntheory/, https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

48 A. Stott, C. Neustaedter, *Analysis of Gamification in Education*, http://clab.iat.sfu.ca/pubs/Stott-Gamification.pdf [accessed: 30/03/2022].
49 A. Alter, *Irrresistible: the rise of addictive technology and the business of keeping us hooked*.
50 https://pavlok.com/ [accessed: 30/03/2022].
51 https://www.kaylamatheus.com/moti-1 [accessed: 30/03/2022].
52 https://vimeo.com/45220023?embedded=true&source=video_title&owner=12097738 [accessed: 30/03/2022].

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Behavioural design

It is worth to highlight the fact that pupils are rewarded for the very gesture of putting down the smartphone and that good habits are thus formed by consciously moving the problematic stimulus out of sight and body range of the recipient, which is in line with the behavioural design guidelines described by the aforementioned Adam Alter. It is also important to replace behaviours that negatively affect the mental and physical state with other healthy habits. This is in line with the findings of Xianchi Dai and Ayelet Fishbach of the University of Chicago on refraining from using Facebook.[53] In the group of pupils who were allowed to use alternative social media, significantly less tendency to become addicted was noted than in the group that was not given such a permission.

Team work

What counts in the proposed innovation solution is the collaboration and a common goal. The teacher, as an exemplary, equal participant in the project, plays the role of mentor and good guide. *Team-based learning* is an effective method of teaching how to work within a group.[54] New research suggests that children have more self-control when they work together as a team than when they work alone. This is demonstrated, for example, by Walter Mischel's famous foam experiment carried out at the Stanford University in 1972. The experiment was designed to measure how well children are able to delay immediate gratification in order to receive greater rewards in the future - a skill that, if possessed, increases the certainty of success in later life.[55]

Mindful Design

Finally, an important element of the *SMART CONTROL* project is to act based on the principles of attentive design.

Mindful Design can be defined as a human-centred approach to product design and development, respecting the user's privacy, time and attention, helping to improve the human experience. In other words, a design or product should first and foremost be conscious, serve the user, respect the user and provide the them with a meaningful experience.[56] The application of this approach in the designed product aims to offer the recipients and users improvements in cognitive performance, self-regulation and the subjective well-being.[57] This is because *Mindful Design*, by modifying the expected functions

53 A. Alter, *Irrresistible: the rise of addictive technology and the business of keeping us hooked*.
54 http://www.teambasedlearning.org/ [accessed: 30/03/2022].
55 J. Suttie, *Kids Do Better on the Marshmallow Test When They Cooperate,* https://greatergood.berkeley.edu/article/item/kids_do_better_on_the_marshmallow_test_when_they_cooperate [accessed: 30/03/2022].
56 https://blog.prototypr.io/mindful-design-part-1-b0f6282c455a [accessed: 30/03/2022].
57 M. Bosse, C. Woelfel, J. Krzywinski, *Mindful Design: Applying The Mindful Design Approach at Industrial Design Lectures*, https://www.researchgate.net/publication/331529591_mindful_design_applying_the_mindful_design_approach_at_industrial_design_lectures [accessed: 30 March 2022].

of a product's use (phone lockers), can be associated with behavioural change and it broadens the understanding of cognitive social awareness.

The innovative aspect of the proposed solution dedicated to implementation in the school environment is the hybrid combination of the real and digital worlds, as well as the reversal of the standard relationship between them (in *SMART CONTROL* it is the real world that absorbs digital devices, not the other way around).

Fig. 15. Hybrid combination, sources: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

SMART CONTROL has the potential to become a pioneering solution on the Polish and international market, promoting new trends in the approach to regulating the time pupils use their smartphones. Existing solutions such as, for example, mobile apps or the YONDR cover, rely on external control and, in addition, they 'keep' the problematic smartphone – which thus becomes the forbidden fruit – in close contact with the recipient.

SMART CONTROL meets also the conditions of accessibility:

- the proposed solution can be equally dedicated to representatives of different age groups;
- *SMART CONTROL* allows for flexible adaptation to different situational contexts, including those not related to school, such as home or office spaces.

The flexible form and the aesthetic concept of the lockers have been designed with clear message and minimalist design on mind, and above all with the aim of intuitive functionality. Designed in a modular way, the smartphone locker system allows both the independent operation of a single locker and the combination of any number of lockers to suit any number of users. This enables the solution to be implemented in a variety of environments, including the stand-alone use at home. Moreover, the educational scenario, on which the idea of *SMART CONTROL* is based, can be based on a flexible narrative consisting of objectives adapted to the nature of the educational establishment and the recipients.

The design concept proposed for public primary and secondary schools involves adapting the functionality of the smartphone lockers to people with disabilities. The designers ensured that there were no physical barriers preventing a disabled person from interacting in a satisfactory manner with this solution, for example, by adjusting the height of the wall-mounted cabinets to suit a wheelchair user. This is made possible by a suitably designed system combining the individual modules to personalise the layout of the lockers on the school corridor wall. In addition, care was taken to provide a synthetic interaction scenario oriented primarily towards problem solving and user comfort: an easy-to-use system for opening the locker and closing it, as well as putting in and taking out the smartphone.

The authors responsibly selected solutions from the area of new interactive technologies to address the most important issues of the defined problem in a universal manner (adapted to a broad target group). What is important here is that they can be flexibly adapted to the needs of visually impaired people by using displays that are appropriate in terms of size and legibility, as well as legible interactive lighting with appropriately accentuated colour.

Work on the innovation included observational and analytical research, research with the use of the *Design Thinking* strategy, as well as interviews with people with disabilities and experts experienced in working with such people in order to develop a suitable solution, taking into account how the user interacts with the piece of furniture with the assumption that the main idea is to make the recipient acquire a habit of putting down the mobile device. The overarching goal is to address or eliminate the problem of lack of self-control not only among people who are completely able-bodied, but also among those who face multiple barriers on a daily basis due to their physical limitations.

Educational scenario

The solution is intended to serve as a tool for a properly prepared educational scenario, developed together with teachers, pupils and parents. Motivation will be inspired by the goals based on pupils' interests and small gratifications leading to a final reward, which is in line with the idea of gamification. Gamification in education is a method of motivating pupils to engage in the learning process by covering certain teaching activities with a system that mimics the process of a game.[58]

The above-mentioned method meets the following conditions:

- clear, well-defined assessment rules and feedback provided to the pupil;
- the learner needs to know the objectives from the start – i.e. what is to be learnt and in what time;

58 J. Lee, J. Hammer, *Gamification in Education: What, How, Why Bother?*, https://www.researchgate.net/publication/258697764_Gamification_in_Education_What_How_Why_Bother [accessed: 30/03/2022].

- putting the pupil in such a situation that they feel the need to take action independently and to acquire the skills of team working.

The gaming element of the project, implemented using the interactive piece of furniture, will serve to motivate pupils and teachers to put down their mobile phones during school time. The intermediate goal will be to acquire as many points as possible, the number of which will increase with the amount of time the phone is left unused.

Fig. 16. *SMART CONTROL* – lockers in use, authors' design with the use of pictograms, source: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

The point score for the different situations of putting down the smartphones and the gratification achieved when successive time thresholds are reached, will be democratically determined during the Design Thinking workshop organised in the initial phase of the project with the participation of the teachers involved and (possibly) the parents. The award can be shared by the whole group or attributed to individual participants (depending on the scenario that emerges from the democratic discussion during the initial Design Thinking workshop). It can be linked to the distinctive profile of the organisation in question and to the development of pupils' interests alternative to the digital world, or it can manifest itself in the implementation of a charitable objective jointly agreed with pupils, teachers and possibly with parents.

The educational scenario consists of:

- **Kick-off workshop** introducing the problem of lack of self-control in the use of mobile phones by pupils and teachers in the school environment, based on the *Design Thinking* methodology, complemented by a questionnaire oriented to diagnose the problem before starting the project. This will be a kind of training explaining the objectives and rules for participating in the project, serving, among other things, to set an overarching goal and a point value for the different stages of putting down the smartphones.

- **Package of 4 or 5 lessons** organised on a regular basis throughout the duration of the educational project to reinforce motivation and awareness of the identified problem, and regular discussions on the progression of participation (pupils' feelings and impressions after having experienced successive phases of telephone abstinence in the school environment):
    - Lesson no 1: The problem of lack of self-control in the use of mobile phones.
    - Lesson no 2: Dangers related to the misuse of smartphones.
    - Lesson no 3: Phonoholism and its symptoms. How do we become addicted?
    - Lesson no 4: Rationalising the use of mobile phones.
    - Lesson no 5: Alternative ways of spending time.
- **Workshop to summarise** all phases of the project, during which the overall time spent during the project with the mobile phones put away will be calculated and awards/prizes appropriate to the number of points scored will be attributed. In addition, a discussion will be held on the experiences of all participants of the innovation and a follow-up survey will be conducted to measure the effectiveness of the innovation in strengthening self-control in the context of pupils using smartphones in the school environment. Measuring the effects of the project will be inspired by the action of the Dbam o Mój Z@ sięg Foundation in the *poz@ siecią* experiment, i.e. interviews and surveys conducted with recipients before, during and after the project. Where possible, an analysis using the gamification model developed by the UFAL researchers will also be carried out.

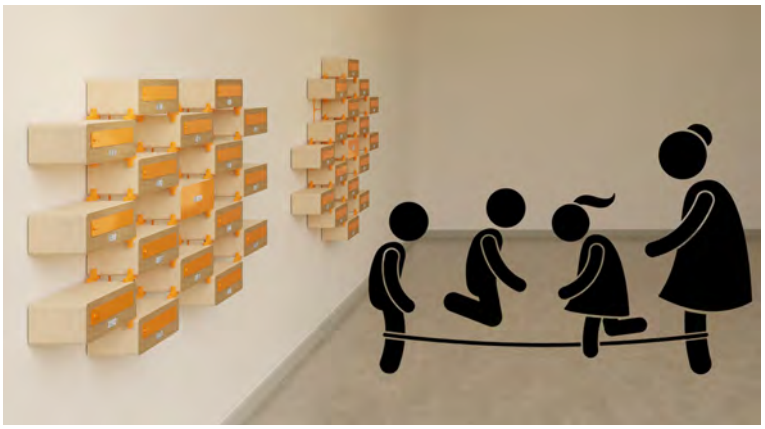

Fig. 17: *SMART CONTROL* in a school context, authors' design with the use of pictograms: source: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

Fig. 18. Positive effects of implementing *SMART CONTROL*, source: https://www.flaticon.com, authors: https://www.flaticon.com/authors/freepik, own adaptation.

Conclusions

In summary, given the fact that the development of knowledge in the topic of education is currently shaping new trends focusing on partnerships between pupils and teachers and constructive problem solving based on equivalent dialogue, *SMART CONTROL* seems to be an innovative and promising solution. Existing solutions of copying with the problem, such as, for example, mobile apps or the YONDR cover, rely on external control and, in addition, they 'keep' the problematic smartphone – which thus becomes the forbidden fruit – in close contact with the recipient.

The power of the *SMART CONTROL* message is influenced by the innovative features of the solution, contributing to reinforcing the habit of putting down the smartphone while at school, building awareness, strengthening relationships and enhancing knowledge acquisition:

- Hybridity integrates the physical space of the workstation with the digital space, creating a healthy balance between the entertainment offered by mobile devices and the learning or creative activities.
- New functionality of school furniture includes space to deactivate the mobile device while in school, combined with gamification elements
- A new perspective on smart technologies, which are customarily seen as the source of many contemporary problems, but in this case appear as humanised tools used to reach the recipient. The consciously designed, attractive interaction scenario, the use of relevant sensors and audio-visual effects enable building the viewer's bond with the piece of furniture, nurturing their attentiveness, reinforcing awareness of the issue and rationalising the use of smartphones.

- The partnership approach to the pupil and the stimulation of teamwork increases the effectiveness of the innovation.
- Interactivity enhances the quality of the individual experience and develops good habits among users.
- The ability to verify the results of the applied innovation through the use of a mobile app ensures reliable measurement of the effects of *SMART CONTROL*.
- Compatibility with contemporary design trends of *Mindful Design* and behavioural design promotes the uptake of the solution and increases the effectiveness of combating the lack of self-control in the use of smartphones.

The designers assume that with *SMART CONTROL*, pupils will have the opportunity to practice self-control, which will inspire them to keep this type of attitude in home environment as well. Parents will be able to participate in the educational project implemented as part of the innovation, supporting their children's informed decisions, strengthening partnership attitudes towards the problem of the misuse of smartphones and enhancing constructive cooperation between parents, child and teacher. They may use themselves similar methods in their approach to their own and their child's use of mobile phones in the home environment.

Positive effects of the massive use of *SMART CONTROL* will also be experienced by the principals of the schools that will use this type of innovation. The proposed innovation will increase the attractiveness and efficiency of educational establishments and, in the long term, may even raise their ranking. It will bring an increased sense of community and democratic dialogue between school, pupil and parent.

In addition, the spread of innovations will result in the building of new trends in approaches to the problem described, which may also find fertile ground in non-school environments: for example, in office spaces, co-working spaces and even in private households.

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HER MAJESTY THE KNIT. FASCINATION WITH STRUCTURE. AUTHOR'S DESIGN ACTIVITIES IN THE CONTEXT OF THE TECHNOLOGIES USED

Art research paper

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Abstract

The present article concerns the increasingly popular technique of production of knitted fabrics that has been known for a thousand years and is still developing. Throughout history, we can observe the astonishing evolution of knitting: from the artisanal, manual way of making uncomplicated products to the industrial, fully computerised, innovative production of very diverse offers. Knit works great in interior design and is used to make a variety of furnishings and decorations for living spaces. It is also successfully used to create sculptures, installations and unique artistic objects presented in museums and galleries.

Thanks to technical and technological progress, the production capacity of the knitted clothing industry has increased significantly. Nowadays, close-fitting and even seamless clothes are in common use. Computerised machines working together with modern design studios provide the conditions for producing complex, spatial structures and multi-coloured knitted patterns. The author of the article presents on the examples of two collections of outfits the use of selected weaves with specific properties, the appropriate combinations of which determine the form and texture of knitted garments. The collections were created using a variety of knitting technologies and with diverse equipment. The structural potential of knit allows it to be used both in the production of utility garments and in creative artistic initiatives.

Keywords

knit, knitted fabric, structure, design, fibre, new technologies, craftsmanship, clothing, interiors, artistic objects, tailored clothes, seamless products

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Introduction

The structure, as an important factor in the construction of a knit, is the element which distinguishes it from woven fabrics, influencing the properties, as well as the visual and functional characteristics of the textile material created as a result of the knitting technique. This enables treating this matter in a special way, emphasising its almost unlimited creative potential. Knit is an exceptional material with unique, 'sculptural' qualities. The inextricable interdependence of knitting and the applied technology makes it a specialised discipline with enormous design and implementation potential.

> The essence and beauty of knitwear lies in the fact that the designer invents everything from the scratch by creating the weave, the feel, the thickness, choosing the colour, deciding on the texture and shape, while at the same time developing original finishes and details.[1]

The words of renowned Dutch trendsetter Li Edelkoort[2] perfectly illustrate the complexity of knitting. Being able to influence so many factors, shaping not only the form but also structure and pattern, can make it difficult for a knitwear designer to master them all at the same time; however, at the same time, it provides enormous freedom and design autonomy. There are many different types of knitting machines, each with its own purpose and technical capabilities, ranging from simple hobby models to advanced computerised systems prepared to create garments with a very complex structure, including seamless clothing, which completes the extremely rich offer of the knitting industry. The creative application of these technologies definitely influences the design potential. Each of the methods of production brings specific design effects, the proper understanding and application of which results in phenomenal solutions. Exploring artisanal ways of making knitwear offers an opportunity to get in touch with the surface. Pioneering methods of knitting with easy-to-use equipment are often only a prelude to discovering and using more advanced technologies. However, let us not forget that technology is not everything. There is a need for someone to give it meaning and significance by presenting their own artistic ideas or by following the need to preserve and develop the utilitarian aspects.

1. Specificity and versatility of knit

The construction of knit and the constantly developing methods of its production, the enormous structural and design potential, as well as the properties based on the elasticity of yarns and weaves, create a very broad field for creators of various specialities. Knit provides enormous design opportunities for designers working in the areas of clothing, fibre art or interior design and furnishing. Artists use the medium of knitting to create installations presented in museums and art galleries; they present the visual richness of knit and its unusual structural properties. Designers draw on the qualities of knit,

1 J. Sissons, *Basics, Knitwear, Fashion Design 06*, 2010, s. 65 (retranslation).
2 Lidewij Edelkoort (b. 1950) – one of the world's best-known trendsetters (persons involved in the evolution of trends). She creates trend studies that are tools used by strategists, designers and marketing professionals working for international brands, http://www.edelkoort.com/lidewij-edelkoort/.

work with unusual fabrics and constantly experiment with new and unconventional raw materials and technologies. Innovative yarns include wire, paper and plastic, knitted fabrics are printed, laminated, rubberised, felted, heat formed and subjected to many other processes.[3] The integration of electronics and knitting processes gives knitted fabrics that are increasingly used as technical and medical textiles or as geotextiles.[4] New technologies offer great opportunities in the creation of innovative concepts for material structures and artistic ideas.

Knitting plays a special role in the clothing manufacturing sector. Because of its structure, knit is an extremely plastic material, making it possible to shape the designed garment in a variety of ways. Knitted garments can take the shape of the human body or build space around it, taking on sophisticated three-dimensional forms. In the work of many designers, knit and the creative possibilities associated with its properties have become important elements in the process of creating clothing. The realisations of the leading fashion designers of the 20th century: from the sporty elegance of Coco Chanel,[5] the artistic knitwear of Elsa Schiaparelli[6] and Sonia Delaunay,[7] through the *knit dressing*[8] by Sonia Rykiel,[9] the colourful zigzags and stripes of Missoni,[10] to the pioneering work of Rei

3 S. Black, Knitwear in fashion, London 2002, p. 66 (retranslation).

4 Geotextiles – polymeric textile materials (fabrics, knitted and non-woven fabrics, textile composites) used in the construction of road surfaces, as well as land and water structures; they are used for drainage (e.g. collecting precipitation, subsoil water), filtration (retaining soil while maintaining the flow of liquids), as well as limiting or preventing damage to surfaces or structures (e.g. embankments) under the influence of water courses, improving the mechanical properties of soil and preventing mixing adjacent soils with different structures; geotextiles in the form of geofibres laid under the road surface improve the durability of the road and driving comfort.

5 Coco Chanel, actually Gabrielle Bonheur Chanel (1883–1971) – French fashion designer; from 1915, she revolutionised women's fashion, promoting clothes with simple sports cuts and short dresses devoid of embellishment, becoming an icon of Parisian haute couture for six decades.

6 Elsa Schiaparelli (1890–1973) – Italian fashion designer. Her debut collection, with which she managed to attract the attention of critics and fashion magazines, consisted mainly of jumpers with surrealist motifs. It is this innovative, humorous approach to fashion that became the designer's trademark and enabled her to make a name for herself in the industry.

7 Sonia Delaunay (1885–1979) – French painter and costume designer of Jewish descent, representative of Orphism. She was fascinated with colour and colourful structures, which became the form and motif of her art. After 1914, this new visual language led to abstract painting, the feature of which became the perceptual vision of the life of modern society. Delaunay developed her own style, which she also used in the design of clothing, fabrics and everyday objects.

8 Knit dressing – dressing in knitwear 'from head to toe'.

9 Sonia Annette Rykiel (1930–2016) – French fashion designer, actress and writer. Founder of the fashion house signed with her name. Voluminous models, reversible garments, pullovers and, above all, her love for knitwear have brought her to the top of the fashion industry.

10 Missoni – Italian luxury fashion house based in Varese, known for colourful knitwear designs. The company was founded by Ottavio ('Tai') and Rosita Missoni in 1953.

Kawakubo[11] and Yohi Jamamoto,[12] the avant-garde deconstructions of Martin Margiela[13] and the revolutionary clothing concept of A-POC[14] by Issey Miyake[15] all present how the best designers have put spectacular ideas into knitted clothing forms. The soft sculptures of Sandra Becklund[16] and Johan Ku[17] enable to see that structural characteristics of knit constitute a truly valuable and inexhaustible basis for solutions and inspiration in the design of forms and surfaces of knitted products.

1.1. Knitting medium in interior design

Knitting technique is also used by designers in the process of creating various elements of interior design, such as lamps, carpets, furniture, curtains, blankets or upholstery materials. Knit creates great design opportunities for creators of interior design objects who wish to achieve an original visual effect. These utilitarian aspects of knit have been exploited by members of the design studio Ariel Design, who created a series of light fittings. They presented a concept based on the use of a handmade knitted tunnel, at the end of which they placed an industrially manufactured glass ball with a light bulb. Due to its ability to stretch in all directions and its elasticity, knitted material is ideal as a decorative and practical cover for the ball. As a result of the characteristic openwork weave, the lamps appear very light and delicate, while filtering the light appropriately[18]. Equally interesting is the collection of soft, colourful knitted lamps with long striped 'tentacles' that can be shaped in many ways - tied in knots, hung on other furniture, plaited to form a bundle. Their author creates imaginative

11 Rei Kawakubo (b. 1942) – Japanese fashion designer, based in Tokyo and Paris. She is the founder of Comme des Garçons (CDG) and Dover Street Market brands. Influential designer of the late 20th century known for her avant-garde clothing designs. She experimented with knit, modifying the form and function of the garments designed. She used the properties of knits to create conceptual, visionary, stereotype-breaking collections, challenging Western ideals of the human body shape and garment structure. Her 'strange' clothes, invariably black, grey or navy blue, were swathed in extra sleeves, contained controlled loose stitches and folds arranged like origami.

12 Yōji Yamamoto (b. 1943) – Japanese fashion designer, winner of the French Chevalier de l'Ordre des Arts et des Lettres award. Collections created by Yamamoto stand out by very baggy clothes and the dominance of one colour, usually black. He is known for using multiplication of layers in clothing. Knitwear in his collections often include a space between the garment and the body, allowing the wearer to 'inhabit' the garment from the inside.

13 Martin Margiela (b. 1957) – Belgian fashion designer. He proposed design solutions the innovation of which consisted primarily in modifications to the cut and attention to textural variation. These included frayed, crookedly cut, unfinished garments with far too long sleeves and wide shoulders. His dresses were made from plastic bags and ribbons, and his jumpers from recycled socks and sleeves of pre-existing garments.

14 A-POC *(A Piece of Cloth*) – innovative clothing system created by the Japanese designer Issey Miyake in collaboration with textile engineer Dai Fujiwara, developed in 1999. The knitting structures used make it possible to obtain round forms in cross-section, which after being cut made the garment three-dimensional.

15 Issey Miyake (b. 1938) – Japanese fashion designer, awarded the Order of Culture. Like no one else, he combines tradition and avant-garde, colour, craftsmanship and technology to create custom clothing. His knitwear is boldly innovative, yet extremely utilitarian. Author of the innovative Pleats Please and A-POC concepts.

16 Sandra Backlund (b. 1975) – fashion designer. She is the author of spatial knitted garment-sculptures, in which the effects resulting from the use of structures are integrally connected with the form and texture of the garment.

17 Johan Ku (b. 1979) – he set up a design studio in 2005. He graduated with a master's degree in fashion and textiles from Central Saint Martins. His *Emotional Sculpture* collection features distinctive sculptural silhouettes with unique structures made from extremely thick knit.

18 http://ariel-design.com/knitted.html [accessed: 02/06/2017]).

products based on archetypal shapes and simple striped patterns. The LED bulbs used here do not heat up, and the whole project *I like it. What is it?* proves that lamp can be soft, cosy and plastic.[19]

The unusual properties of knitted weaves are used in the design work of the Dutch designer Bauke Knottnerus, author of a series of objects for interiors called *Phat Knit*, which consists of scaled up knitted items that perform different functions. They are made of giant foam threads-ropes, which can be braided and arranged in a variety of ways depending on their thickness. Each modular piece has a number of possible uses: it can take the form of a giant knot and serve as an armchair or seat, it can be a bed or sofa, and, in the smaller scale of weave, it can also serve as a rug.[20] These utilitarian objects obtain a unique character thanks to the properties of the soft material from which they are made and the structural interlacing which gives them their form. Another Dutch artist who exploits the utilitarian aspects of knit is Christien Meindertsma, who creates various interior design elements out of natural sheep's wool prepared on her own. Working with knit, she has made a range of rugs and pouffes, which stand out with their distinctive surface and properties such as softness and cosiness. Knit became the basis for a series of chairs and seats designed under the name *Biknit* by the well-known Spanish designer Patricia Urquiola. Knitting elements in the form of long tunnels were braided on a metal frame supported by a wooden base. Tunnels knitted circularly from woollen or polyester yarns are filled with polyurethane foam. Such a combination of materials resulted in a comfortable seat with a distinctive structure. The scaled-up weave determines the creation of an innovative, comfortable piece of furniture that gives the interior a modern vibe. The designer has also shown her interest in knitted structures in her carpet designs launched under the name *Mangas rugs*. Although they are made with the use of weaving methods, these carpets have visible elements showing inspiration from the construction of the weaves in knitwear. Their shapes resemble knitted sleeves.[21]

1.2. The use of knit in the sphere of fibre art

Many fibre artists use the medium of knitting to create unique works. Knitted matter can be shaped in a variety of ways, it can take a variety of forms, create diverse patterns, arrangements and three-dimensional constructions. These works can range from very light, filigree, translucent objects on a micro scale to huge, massive, seemingly heavy works on a macro scale. Depending on the technology used, knitwear can be perceived in both traditional and innovative style. Usually, the artists use manual working methods, so that the knitting process is seen as an art in itself. Sometimes, however, they use machine knitting, so to show the results representing a high, advanced technical level. The creators are often inspired by the visual and light-filtering qualities of knitwear, working with unusual raw materials, constantly experimenting with traditional as well as unconventional materials and

19 http://www.annebetphilips.blogspot.com [accessed: 02/06/2017].
20 http://trendland.com/phat-knits-by-bauke-knottnerus [accessed: 03/06/2017].
21 http://patriciaurquiola.com/design/mangas [accessed: 26/05/2017].

technologies. Knitted material is sometimes the basic building material of artistic works, and sometimes constitutes a kind of 'shell' for the already existing objects. When used as a cover, knit changes their outward appearance, camouflages, provides a surprising and sometimes humorous accent.

American artist Arline Fisch presents colourful, hand-crafted fibre art works, which demonstrate the precision of jewellery-making techniques. Her works are made of thin metal wires. The material used, when combined with the properties of the knitted fabric, gives unique effects such as translucency, stiffening, three-dimensionality and the possibility to form organic shapes. The artist creates spatial forms inspired by the natural world, for which the knitting technique is an irreplaceable medium. Using the same methods, she also creates knitted jewellery. The unique jewellery objects are created by combining elements obtained using the circular knitting machine, with which the artist creates the basis for the spatial, organic forms of necklaces and bracelets.[22] Metal wire, an unconventional material for knitting, is also used by many other artists in their experiments with crocheting. Xawery Wolski, Anne Mondro or Ruth Asawa create subtle, light objects which, due to their translucency, partly let the light through and give the impression of disappearing in space. At the same time, these installations cast a shadow, which is an additional interesting visual element. The works of these artists delight with their transience, fragility and plasticity.

Isabel Berglund, a Danish artist who often uses knitting materials in her work, also opts for handicraft methods. Her sculptures and installations are monumental works that organise a new space. In 2015, she created the *City of stitches*, a project which aim is to provide audiences with the opportunity to experience form and texture through a specially created space and its scale. The interactive site invites visitors to come inside and dress in the garments built into the walls.[23]

Creative freedom, the ability to produce in different directions, easy colour variation and quick assembly are the advantages of using knitted structures in the form of street art, also known as guerilla knitting, knifitti or urban knitting. In this type of activity, coloured yarns are used instead of paint or chalk in order to reclaim and personalise sterile or unfriendly public places. Polish-born Agata 'Olek' Oleksiak, a permanent resident of New York, is the representative of kniffitti. She creates sculptures and installations, making colourful knitted yarn covers for architectural elements – benches, monuments, street signs, cars, lanterns. Her works have been presented in many galleries and open urban spaces in different parts of the world (USA, Italy, Turkey, Brazil, Poland). During the Tuwim Year celebrations in 2013, she covered with yarn a locomotive standing in the market square of the Manufaktura mall in the city of Łódź.[24] Invited by the Polish Institute in India, the artist participated in the second edition of St+art Delhi Festival organised by St+Art India Foundation in March 2015. As

22 https://artjewelryforum.org/arline-fisch-hanging-gardens [accessed: 03/06/2017].
23 http://www.isabelberglund.com [accessed: 25/05/2017].
24 http://www.oleknyc.com [accessed: 26/05/2017].

part of the festival, she covered, along with 60 female volunteers, a homeless night shelter at Sarai Kale Khan in New Delhi with knitted fabric. Led by Agata Oleksiak, the Delhi women transformed this building into an art object. The project is intended to draw attention to the everyday undervalued manual work carried out at the home.[25]

Multicoloured nylon knitting structures are also the basis for creating interactive textile playgrounds for children. Hand knitting with a crochet enables building up the knit in any way and also allows to change the colour of the yarn at any time. The stretchability of the weaves and yarns makes it possible to create flexible trampolines with additional movable elements: visually attractive installations with functional use. These distinctive properties of knit are used by the Japanese artist, now based in Canada, Toshiko Horiuchi MacAdam. her structures are installed in public spaces, parks, kindergartens and schools, but also in open museum spaces. They are designed for children to develop through play, taking risks in a safe environment. The artist explores how the human body interacts with space and matter.[26] Orly Genger, an artist based in New York, uses knitting techniques to create amazing large-scale sculptures and installations. She creates her objects from climbing rope or recycled used fishing nets by braiding them with an awl or her hands. Using such scaled strands of knitted material, she makes a variety of forms, often taking the shape of giant walls, organic piles or cubist blocks of winding ropes.

2. Contemporary knitting technologies

Tracing the historical development of knitting skills, we can see the remarkable development of knitting technique, which has transformed handicraft into modern production technology. Initially, handmade knitted goods were rare, highly prized and used to complement the outfit. Improvements in this field and technical developments, both in the manufacture of machinery and yarn, brought this textile material into wide use in clothing and helped to significantly increase the possibilities and speed up the production of knits and knitted garments.

The latest technological innovations used in the knitting industry, combined with the computer revolution, made knitwear enter all the sectors of the fashion market: the mass industrial production of garments of various ranges, from outerwear and sportswear to hosiery, underwear and accessories such as headwear, bags, footwear and jewellery. Innovative solutions have made it possible to introduce or improve many ways of knitting structures, colour patterns: jacquard[27] and intarsia[28] techniques, as well as garment forms and knitting technologies for fully fashioned fabric or seamless products. Fully

25 https://culture.pl/pl/wydarzenie/agata-oleksiak-szydelkuje-w-indiach [accessed 18/02/2022]).
26 http://www.archdaily.com [accessed: 25/05/2017].
27 Jacquard – knitting technique that produces a multi-coloured colour pattern in which all the yarns where not visible on the right side of the pattern are spun on the left side.
28 Intarsia – knitting technique that allows a colour pattern to be achieved by using one type of yarn in a given knitting area.

fashion,[29] used for producing shaped garments, is currently one of the most widely used technologies in the knitting industry. Tailoring is mainly achieved by means of stitch transfer, which creates a form that would otherwise be achieved by cutting. Shaping can be used to create an outer edge: widening and narrowing the form by modifying underarms, sleeves, shoulders and necklines. As a result of repeated stitch transfer along the outer edge of the element, a selvedge line is created: an aesthetic finishing touch to the fully-fitted garment. This increases the cost-effectiveness of production, as the yarn consumption needed to produce one piece of clothing is reduced. The offcuts that would remain after cutting from a rectangular piece of knitted fabric can thus be avoided.

The next, highest level in the development of knitwear include seamless products with shapes designed in an engineered way; their quality is incomparable to cut and stitched garments produced before. Already in the 1970s, first methods for mechanised knitting of products of this type emerged. In the following decades, innovation in this field progressed rapidly. Seamless knitting, professionally called knit and wear[30] or whole garment,[31] involves creating fully formed garments and is one of the most technologically advanced processes in industrial knitting. Seamless knitting involves creating and combining the components of a garment into one three-dimensional whole in one single knitting cycle. This very complicated process is possible with the help of specialised machines equipped with computers and cooperating with design studios. These devices have almost unlimited design possibilities. They can be used to create garments that do not require further fabrication, which means that the work needed to finish them is greatly reduced. Multi gauge machines are used to create spatial seamless forms.[32] Such machines have beds with doubled density of needles, which means that when the knitted fabric is formed on every other needle, the resting needles are used to transfer the stitches and knit additional layers.[33] Result of technological development, the computer-aided 'total-knitting' system makes it possible to produce complete knitted garments, including trims and details such as collars and pockets.[34] The development of technology enabling the industrial production of seamless garments, requiring little effort at the stage of finishing, has become a kind of mission for machine manufacturers. The first electronic machine to produce seamless work gloves in a fully mechanised process was launched by the Japanese company Shima Seiki,[35] which has remained at the forefront of integral knitting technology ever since. Another company counted among the leaders in flat knitting machines is Stoll from Germany. Both companies have developed CAD/CAM design systems directly related to the machine knitting production. CAD/CAM is a group of programmes used to design

29 Fully fashion – term used to describe a fully-fitted garment with forms to be sewn together, shaped in the knitting process.
30 Knit and wear – term introduced by the German company Stoll for seamless garment.
31 Whole garment – term introduced by the Japanese company Shima Seiki for seamless garment.
32 Multi gauge – term used to describe the possibility of obtaining two stitch sizes in one knitting surface by means of needles placed with double density in the bed of a knitting machine.
33 Information obtained from Stoll GmbH&Co representative for Poland.
34 S.J. Jones, *Moda. Projektowanie*, London 2005.
35 S. Black, *Knitwear in fashion*.

knitted fabrics with simultaneous programming of a specific type of knitting machine.[36] These are extensive software packages developed by machine manufacturers to work with their proper devices. These packages are usually offered as part of the equipment of special computer studios for the design and programming of a particular manufacturer's machines. M1 Plus is the latest design studio of the Stoll company, while Shima Seiki offers SDS Apec 4. The electronically controlled individual needle selection has made the process of complex patterning and shaping of knitted garments easier. Other technical advances provided improved drive mechanisms in knitting machines.[37]

After nearly five decades of evolving seamless garment technology, the next generation of knitwear manufacturing equipment is emerging, bringing new possibilities for the structure, surface and form of clothing. Machines with multiple needle beds, each with individual needle selection, provide broad opportunities for the creation and regrouping of individual weaves and groups of weaves. The latest knitting machines also have the technical parameters to control the guide separately from the moving machine head. Currently, technological advances in knitting are outpacing the ability of recipients to use it. The production of outer knitwear made with the use of seamless technology is still not that widely used.[38] This way of manufacturing can bring economic benefits due to the elimination of garment fabrication operations. However, in some situations stitching is still more cost-effective than the seamless technology. Similar effects can be achieved by obtaining fully fashioned pieces and then joining them by sewing, which gives a very similar visual effect.

Currently, the programming of products in the total knitting technology is a very difficult task even for specialised programmers. It requires a lot of time and commitment. The time-consuming process of producing garments, resulting from the constant transfer of stitches, indispensable in this technology, and the fairly frequent generation of errors in the knitted fabric, discourage manufacturers from producing seamless garments. However, they do use this type of equipment but to produce quite complex forms and spatial structures not necessarily within the seamless garments. Improved, computerised knitting machines and the second generation of synthetic fibres have helped to raise the level of knitted garment design. Electronic selection of needles and computer control of the production process make it possible to obtain products of a very high technical and design level. The key developments in current knitting processes include not only the possibility to work out the shape of the edges of garment parts, but also the possibility of internal spatial shaping of the knitted fabric, creating holes, overlocks, multi-layer structures and other three-dimensional effects.

36 Fogg Marnie, *Vintage fashion knitwear*, Carlton Books Limited, London 2010.
37 Information obtained from Stoll GmbH&Co representative for Poland.
38 M. Fogg, *Vintage fashion knitwear*, London 2010.

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3. Technological and implementation conditions in the context of author's design activities

As artist and designer, I use theoretical and practical knowledge from both design studios in which I have studied,[39] combining activities related to clothing design with creative work in the field of fibre art. The common denominator of all my activities is knitting technique, the versatility of which offers a wide range of possibilities for creation.

On the one hand, it allows me to design clothing forms that follow the rules of utility and are addressed to a specific customer, produced on a large scale, and on the other hand, it enables me to achieve unique, artistic effects. In my activity, I am driven by the need to present full resources offered by the knitting technology. It is impossible to deny the utilitarian function of knitwear; on the contrary, I even emphasise it in many of my industrial garment design projects. At the same time, however, I would like to draw attention that it can also function as a matter of enormous creative potential, a carrier of artistic values. For me, knitwear is an exceptional material with unique construction characteristics, which allows to treat it in a special way, emphasising its potential both in terms of use and in the sphere of artistic activity.

I belong to a group of artists who base their design and artistic activities on the use of the properties of knit seen as a matter. For me, the scope of my creation is defined to a large extent on the basis of mastering the methods of production, perfecting my skills and broadening my knowledge, resulting from the applied techniques and knitting technologies. However, the essence of my design work is not limited to technique as such. It is extremely important for me to explore the artisanal secrets in such a way as to identify new possibilities of realisation and show the potential inherent in knitting. I perceive as my key issues exploring the relationships between matter, structure, form and the way a garment is arranged in space, as well as the relationship between these elements and the body, which determines the final shape of the works created. All my works are deeply inspired by my fascination with structure. My activities leading to the discovery of the variety of forms that knitwear can take are centred around its structure. This diversity is determined by a number of factors. The effect results from the weave used, the technique employed, the specifics of the machine on which it was created and the choice of raw material.

I see my creative journey so far, both in the field of industrial clothing design and one-off activities, as a multi-threaded process in which many factors influence each other and create a multi-dimensional system that can develop in several spheres of design. having finished my studies, I worked in the clothing industry for many years as a dress designer. This job allowed me to learn the rules governing the fashion market, to learn and understand the principles of design in the dressmaking companies. It

39 In 2001, I graduated from the Academy of Fine Arts in Łódź.

enabled me to gain practical professional knowledge as well as understand the complexity of fashion issues. In parallel with my professional work, I continued to be active as an artist, producing works in the field of fibre art in knitting technique. I focused on exposing the softness and plasticity of the matter while depicting certain thematic content linked to my own, often intuitive interpretation of it.[40]

> Among artists, there are many who create artistic textiles as well as those who only use textiles as a matter for their works.[41]

These are the words of the well-known artist, Professor Włodzimierz Cygan,[42] who refers to the field of artistic textiles. I think a similar division can be made with regard to knit. There are designers who use knitted material in their work without exploring its essence, having other objectives in mind. However, we will also find others, such as Issey Miyake, Sandra Becklund, Johan Ku, Mark Fast[43] or Julien Macdonald,[44] who express through their spectacular designs a great understanding and respect for the structure of knit and who draw ideas from its diversity. They use and emphasise in an original way the essence of the weaves and the wealth of design solutions specific to knit, highlighting their paramount role in the presented models. Such ideas and experiences stand behind of my perception of the knitted medium as well.

3.1. The machine-manual system of knitting in creative activities[45]

In 2018, I created my original collection *Hybrids*, which reflects my considerations on the intersection of design and artistic disciplines, influencing the emergence of new areas of activity with overlapping scopes. It is an expression of the emotions that accompanied me while working on the project. Garments have evolved from clothing forms to objects of a visional nature. Proportions, shapes, surface textures, resulting from the internal structure of the knit, are manipulated, which results in the creation of spatially diverse structural configurations. The main design premises of the *Hybrids* collection include direct references to the theme relating to the multi-faceted use of knitting technique and the desire to express an artistic idea set in a specific technology, based on experiments with the

40 Chapter „3. Technological and implementation conditions in the context of author's design activities" to this point is an excerpt from Anna Kuźmitowicz's summary of academic and artistic achievements (Annex no. 1 to the application for habilitation proceedings), https://www.asp.lodz.pl/images/dzialalnosc-naukowa/stopnie-tytuly/postepowanie-habilitacyjne/kuzmitowicz-anna/191029-autoreferat-pl_e39f8.pdf [accessed: 22/04/2022].

41 Włodzimierz Cygan, "Integracja sztuki i nauki w dobie sztucznej inteligencji", Powidoki, 4 (2020), p. 183.

42 Włodzimierz Cygan (b. 1953) – Polish artist (main area of activity – artistic textile), educator, professor at the Academy of Fine Arts in Gdańsk and the Academy of Fine Arts in Łódź. His main area of interest is artistic textiles; he focuses on tracing the possibilities of obtaining means of artistic expression in unconventional warp systems and specific relations between fabric and light. His artistic works have been presented at numerous exhibitions at home and abroad.

43 Mark Fast – world-renowned designer of luxury knitted products. He studied at Central Saint Martins and obtained his undergraduate degree there. Fast makes knitted garments using manual knitting machines, which allows him to experiment and create his own openwork weaves-networks.

44 Julien Macdonald (b. 1971) – Welsh fashion designer, recognised British Fashion Designer of the Year in 2001; he is especially renowned for his glamour style designs; he works in knit to create sensual luxury garments.

45 This chapter is an excerpt from Anna Kuźmitowicz's summary of academic and artistic achievements (Annex no. 1 to the application for habilitation proceedings), https://www.asp.lodz.pl/images/dzialalnosc-naukowa/stopnie-tytuly/postepowanie-habilitacyjne/kuzmitowicz-anna/191029-autoreferat-pl_e39f8.pdf [accessed: 22/04/2022].

raw materials used. The final result takes the form of an original garment-object, a hybrid combining fashion, sculpture, architecture and artistic craftsmanship, which blurs the boundaries between all these fields. The technique used is hybrid knitting with a thread, which combines knitting and weaving methods. This collection expresses the search for innovative solutions in terms of showing the interdependence between the materials used and the way they are applied in the knitting process, as well as the influence of these elements on the form of the garment. My previous experiences made me look closely at the very matter of knitwear, the basis of all its properties: the inner construction that allows the knitting technique to be exposed as an extremely creative, multidimensional medium.

Looking for new means of artistic expression, I experiment with the material, I 'listen' to the natural structure of the knitted fabric and at the same time I consciously change and shape it through the used material. Based on traditional technologies, I develop my own original designs, enriching and extending the range of materials used, which significantly determine their specific shape. The *Hybrids* collection consists of two parts. In the first one, I expose the possibilities of creating garments with different spatial arrangements using mostly standard yarns. The raw materials and knitting weaves used determine the shapes and textures of the garments and offer the possibility to create three-dimensional arrangements based on forms derived from vertical and horizontal schemes: rows and columns, the elements underlying the construction of the knit. They offer the possibility of composing clothing forms that go beyond space, create an inner area between the human body and the clothes, boldly expanding the area belonging to the wearer. They build tension by juxtaposing forms with strong lines and clear directions in rhythmic arrangements with rounded, oval forms and circular cut-outs. In line with my intention, the material that makes up the garment, behaves in different ways: it partly stands out, partly succumbs to the force of gravity and falls softly, depending on the wearer's movement; it gains new values and the possibility of creating variable compositional arrangements. The first part of the collection presents the process of exploration and experimentation, while the second results from the consistent development of an artistic concept. In this second part of the collection, I put more emphasis on the use of self-knitted structures accompanied by a variety of raw materials. These elements, which in the first part are only an addition, in the next stage become the basis of my actions. Using in the creative process varied materials and techniques of knitting with a thread, I can obtain spectacularly working forms, textures, spatial arrangements in which light, translucent parts intertwine with heavy and massive ones, while those derived from geometry are combined with organic ones. When observed under magnification, you can see the inner, intricately constructed world. The major role is played by the variety of textile material that I use to create my original knit concepts. I reach back to the basics, to the elementary principles of the structure of the knitting matter. The same weave made of a different type of yarn may give a different visual impression and have different properties that determine the function of use. As a result, the knit in my designs partly takes on

the characteristics of the yarns from which it is made, and is very varied; it can be light, soft, heavy, springy, stiff, shiny and metallic, matt, translucent or consolidated and compact.

As a designer of knitted garments, I make decisions at many stages of creation: from the identification of the basic material of the knitted garment to the selection of the arrangement of yarns through weaves and the knitting techniques. By being able to control so many factors at all stages of the project, I have the influence on the final, broadly defined structure of the garment. Regarding the possibilities of working with knitting techniques, I share the opinion of clothing designer Sandra Becklund:

> This means the freedom to create your own material as you work. For me it is an absolute challenge.[46]

Jean Merill says:

> The knitter must think in a three-dimensional way using a single yarn.[47]

When choosing raw materials, the way they are arranged in the knitted element, their size, and, in the final stage, also the form of silhouettes, I moved between artistic creation and workshop requirements, combining my own design vision with several technical conditions.

In the *Hybrids* collection I use a variety of raw materials: typical, standard knitting yarns with a simple structure, cotton yarns, acrylic mixed with polyamide, as well as a wide range of unconventional materials which are not standard to knitting, with different technical parameters: raw materials such as polyamide monofilament, braided elastic, cotton and polyester cords or ribbons. In order to be able to use these unusual raw materials, I deliberately opted for an unusual way of realisation, namely knitting with a thread. This method has been known for many years but is not very widely used. The technique of knitting with a thread is mostly used to obtain a reinforced surface, not as elastic as a knit without the thread. In a sort of a way, it is a combination of knitting and weaving techniques. I use this technique in my works to increase the possibility of using diverse starting materials, and this directly contributes to expanding the range of possibilities for artistic creation. I use for the thread raw materials which, due to their lack of stretch, cannot be used in knitting with machines, or the elasticity of which is so great that it would cause the yarn to clamp on the machine's needles and disable further work. In some cases, the effect is affected by uneven shrinkage of the yarns, especially the braided elastics. They are able to shape, to some extent, the texture of the surface and the spatial arrangement of the knit and the garments themselves. This is especially noticeable when the knitted items are removed from the machine and undergo relaxation, i.e. the process of obtaining natural sizes and volumes not forced by stretching on the machine. It is then possible to almost see their 'movement' and 'life' consisting of their own formation, the appearance of spots with unevenly dispersed loops on the surface. The variety of materials-yarns used as a thread causes layering, thickening

46 J. Sissons, *Basics, Knitwear, Fashion Design 06,* p. 9 (retranslation).
47 J. Merrill, G. DeMeyere, K. Ben-Horin, *The Sweater. A history*, Atglen 2017, p. 184.

and rearrangement of areas of stronger or weaker consolidation of the knitting matter, which in turn affects the spatiality of the obtained elements, and, ultimately, the specific texture and form of the garment as a such. Depending on the selection and arrangement of raw materials and the separation of needles in the bed of the knitting machine, I differentiate the surface of the knitted fabric by placing variable compositions of rhythmic strip arrangements. In most of my models, I also apply the surface sections of the knitted fabrics in which I use polyamide monofilament as the base yarn. This treatment creates semi-transparent surfaces in which the introduced thread is visible in the form of line arrangements. This is particularly noticeable in the models, where the stripes of thread used in the elements of a garment put together in a spatial construction create overlapping 'drawings' built of intricate 'lines' of varying directions, courses, thickness and properties. They sometimes reveal what is inside the garment: the wearer's body, and sometimes cover it with a tangle of ephemeral knitwear tissue.

The thread ends visible at the edges of the completed knitted elements are also important visual elements resulting from the technique used. Each time, the hand-cut and transferred thread can be shaped in a variety of ways. In my projects, it sometimes flows loosely and in long stripes, falling down to create further spatial arrangements, and sometimes it is cut shorter, visible in the form of characteristic prominent ends. I am deliberately highlighting this phenomenon, as it generates new visual effects, thus increasing the expressiveness of the overall garment. These are not 'artificially' added elements, but a direct result of the technique used and the integral elements of the knitting process.

Space is a very important factor in many of my projects. In relation to clothing, we can speak of space as the area that a given garment is able to contain within itself. It is also important to realise that the final shape of a garment is determined by the human body it covers. Knitted clothing is a particular example of this relationship: thanks to its structure, the knit easily adapts to the shape of the wearer, however, without internal support, it falls, succumbing to the force of gravity. Many clothing designers ask themselves how the two-dimensional plane of the fabric should be adapted to the three--dimensional shape of the human body. In the case of knit, thanks to its flexibility, it is possible to adapt the products to the user without complicated structural cuts and darts. My observations and experiences gained while working on the collection have shown that the behaviour of forms in space definitely depends on the parameters of the starting material, the type of weave, as well as the size of the knitted elements. When designing and realising garment models, I pay great attention to capturing and emphasising their spatiality. I do not cling, enslave or shape the body, on the contrary: I give it freedom, I allow the garment to form and shape itself naturally, to live its own inner life. I celebrate the Japanese *ma* – the essential element of perceiving a space that has its own shape and layout. To emphasise this effect, I use voluminous dress forms and emphasise the skilful use of appropriate materials and textile raw materials.

Human movement provokes movement of the whole clothing form, it is the reason for variation and shifting of the knitted parts in relation to each other. External and internal spatiality, exposed by the translucency of the surface and the form of the garment, gives the impression of the existence of other areas to which the observer gains access. The variability of the shape of the lump of the garment is closely related to the raw materials used, it results from its organic structure and dynamizes its spatiality to a large extent. This issue is well captured by the notion of "textile architecture" proposed by Professor Janusz Szosland. I often create three-dimensional, 'architectural' knitted constructions by layering, rhythmising and duplication, taking advantage of their natural shaping on individual silhouettes. With the human body as my main reference point, I work with knit, making individual panels, then multiplying them and attaching them to others until they become a considered and acceptable whole. I value working with knitted fabric by pinning it on a mannequin; this is how I created all the pieces in the *Hybrids* collection. I use the new possibilities resulting from direct contact with matter to create a variety of spatial arrangements of clothing elements, fully aware of the fact that it would be impossible to achieve them within design carried out without tangible contact. Only the observation of results obtained and reflection on them can lead to further solutions. The completed work does not always reflect the initially intended result and it often happens to me to change it several times during the creative process. I follow what the knit itself and my intuition tell me. Often guided by the 'whispers' that arise from the elements being realised, I reach further solutions that are the continuation of the existing ones. I try to see the potential in even a small sample of knit and try to find a new use for it.

The constructions of all the completed garments are inscribed in rectangular forms, respecting the internal structure of the knitted fabric and the resulting horizontals and verticals of the individual rows and columns. When working on the collection, I tried to maintain a certain order in composition, which is why the form of each of the presented models of clothing was built on the principle of starting from a simple initial shape, without any structural cuts. With this general principle for the construction of the entire collection, I wanted to draw particular attention to the richness of the surface texture and the form of the garment. I tried to achieve the right composition of garments by manipulating the weave combinations in the knit without changing the number of stitches in its width. The use of simple structural forms makes it possible to focus on the visual changes that occur as a result of the variety of raw materials and weaves that build up a given surface.

The effect of colour is well described by Katarzyna Kobro:

> By introducing colour into a solid, we break it up. Colour dematerialises the solid [...]. When confronted with space, colour reflects the influence of its energy on it.[48]

48 K. Kobro, W. Strzemiński, *Kompozycja przestrzeni. Obliczanie rytmu czasoprzestrzennego*, Łódź 1931 („Biblioteka „a.r.", t. 2), p. 93.

At the very beginning of my work on the collection, I decided to consciously limit colour in order to be able to fully expose the variations in form and texture that I found most interesting. Giving up intense colour helps to bring out the qualities of the knit that are most important to me. To avoid the energy of the colour competing with the texture of the knits, I opted for white, which emphasises the uniformity of the realisation and gives the opportunity to draw attention to the structures of the garments.

I made all the models in the collection with my own hands using flat crochet machines, where the group selection of needles is manually controlled, combining machine and hand methods of dressmaking. These devices allow the creation of knit in an experimental manner, the free selection of yarns during knitting, the use of non-standard textile materials of different raw material composition, thickness, weight and specificity. Thanks to the use of this type of machine, it is possible to stop work at any time and intervene during the creation of the knit. It is also possible to use the method of knitting with a thread, which is an important procedure in the *Hybrids* collection, providing great opportunities for differentiation of design and realisation activities. I find these artisanal ways of knitting very valuable, creative and particularly beneficial for teaching purposes.

3.2. Latest technological developments – support in the design of original structures

Due to its interdependence on the technology used, knitting is a field where understanding the principles of the internal structure of the knit is crucial, and the acquisition of knowledge and mastery of skills in the technical area provides opportunities for creative interventions in the design process. Technological advances in the knitting industry have enabled huge improvements not only in production but also in the design aspect. Thanks to the research programmes implemented at my academy, it was possible to purchase a state-of-the-art electronic knitting machine, which has significantly modernised and accelerated the realisation of knitted fabrics, and part of the multi-stage process of developing surfaces and forms of garments could be moved to a specialised design studio. Studies of this type combine graphical software and specific technical coefficients used in knitting. The simplification comprises the possibility of using specific tools just like in a graphics programme: drawing, copying, duplicating, reporting, picking up or replacing colour and structure, etc. Other parameters determine the processes related to speed, accuracy, movements of the needle beds, knitting tension, report setting, etc. Skilful use of such software[49] provides enormous improvements, both in machine programming and in the realisation of knitted fabrics by optimising these processes. Benefits come from the possibility to use numerous built-in, ready-to-use, automatic knitting solutions – modules that can be downloaded from the database. Practical descriptions provide assistance on how use the individual modules correctly according to their function. Most modules can be freely combined with

49 Software – the entire information in the form of a set of instructions, implemented interfaces and integrated data intended for a computer to accomplish its objectives. The purpose of software is to process data to the extent specified by its author.

each other, building up new combinations. A large variety of predefined ready-made elements, which can be edited and customised to suit individual design needs, enables the creation of more complex solutions. Various views are also helpful: the programmer-designer can see in different windows the view on symbols, a simulation of the real view of the knitted fabric and a technical view. These diverse facilities help, for example, to evaluate the projected area and improve the programme if necessary; to check that each proposed pattern can be realised without error; or to calculate the knitting time and yarn consumption. Major innovations have occurred in the development of colour patterns. Complex, multi-coloured and multi-element design layouts can be implemented into the software without wasting time and energy on preparing them. A whole range of tools are already set up automatically, but individual specifications are often needed to create original solutions. The realisation of the knitted fabrics is also modernised: it is carried out by a device equipped with a separate computer, cooperating with the design studio, and it is completely mechanised.

Thanks to the machine-controlled processes for creating the knit and knitted garments using electronically controlled machines with individual needle selection, the production of knit has been greatly improved. The time spent on making the samples needed for calculations and surface evaluation has been reduced, and thus the entire process of making the garment has been greatly accelerated. By using this type of machine, it is possible to juxtapose highly structurally differentiated, spatially acting surfaces next to one other. Such high-tech processes create the conditions for innovative design and are of great help at many stages of the design and implementation process. The possibility of free juxtaposition of pattern elements brings very diverse visual effects obtained by using many types of weaves and knitting techniques (very often in combination). These effects include, for example, welt, relief, openwork, jacquard, intarsia and multi-layer structures, three-dimensional 3D constructions, spatial additions, tailored cut garment forms and seamless garments.[50]

I used this type of knitting machines to create the *Popit* collection, which includes my statement on the complex relationship between structure and form in knitted garments, exposing an experimental approach to colour, texture and raw materials, in particular highlighting the tactile properties of knitwear.

> Design of the collection was initiated by the creation of original textural surfaces, the concept of which is based on similarity to sensory toys. The specific spatial structures and contrasting colours exude energy, stimulating the senses of sight and touch. The selection of different raw materials complements the haptic properties of the individual surfaces.[51]

50 https://www.stoll.com/fileadmin/user_upload/pdfs/Brochures_english/M1plus_15_gb.pdf [accessed: 10/02/2022].
51 Author's description of the collection, https://cmwl.pl/public/aktualnosci/popit-prezentacja-kolekcji-mody,260 [accessed: 22/04/2022].

I subordinate the forms of clothes to structures, exposing the richness of combinations of design layouts, creating diverse visual combinations with oversized dimensions emphasising their unique character. Knit is inherently pleasant to the touch, it encourages the organoleptic contact.

Spatial textures are particularly appealing, both from the visual and tactile perspectives. The effects of intense textures are punctuated by colour and highlight them in a complementary manner. Oranges, pinks, amaranths, greens and reds, combined with the transparency of the textile line, create colour combinations based on contrasts, which dynamize the garments. The energy of colour has a positive effect, drawing the viewer's attention. Surfaces in the *Popit* collection are achieved by using several different ways of punctual knitting together with the superstructure of the knitted parts. This is exemplified by the conical convexities that form striped waves: a highly plastic and sculpturally spatial weave. Interesting effects are brought about by variously coloured highlights in the form of bands and points, knitted with yarn on a transparent background. They bring additional spatialisation and the impression of different layers permeating each other. Other suggestions include the experimental creation of sectional additions in knit that are fragments of the repp weave. The multiplication of these elements contributes to the massive character and emphasises the impression of being surrounded by knitted structures. Developing them with the help of a specialised design studio allowed for free reproduction, correction, scaling and positioning in appropriate sequences, while establishing the colour effect at the same time. These conditions allow for additional experimentation and greatly increase the speed with which ideas can be implemented. In all the garments, rhythms and repetitions are a very important element that unifies the collection. Controlling and organising them properly is possible both at the time of programming the patterns and at the time of their execution by the knitting machine. Report numbers can be adjusted on an ongoing basis, as items are knitted. Rhythmising is also manifested by the use of weaves with separated needles that give a pleating effect. Horizontal and vertical divisions in both structure and colour emphasise the dynamism and energy of the garment. I often use voluminous clothing forms to accentuate their natural layering and free-flowing behaviour on the figure. This time I am using standard knitting yarns and the design idea is based on differentiation of spatial structures highlighted by colour. Their haptic properties exposed by the accumulation of various highlights engage the sense of touch and offers sensual stimulation.

Summary

The activities presented are focused on the concept of increasing the range of design possibilities in knitted clothing and showing the complex relationship between design and art. Most of these activities, which take place at the interface between the artistic and utilitarian spheres, can be transferred into a universal design space and applied to much more functional garments. The experiments carried out also provide enormous opportunities for application in teaching, demonstrating the potential of knitting and broadening the base of design and implementation solutions.[52]

The opportunity to learn by observing and experiencing the knitting process is truly useful in understanding the principles involved in technology and their original transposition into the language of design. The examples presented above are only a selection of the wide range of possibilities for achieving very diverse visual effects with the medium of knit. The structure of the knit enables designers, through its creative use, the achievement of much more than simply the imitation of fabric.

The knitting process allows the designer to have complete control over the type of material they want to obtain. Yarn, raw material, colour, pattern and weave are the basic elements of the resulting knit structure, which in itself provides endless possibilities for design inspirations.[53]

New technological solutions are becoming increasingly accessible and adaptable to innovative ideas, and designers are increasingly using the knitting technology in their collections. The opportunities available today make fashion designers explore this technique, its potential and versatility; the technological advances have transformed knitting from a homespun craft discipline into the most innovative and exciting textile medium. In the future, the very high, or even royal in some respects, position of knit among textiles will certainly remain durable.

52 Excerpt from Anna Kuźmitowicz's summary of academic and artistic achievements (Annex no. 1 to the application for habilitation proceedings), https://www.asp.lodz.pl/images/dzialalnosc-naukowa/stopnie-tytuly/postepowanie-habilitacyjne/kuzmitowicz-anna/191029-autoreferat-pl_e39f8.pdf [accessed: 22/04/2022].

53 F. Spurling, *Desigining Knitted Textiles*, London, 2021.

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MICROSPACES. ROD SECRET GARDENS

Review paper

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Abstract

The article is a form of a short walk through the ROD allotment gardens. Drawing on examples of such allotments not only in Poland, but also in various parts of Europe, it describes the phenomenon of the functioning of the allotment garden, treating it as a specific kind of intimate space, very close to human, a place for satisfying their various needs. The article considers as one of these needs the human desire to create, to build, to annex space according to their own rules and principles. The allotment garden, as a place outside the official zone of the city, away from normal everyday life, offers its user the possibility to create a new spatial reality of their own, unhindered by any barriers. The gate to the ROD allotment gardens becomes a place of 'transition' to another reality, allowing you to forget your everyday problems and move into another, tame dimension.

Keywords

space, privacy, sharing, use, humanization, human needs, escape, proxemics, feeling, distance, seclusion, city, community, senses, microspaces, social bubbles, safety, social contact, pandemic, COVID-19

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> She put her hands under the leaves and began to pull and push them aside. Thick as the ivy hung, it nearly all was a loose and swinging curtain, though some had crept over wood and iron. Mary's heart began to thump and her hands to shake a little in her delight and excitement. The robin kept singing and twittering away and tilting his head on one side, as if he were as excited as she was. What was this under her hands which was square and made of iron and which her fingers found a hole in?[1] [...]. The sun was shining inside the four walls and the high arch of blue sky over this particular piece of Misselthwaite seemed even more brilliant and soft than it was over the moor. The robin flew down from his tree-top and hopped about or flew after her from one bush to another. He chirped a good deal and had a very busy air, as if he were showing her things. Everything was strange and silent and she seemed to be hundreds of miles away from anyone, but somehow she did not feel lonely at all.[2]

Gate to the ROD allotment gardens

Allotment gardens hold a special place in my personal collection of 'special' phenomena and curiosities related to the space in use. When I cross the gate of the ROD (pol. Rodzinny Ogród Działkowy = family allotment garden), I am almost always accompanied by a feeling of wonder and a sense that I have found myself in a completely different world. The space I enter is unreal, functioning in parallel with the world left outside the high gate. It is a world in miniature, divided by narrow streets that have their own names, with number plates fixed to the walls of the micro-houses. This world is governed by its own laws, an internal social code and a particular aesthetic that differs from the rest of the world. It was precisely this aesthetic that captured me the most, initially inspiring horror, then acceptance, and finally interest and desire to explore its origins.

> When I found myself on my feet, I looked about me, and must confess I never beheld a more entertaining prospect. The country around appeared like a continued garden, and the enclosed fields, which were generally forty feet square, resembled so many beds of flowers. These fields were intermingled with woods of half a stang, and the tallest trees, as I could judge, appeared to be seven feet high. I viewed the town on my left hand, which looked like the painted scene of a city in a theatre.[3]

Passing through the gardens' outer gate, one can indeed feel like Gulliver in the land of the Lilliputians. Narrow alleys, low hedges and fences, small gates and, finally, allotment houses pretending to be small villas, often two-storey, with balcony, terrace, arcade. Everything made in a micro scale, scaled down to an appropriate size that fits within the guidelines included in the garden regulations. The cottages are immersed in lush greenery abundantly watered by allotment holders dedicated to their gardens. The gardens, mostly separated by a simple border, hide personal worlds created by their users. These are spaces built from their materialised desires and dreams, created as a place where one can be at least for a moment in the real centre of one's own imagination. And the imagination, when it comes to allotment gardens, knows no limits. Moorish palaces stand out among the multicoloured flowers, forest hideaways and Tyrolean chalets hide nearby, and passers-by can admire the open-air exhibitions of rubber sculpture, often represented by swans frozen in an elegant pose, conjured up

1 F.H. Burnett. *Secret Garden*, https://www.gutenberg.org/files/113/113-h/113-h.htm [accessed: 04/07/2022].
2 Ibidem.
3 J. Swift, *Gulliver's Travels into Several Remote Nations of the Worlds*, https://www.gutenberg.org/files/829/829-h/829-h.htm [accessed: 04/07/2022].

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from tyres painted in glossy white enamel. A watchful visitor can sometimes catch a small pond with live red fish, a Mexican ranch-style site, wooden wells, cottages hidden in the branches of fruit trees. Between them, mysterious figures in colourful dungarees stroll and pour copious amounts of water over the luscious greenery and, hiding under the wide brims of their hats, celebrate happy moments snatched from everyday life.

> *Self-made* architecture is not only an expression of the need to satisfy needs even with limited economic opportunities, but also an expression of the pursuit of self-expression of individual expectations and visions of happiness, well-being, personal and cultural identity.[4]

Private paradise on state-owned land

It is worth recalling that the 'allotment holders' so often treated with superiority and irony are not a phenomenon limited to the Polish society. The National Allotment Association belongs to the International Office of Allotment and Family Gardens, which brings together individual national associations from 15 countries: Austria, Belgium, Czech Republic, Denmark, Finland, France, Netherlands, Luxembourg, Norway, Germany, Slovakia, Switzerland, Sweden, UK and Poland. The office of the International du Coin de Terre et des Jardins Familiaux, based in Luxembourg, has represented 3 million European allotment gardeners since 1926, ensuring that the socio-cultural and economic functions of urban gardens are preserved. The office is in constant communication with the Council of Europe and works for the development of the allotment movement in the European Union. In Paris alone, there are around 6,000 allotment gardens, almost one million 'allotments' have been recorded in Germany. In Poland we have more than 5,000 allotment gardens, which cover almost 44,000 hectares of land and have become a refuge for 966,000 active allotment holders. The most appreciated role of allotment gardens is their contribution to the pro-environmental development programmes of particular countries. Gardens create green islands in urban agglomerations, reduce temperatures and provide shelter for wildlife and insects. Moreover, they have an impact on the integration of the local community, enable older people to maintain a good quality of life and have a positive effect on internal family relations.

> The distribution of gardens in the space of the modern city also has a clear impact on its sanitary condition. Gardens support the city's ecological system as part of the urban green system, reducing atmospheric and noise pollution. They regulate humidity and air temperature, thus influencing the creation of a favourable microclimate of urbanised areas.[5]

Allotment gardens also respond to proposals launched by Jan Gehl, which have been eagerly promoted in recent years, and which claim that the city should be a place for people, their proper development, the space closest to people, a place for satisfying various needs. This Danish urban planner points

4 A. Bańka, *Architektura psychologicznej przestrzeni życia. Behawioralne podstawy projektowania*, Poznań 2016, p. 12.
5 P. Lewandowski, „Proces urbanizacji miast w Polsce a rodzinne ogrody działkowe", *Przegląd Budowlany*, 9 (2019), p. 85.

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to a clear division of the activities people undertake outside their homesteads into three basic categories. According to Gehl, each of them requires a completely different environment and a different development of urban space. Optional and social activities are most dependent on the surrounding space.[6] In order to get out of home and undertake any action, people need to have a clear excuse, to feel comfortable in their surroundings. Allotment gardens thus fit in with the idea of a city for people.

> Allotment gardens blended into the residential, commercial and industrial developments form together with them one common urban organism. They fill a spatial void and have a positive effect on the urban physiognomy. The users' care for their parcels transformed former wastelands, rubbish dumps and undeveloped areas into colourful places teeming with life. Users introduce interesting architectural solutions, often expressed in original shapes and forms of gazebos.[7]

Fig. 1. There are probably around 25 million dwarves in German gardens. https://www.tagesspiegel.de/berlin/kleingaerten-als-bauland-weniger-gaerten-fuer-einzelne-mehr-flaeche-fuer-alle/26020012.html [accessed: 28/02/2022].

Circular gardens in Naerum

One of the most original allotment gardens in Europe is the garden located in Copenhagen's Naerum district. It was designed in 1948 by the Danish landscape architect Søren Carl Theodor Marius Sørensen, considered one of the best specialists in this field in the 20th century. It is a set of oval gardens measuring approximately 15 × 25 m, surrounded by evenly trimmed hedges, forming a coherent whole. You can stroll between the gardens, using the designated paths or wandering between them on the short-mown lawn. The users of this site at the time of its creation were given basic guidelines by the designer, but the interiors of their own gardens could be developed in the individual way. These original principles still apply today.

6 See J. Gehl, *Życie między budynkami. Użytkowanie przestrzeni publicznych*, transl. M.A. Urbańska, Kraków 2009.
7 R. Szkup, *Użytkowanie rodzinnych ogrodów działkowych (ROD) przez społeczność wielkomiejską. Przykład Łodzi*, Łódź 2013, p. 231

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Fig. 2. Oval gardens – an attraction of Copenhagen, Flickr/Ben ter Mull, https://brightvibes.com/2357/en/the-story-behind-the-unique-oval-community-gardens-of-copenhagen [accessed: 28/02/2022].

Fig. 3. Circular Magic, Facebook, https://www.f7dobry.com/unikalne-owalne-ogrody-wspolnotowe-w-kopenhadze/ [accessed: 28/02/2022].

English 'French' gardens

The oldest allotment gardens in the UK date back to the late 18th century. At that time, they were established for the poor, enabling them to obtain cheap food. English allotments for most of their functioning had a legally defined size and had to be used primarily for the production of fruit, vegetables or flowers by the allotment owner and their family. Over the years, allotments have evolved into the places of relaxation. Although English allotments are primarily vegetable gardens, their holders pay increasingly more attention to their functional development, as well as to the aesthetic features. French *potager* is the term used to describe the design of a sophisticated vegetable, herb and flower garden. It comes from the Renaissance and Baroque periods (*un jardin potager*). It aims to combine the beauty of ornamental plants with the utility of edible plants in one small space, and to upgrade gardening into a kind of art. Urban vegetable garden fits in with the idea of creating self-sustaining,

ecological cities that counter food security threats, combat climate change and protect pollinating insects.

From left: Fig. 4. Allotment in England – arranged in the 'potager garden' style, https://ealingdean.co.uk/events/2016/potager [accessed: 28/02/2022].
Fig. 5. Allotment gardens in the UK near Middlesbrough, https://en.wikipedia.org/wiki/Allotment_(gardening) [accessed: 28/02/2022].

Marie Antoinette in an allotment garden

Fig. 6. Marie Antoinette's vegetable garden, Hameau de la Reine in the Petit Trianon grounds, Versailles, https://en.wikipedia.org/wiki/Hameau_de_la_Reine#/media/File:Ferme1.jpg [accessed: 28/02/2022].

Perhaps one of the first users of an allotment garden was actually Marie Antoinette. Strolling around, dressed as a shepherdess, the young queen, grazing geese, feeding little lambs, picking ripe raspberries and lettuce leaves, embodied a dreamlike carefree character. The most important thing for her was to be able to get away from the daily problems left behind in the huge palace. Her small country house looked like a dwarf's cottage against the backdrop of the huge Versailles estate. A similar impression is created by contemporary gazebos installed in small gardens located in city centres. The contrast between the real life going on outside the ROD allotment gardens' fence and the interior of these small private worlds is astonishing. Emerging from behind a hedge, the lumps of concrete

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skyscrapers seem soulless compared to the colourful buildings speckled with multicoloured vegetation. Leaving the space of their own fairy tale, the allotment holders return to the outside, real world through the ROD gate which is a kind of passage between the two realities. They leave their uniforms, in which they proudly stroll through these enchanted gardens, in the allotment premises. The gazebos hide the dungarees, cowboy hats and wellingtons along with dreams of moving to another carefree dimension.

From left: Fig. 7. Allotment in the city centre, photo: Kuba Kamiński, https://www.rp.pl/nieruchomosci/art4585691-ogrodki-dzialkowe-wracaja-do-dawnych-wlascicieli [accessed: 28/02/2022].
Fig. 8. Garden of the Familiengärten am Hummelweg association in Niederuzwil https://www.tagblatt.ch/ostschweiz/wil/niederuzwil-blick-ueber-den-gartenzaun-ld.458092 [accessed: 28/02/2022].

ROD allotment gardens – an extraterritorial space

The last two years of the ongoing pandemic were specific for the allotment gardens. Never before were these inconspicuous gardens the object of such an interest. This was driven by the fact that, according to the introduced legislation measures, sanitation procedures obligatory in the cities did not have to be followed in the ROD area. Once you passed through the gate, you could leave the world of pandemics behind, you could move around the entire garden area without wearing a mask, and there was no need to observe social distance. No wonder, then, that allotments became the dream of entire urban families isolated in their flats. They became the only way to spend time outdoors together, to move around in the fresh air, to enjoy nature. The famous popular joke about holidays spent on RODOS (Polish acronym for ‘family allotment gardens surrounded by a fence’) thus came true, and the opportunity to spread out a deckchair on the grass unfortunately became an unattainable dream for many. Prices of allotments sky-rocketed, demand outstripped supply by many times, and happy garden holders began to appreciate the opportunity to enjoy their own piece of land, allowing them to survive safely the worst moments of isolation.

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Fig. 9. Gossau elders using allotment gardens during the pandemic, https://www.tagblatt.ch/ostschweiz/stgallen/gossauer-senioren-lassen-sich-ihr-paradies-nicht-nehmen-schrebergaerten-mooswiesen-werden-zum-zufluchtsort-in-der-coronakrise-ld.1207211 [accessed: 28/02/2022].

Author's open-air exhibition

Allotment garden is a place where people shape on their own a different kind of interaction and their presence in the space than elsewhere. I was interested in the 'allotment' as a form of artistic expression by the user, a kind of self-presentation space, often taking on the function of an 'author's exhibition space'. Allotment garden very often becomes the realisation of particular personal needs, allowing the holder to express their desires and ideas about a welcoming space. It thus becomes a space of complete detachment from reality, often transporting its user into a world of fairy tales and fantasy. We often look with regret at plaster dwarves, artificial flowers and fancy micro-buildings.

> The inadequate aesthetics of ROD allotments is, along with their limited accessibility, one of the main reasons for their negative image. Over the years, people have enjoyed more and more freedom in arranging their individual plots of land, which is not conducive to improving spatial order in the allotment gardens.[8]

Looking at it from the other side, however, we can discover unlimited fantasy emerging in the allotments in a bizarre way. Allotment holders, who surround themselves with typical objects, live in typical flats and work in unified offices, feel happy and relaxed in these bizarre spaces, which are organised against the generally recognised rules of aesthetics. Perhaps we can consider that as an escape into the realm of childhood fantasy, a dream, an attempt to move to another dimension like Gulliver, to create one's own enchanted garden to help overcome everyday difficulties. A low hedge or mesh fence separates completely different worlds, which, in the area of an allotment garden, can coexist in harmony. Different aesthetics, impossible to reconcile in everyday life spent in shared use

8 Summary of a research on the condition of allotment gardens published in: D. Dymek, L. Bednorz, „Zagospodarowanie rodzinnych ogrodów działkowych (ROD) na przykładzie ROD im. Józefa Chociszewskiego w Poznaniu", *Studia Miejskie*, 25 (2017), p. 145

spaces, do not offend anyone in allotment gardens and are not forbidden there. The only limitations are the basic dimensions of length, width and height. The 'artistic' part depends entirely on the author of the concept. Each allotment is a different planet with its own inhabitants who create a new reality on their own terms.

> Construction law is increasingly taking away the right of ordinary people to decide about their own home, its value. Professionalism limits the freedom of the individual who nevertheless pursues their dreams. How to assess the value of an architectural space when it is subjectively different in the psychological sphere of the owner's life and in the 'objectified' knowledge of the professional?[9]

From left: Fig. 10. L. Zieleniewski Workers' Allotment Garden No. 2 – Łęg, photo: author of the article.
Fig. 11. Fancy arrangement of an allotment.

From left: Fig. 12. Kraków – Łęg, photo: author of the article.
Fig. 13. A palace from a thousand and one fairy tales, photo: author of the article

9 A. Bańka, *Architektura psychologicznej przestrzeni życia*, p. 13

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From left: Fig. 14. The magic of blue, photo: author of the article.
Fig. 15. No trespassing, photo: author of the article.

From left: Fig. 16. Exotic corner, photo: author of the article.
Fig. 17. Pond with red fish, photo: author of the article.

From left: Fig. 18. A splash of colour, photo: author of the article.
Fig. 19. Allotment in a German style – garden dwarves and barbecued sausages, https://www.welt.de/icon/article143753689/Die-liebenswerten-Zwaenge-in-deutschen-Kleingaerten.html [accessed: 28/02/2022].

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DESIRES OF PLACES (INITIAL HABITATS OF INNER SPACES). SHAPING SPACE AND THE CULTURAL IDENTITY OF A PLACE

Art research paper

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Abstract

The article attempts to illustrate the essence of the influence of several key factors on the identity of place through the evocation of specific spaces. The most essential components evoked are time, -place, landscape, memory, sound: their mutual coexistence creates, in our understanding, an image that, despite our fixed idea, is constantly changing *in situ*. The reflections undertaken in the content of this article refer both to the notion of identity not linked to any given place and to a few selected places in south-eastern Poland.

Keywords

identity, place, memory, space, time, coexistence

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Introduction

> Space is [...] an elementary component of identity. Influencing the ontological distinctiveness of the individual as well as the community occupying the given area, identity is legitimised by the space, which consists of meaningful places [...].[1]

Place, space and time, identity of an individual. The interaction of these elements remains a continuous process. We live in a space. We give it specific qualities, meanings, ideas (a cultural factor). This space becomes for us a place, increasingly clear and concrete as we assign it more qualities. The construction of this bond is also influenced by time, by creating a kind of emotional charge that connects us to a given space: a place or even several 'places' within it. We form them, create them and get to know and interpret them very subconsciously, which, as a result, makes us experience their nature. By assigning the space specific features, we build the mood of the place(s), we construct its emotional and social identity. We enter into a relationship with a place that begins to respond to our presence, we become part of it, which in many cases may certainly also be called an interaction. It already has its own characteristics, value, overtones and meaning: *genius loci.* The difference between place and space can therefore be seen very clearly. We often speak of space as being 'dehumanised', having no specific qualities, free, without belonging. Place, on the other hand, can be equated with the opposite of space: something certain, known, understood, experienced. Yi-Fu Tuan, in his book *Space and place...*, defines the concept of 'place' in an interesting way: as the 'humanised space'.[2] It can therefore be noted that we are dealing with an element that has its own characteristics and features, created individually or often built by a community, which already at this stage proves that it has its own identity. Following the above considerations, we can ask ourselves whether and how we are able to define a given place and by means of exactly which factors.

Place and non-place

Place: "an area or point in space",[3] "a space that can be occupied or filled with something", "a location, a position occupied by some object, the position of some object (area)".[4] These are just a few definitions of a word that we understand so well; we give it so many meanings, contexts, dimensions, yet it still remains largely undiscovered.

> Place is always a fragment of space singled out, based on some particular characteristic, by a perceiving subject. The distinguishing features of a place can be historical or contemporary objects, unique buildings, monuments, outdoor sculptures, as well as the qualities given to some trivial piece of space by its users following, for example,

1 T. Burdzik, "Przestrzeń jako składnik tożsamości w świecie globalizacji", *Kultura – Historia – Globalizacja*, (11) 2012, pp. 13–27.
2 Y.F. Tuan, *Przestrzeń i miejsce* (*Space and place: the perspective of experience*), Warsaw 1987, p. 23.
3 https://wikiroznica.com/lokalizacja/miejsce [accessed: 28/03/2022].
4 https://encyklopedia.biolog.pl/index.php?haslo=Miejsce [accessed: 14/04/2022].

> an exciting event. A place is special because a specific culture often emerges there, which in turn reinforces the uniqueness of the place.[5]

Places, these seemingly insignificant concepts, are extremely important elements of human's world, bearing their own meanings. In most cases, we do not give much thought to their existence and nature; we grasp them in a very subconscious, even instinctive manner. They are a response to people's important need to belong, to participate, which also accounts for the individual's sense of security.[6] We might just as well invoke the term of a 'non-place', which does not belong to anyone in particular, has no deeper meaning within it, remains to some extent neutral, impersonal, anonymous and not saturated with emotions, even blurred in meaning. One may thus be tempted to make the simple statement that non-place is the opposite of place, but possibly bearing heavily physical, precise characteristics of a space. Non-places are often identified with locations with which people have no emotional connection: airports, shopping malls or large public spaces, unified, in which it is easy to be anonymous, without much potential to co-create an identity.

Nowadays, we are increasingly dealing with a kind of 'non-places'. To some extent, it could be stated that this is almost becoming popular. The term 'non-place' is clearly associated with the French cultural anthropologist and ethnologist Marc Augé, who was one of the first to conduct research into the concept of hyper-modernity, recognising the impact of globalisation on the penetration of 'non-places' into ever deeper layers of modern people's lives. The identities of non-places, and even directly of some people, can thus also be embedded in a global identity, not belonging – unlike how individual identities were once perceived – to a place where, for example, we were born or we live. Nowadays, everything is in constant motion and, as a result, we constantly redefine places in a more or less subconscious manner. Globalisation forces mobility, which shows that human identity does not have to be linked to a specific place; through the nature of one's life (frequent movement for professional or tourist reasons) one identifies with the successive points or cultures visited, often abandoning the previous ones. Our personal identity is formed throughout our lives, it is the individual identification of each one of us, our characteristics, which is made up of a myriad of factors over the course of our lives. The concept of identity refers not only to the past, but also, to a large extent, to the present and the future.

Moreover, non-places are defined also by the fact that "everything begins to resemble everything",[7] but even then, it is possible to pick up accents that more or less indicate a belonging and unique characteristics. This can be described by a quote from Alain de Botton's book *The Art of Travel*:

> [...] as soon as I landed at Amsterdam's Schipol airport, I barely took a few steps into the terminal. I was struck by an information board under the ceiling showing the way to the arrivals hall, exit and transfer desks. It is a bright

5 B. Jałowiecki, "Miejsce, przestrzeń, obszar", *Przegląd Socjologiczny*, 60 (2011), vol. 2–3, pp. 9–28.
6 Cf. D. Czaja, *Inne przestrzenie, inne miejsca. Mapy i terytoria*, Wołowiec 2013, p. 9.
7 M. Augé, *Non-Places: Introduction to an Anthropology of Supermodernity*, transl. R. Chymkowski, Warsaw 2010, p. 17.

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> yellow board, one metre high and two metres wide, a graphically uncomplicated sheet of plastic set in an illuminated aluminium box, suspended on steel struts from the ceiling [...] despite its simplicity, or even mundaneness, it delights me. The source of this delight is most accurately described by the word 'exotic', although using it in the given context may seem somewhat unusual. The exoticism is concentrated in specific areas: the double 'a' in Aankomst, the neighbourhood of 'u' and 'i' in Uitgang, the use of English equivalents, the word for positions, balies, and the use of the modernist fonts Frutiger and Univers. The feeling of pleasure evoked by the sight of an information board owes its strength in part to the fact that it is the first tangible evidence of being in a new place. It symbolises a foreign country. Although, at first glance, nothing in this particular form stands out, it could not exist in my country.[8]

The notion of 'place' and 'non-place' in the following article is analysed in the context of a specific landscape. We can also cite several definitions for the term 'landscape' itself, for example making a distinction between cultural, primary, ecological, natural and devastated landscapes.[9]

> [...] the space of the Earth's surface as seen from a certain point; an area distinguished by its characteristic natural, topographical, etc. features; the totality of factors constituting some phenomenon; a picture representing some neighbourhood.[10]

When considering these values, we continue with taking up the idea of place in the landscape, but also, more broadly, the landscape of the place itself in the context of its identity. The interpenetration of the ambiguities of these elements means that the meaning of the place itself is also never profoundly fixed, it undergoes constant, greater or lesser transformations, a redefinition that takes new shape over time. Individuals can differ in their feeling of place: it can be similar (when a community is formed) or even completely different. It is also clear that, in addition to a sense of belonging more or less to collectively known locations, there is also an individual predilection for specific locations that are not significant in the context of the community.

> The process of forming an identity begins in childhood and continues throughout life. We are formed, on the one hand, by the awareness that we are different from others and that we are individual, we are ourselves (personalisation) and, on the other hand, we are similar to others, especially some particular others (categorisation). The process of identification draws particularly from the experiences, beliefs, judgements and overarching values that define our aspirations. Identity is a psychic structure composed of features relying to both the social, external, and the internal background.[11]

Places

The places concerned below are located in south-eastern Poland, in the area of the Low Beskids and the Bieszczady Mountains. After World War II, the area experienced a strong transformation. The population, which had always lived there, almost completely 'disappeared' in a short space of time. Residents were often leaving their houses in a hurry, taking what was most valuable from their

8 A. de Botton, *The Art of Travel*, Warsaw 2010, p. 67.
9 Cf. F. Plit, *Krajobrazy kulturowe w geografii polskiej. Szkice*, Warsaw 2016, p. 11.
10 https://sjp.pwn.pl/slowniki/krajobraz [accessed: 12/04/2022].
11 M. Chyła, "Miejsce jako podstawa kształtowania się tożsamości", [in:] *1050-lecie chrztu Polski a tożsamość narodowa*, H. Czakowska, M. Kuciński (eds), Bydgoszcz 2017, p. 51.

inventory, including icons with images of saints.[12] The aim of the Operation Vistula, carried out in south-eastern Poland, was to "solve the Ukrainian problem in Poland once and for all" and to displace the population that allegedly belonged to the Ukrainian nation. Families were given the choice of going to the east or to the western territories that were given to Poland after the war. Families were separated and sent to different regions, other villages, so that the social and cultural bond would not be renewed. There were a few cases of people who returned to the displaced villages, but this was very rare.[13] A similar story was shared by many villages in the Low Beskids and Bieszczady Mountains, abandoned by their inhabitants.[14] As a result, after a period of time, everything looked as if nature had shaken off the excess of 'humanity' once living here. This is how this primordial landscape was transformed and populated by new people over time. We can recall here a quote from Monika Sznajderman's book *Pusty las* (Empty Forest), which strongly illustrates the situation that followed:

> [...] a new world has sprung up: Polish, not Ruthenian.[15]

Crosses, trees and overgrown roads remain as reminders of that world. Cemeteries, no longer cultivated fruit trees, uneven ground in the place of non-existent buildings, holes in the ground – marked or not – wells, crumbling cellars, roadside crosses... These are often the only traces that remain in the landscape – obscured by time – of non-existent villages, which used to be inhabited by people up to late 1940s. It is now dominated by silence, by nature which, with the passage of time, drastically – but at the same time most beautifully – erases the traces of their presence.[16] In the following subchapters, a historical outline of selected places located in the south-eastern Poland will be recalled to illustrate the question described. Please note that the history of the following localities is described for illustrative purposes. Each of these places is extremely interesting and undoubtedly deserves a more extensive study. It should also be noted that there are an extremely large number of places of this type in the area described and it would be impossible to list them all. South-eastern Poland is a region of the intermingling of many cultures, religions and traditions, which is reflected in its unique character.[17]

Nieznajowa

Delving into the picturesque countryside of the Low Beskids, it is impossible not to come across valleys of displaced villages... One of them is Nieznajowa. Located in the upper valley of the Wisłoka River, it is one of the better-known villages of its kind in the Low Beskids. Mentions of Nieznajowa date from as early as 1546, when Stefan Oleśko located it under the Wallachian law. The village was growing rapidly. Already in the first half of the 17th century, there was a fulling mill, a groat mortar

12 Cf. S. Kryciński, *Łemkowszczyzna po obu stronach Karpat*, Rzeszów 2016, p. 215.
13 Cf. J. Nowak, *Zaginiony świat? Nazywają ich Łemkami*, Kraków 2003, p. 83.
14 Cf. R. Bańkosz, *Cerkwie Szlaku Ikon*, Krosno 2010, p. 22.
15 M. Sznajderman, *Pusty las*, Wołowiec 2019, p. 225.
16 Cf. J. Czajkowski, *Studia nad Łemkowszczyzną*, Sanok 1999, p. 190.
17 Cf. S. Kryciński, *Łemkowszczyzna nieutracona*, Rzeszów 2018, p. 199.

and a mill here. In 1780, a carpenter from nearby Slovakia, Teodor Rusinka, erected here one of the most impressive and beautiful churches in the entire Lemko region.[18]

> And the Pantocrator fell in the dust
> Winged Michael knocked over with a horse
> Overgrown with viburnum and thickets of burdocks
> Great mouth of the church in Nieznajowa.
> [Jerzy Harasymowicz, *Nieznajowa cerkiew przewrócona*]

From the 19th century onwards, four fairs were held annually in Nieznajowa, with traders coming from very far away. The village became a well-known trading centre. There was also an inn nearby. In 1886 Nieznajowa was inhabited by 332 Greek Catholics. At the turn of the 19th and 20th centuries, there were plans to establish a railway line from Jasło to Bardejov with a large station in Nieznajowa; plans for it were even already drawn up, but then World War I put an end to this idea.

Fig. 1. Nieznajowa, 1938, https://en.m.wikipedia.org/wiki/File:Nieznajowa_1938_r..jpg [accessed: 16 April 2022].

During World War I, the front passed through the village, and the wartime events were brought to an end by the Gorlice Operation of 2 May 1915. In 1927, as a result of the so-called Schism of Tylawa, the local population began to convert in large numbers to Orthodoxy. Orthodox temples built at that time were far less impressive than the Greek Catholic ones, as they were built in a hurry and often hardly even resembled temples.[19] It was not uncommon for the rich furnishings of a Greek Catholic church to be transferred to an Orthodox church, which also happened in Nieznajowa. In 1936, Nieznajowa was inhabited by 220 Orthodox Christians, 6 Greek Catholics, 20 Roman Catholics and

18 Cf. W. Grzesik, T. Traczyk, *Beskid Niski. Od Komańczy do Bartnego*, Warsaw 1992, p. 186.
19 Cf. J. Nowa, *Zaginiony świat? Nazywają ich Łemkami*, pp. 151–152.

3 Jews.[20] In the interwar period, the village had a school and a reading room, two shops, a police station and two operating sawmills.[21]

Fig. 2. Preserved archival documentation on the church in Nieznajowa, photo: WUOZ Nowy Sącz.

World War II did not bring any major losses to the village, despite the ongoing battles in the nearby Ciechania and Żydowsko – until the time of displacement, when the inhabitants were displaced as part of the Operation Vistula and the village was deserted. The valley began to be gradually dominated by nature, which conquered the land which had been previously taken from it. The beautiful Greek Catholic church collapsed over time. The land was adapted for sheep grazing, and in the 1970s, until the 1981 martial law, a remand centre operated here.

20 Cf. http://www.beskid-niski-pogorze.pl/galeria_regionu/nieistniejace_wsie/nieznajowa/nieznajowa.php [accessed: 14/04/2022].

21 Cf. W. Grzesik, T. Traczyk, *Beskid Niski*, p. 184.

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Fig. 3-6. Archival photographs of the ruins of the Orthodox church in Nieznajowa, photos from the collection of Zagroda Maziarska, the Karwacjan and Gładysz Family Manors Museum in Gorlice. Top, on the right: entrance portal.

Fig. 7. Old fruit trees in Nieznajowa, September 2015, photo: K. Zielińska.

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Today, many traces of the defunct village can still be found. The most distinctive are the stone roadside chapels. We can find the ruins of a sawmill. The church cemetery has also been preserved, where we can see fragments of the foundations of a no longer existing Greek Catholic church and several artefacts. A wooden entrance portal, a rainbow beam (currently kept in the museum in the Orthodox church in Bartne) and a *Deesis* icon (kept in the collection of the Regional Museum in Jasło) have been preserved from the church.

Fig. 8. Fragment of a rainbow beam from the Orthodox church in Nieznajowa (currently in the Museum of the Orthodox Church in Bartne), December 2015, photo: K. Zielińska.

Fig. 9. Entrance portal preserved from the Orthodox church in Nieznajowa (currently in the Museum of the Orthodox Church in Bartne), December 2015, photo: S. Zieliński.

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It is not even possible to list most of these types of irretrievably destroyed objects. Fortunately, conservation efforts have saved some of them (e.g. the Orthodox church from the village of Czarne, currently available in the open-air museum in Nowy Sącz).

From left: Fig. 10. Memorial plaque of the Orthodox church in Nieznajowa, November 2015, photo: K. Zielińska. Fig. 11. Chapel in Nieznajowa, August 2014, photo: K. Zielińska.

Fig. 12. Chapels in Nieznajowa, February 2016, photo: K. Zielińska.

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Krywe

Krywe is a village that no longer exists, lying between the foothills of the Otryt range and the peaks of Bukowina and Stołów. The village was first mentioned in sources in 1502. It was located under the Wallachian law before 1526. At the end of the 19th century, Krywe had 462 inhabitants, a large proportion of whom were Ruthenians.

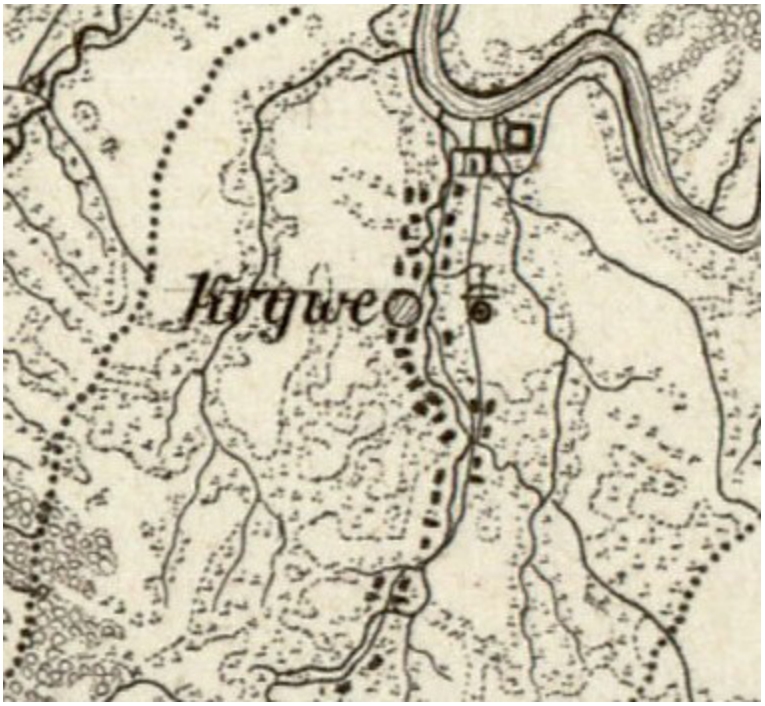

Fig. 13. Austrian map of 1855, plan of buildings in the Krywe village, https://naszebieszczady.com/krywe/krywe-mapa/ [accessed: 14/04/2022].

Although the village was relatively small at the time, in addition to the buildings of the inhabitants, there was a steam sawmill, a parish school, a manor house, manor buildings and a farm, a watermill and the Orthodox Church of St Paraskeva, built in 1842 (the first mention of an Orthodox church in Krywe dates back to 1589). In 1915, there was heavy fighting in the surrounding area and in Krywe itself. The village was devastated; some of the population was killed or forced to leave. Sources say that in 1921, almost 100 years ago, Krywe had 74 houses with 472 inhabitants (almost all of them, apart from a few Poles and Jews, were Ruthenians). During World War II the village was divided into two occupation zones: the Soviet and the German, who had their border on the San River. After the war, in 1945, the Ukrainian Insurgent Army (UPA) burnt down the sawmill and the manor house. In 1946, 16 families were displaced; other residents hid in the surrounding woods. A year later, Operation Vistula took place. 320 people were deported from Krywe at that time, and the remaining wooden houses and buildings were burnt down. In the 1960s, people partially returned to the area of Krywe. Summer cattle grazing took place here, prisoners used to be sent to work here, and there were two

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State Agricultural Farms (PGRs) from Lutowiska and Czarna. Land reclamation was carried out in the 1980s with the use of bulldozers. A bridge over the San River was then built, which lasted until 1999.[22]

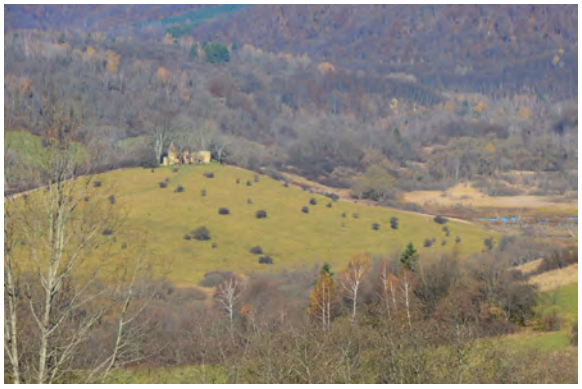

Fig. 14. Ruins of the Orthodox church of St Paraskeva in Krywe on the Dilok hill, October 2021, photo: K. Zielińska.

To this day, many traces of human presence can be found in the valley of the village, the most prominent of which are the well-preserved ruins of the bricked Orthodox church of St Paraskeva oriented on the Dilok hill, abandoned since 1947, together with the ruins of a brick bell gable and the stone gravestones preserved around them.

Fig. 15. Ruins of the Orthodox church and bell gable in Krywe, October 2021, photo: K. Zielińska.

Some of the elements of the ruins have been protected from the weather, and missing elements – such as the vaults above the windows – have been restored; inside the temple, we can still find tiles from the terracotta floor.

22 Cf. *Bieszczady. Słownik historyczno-krajoznawczy*, vol. I: *Gmina Lutowiska*, Ustrzyki Górne–Warsaw 1995, p. 74.

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Fig. 16. Interior of the ruins of the church in Krywe, view towards the nave and entrance from the presbytery, October 2021, photo: K. Zielińska.

The ruins of the Orthodox church in Krywe are currently one of the best-preserved ruins of Orthodox churches in the entire Bieszczady Mountains. You can also see the ruins of a manor house (its foundation), visible unevenness of the terrain in the place of the non-existing buildings, fruit trees in blossom in spring are the remains of farmstead orchards... In 1991 the Krywe Nature Reserve was established here, partly covering the area of the non-existing village. On 8 July 2017, a ceremony took place here to dedicate a cross in memory of the villagers; it was attended by some descendants of the former villagers.[23] In the vicinity of Krywe, we can also find the remains of the villages of Hulskie and Tworylne.

Fig. 17. Elements of the Krywe Orthodox church, October 2021, photo: K. Zielińska.

23 Cf. S. Kryciński, *Cerkwie w Bieszczadach*, Warsaw 1995, p. 214.

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Beniowa

Beniowa, a village that no longer exists, located at the very edge of the Polish part of the Bieszczady Mountains, is another example of a place understood as an object of memory recorded in the land--scape. The village is first mentioned in the foundation charter of the village of Tarnawa Niżna and Wyżna from 1537, where it is referred to as the "Beniowe field". It was the inhabitants of Tarnawa, a nearby village, who cultivated the land around it, gradually settling it over time; as a result, we can learn about the now separate village of Beniowa from sources from 1580, when the division of the lands by the heirs took place. The village was founded under Wallachian law and remained picturesquely, even harmoniously, integrated into the landscape, river network and vegetation.

During the march of troops in the times of the Northern War in 1709, Beniowa was set on fire by the Swedes. At the turn of the 19th and 20th centuries, there were two water sawmills, a water mill, a brewery and barrel factory, a potash place, a lupine mill and even a glassworks in the village. A narrow-gauge railway was established here in the early 20th century. Beniowa also had an Orthodox church. There were several temples, but the first one was mentioned in the tax register of 1589. Another Orthodox church, the Church of St Michael the Archangel was built right by the San River in 1779. The wooden tripartite church was built in the Boyko style. However, the inhabitants of Beniowa built another, more impressive temple; this resulted in abandoning the previous one, which was demolished in 1927 (the material from this temple was used in the construction of the seat for the 'Proswita' Society). The new church was built in 1909 on the plan of a Greek cross in the so-called national style and it was consecrated a year later. The building was impressive, it has two vestries on the sides of the presbytery and it was vaulted by five bulbous dome forms topped by pseudo lanterns. The building was extremely interesting from the architectural point of view, as can be seen on the archive photographs.

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Fig. 18. Orthodox Church of St Michael the Archangel in 1909, on a postcard from the 1930s, photo from the collection of P. Kusal (*Zapomniane cerkwie*, published by Ruthenus), photo of the church on the information board in Bukowiec, October 2021, photo: K. Zielińska.

In the 1920s, Beniowa was inhabited by 617 people of various religious denominations (almost 500 Greek Catholics, several dozen Jews and just over 20 Roman Catholics). After World War II, a national border was drawn through the village. In 1946, all the inhabitants were deported to the USSR and the village was deserted. The Orthodox church was plundered. A year later it was set on fire along with other village buildings. Nature has begun to reoccupy its original territories. In the 1980s, attempts of reclamation were made in the village with the use of explosives. Nowadays, in the seemingly primeval landscape, traces of human presence can still be found on closer inspection.

Fig. 19. Linden tree in Beniowa, October 2021, photo: K. Zielińska.

The distinctive old linden tree, now almost a symbol of Beniowa, is a silent witness to much of the village's history, and certainly the most turbulent years. The tree, visible from a large distance, is around 200 years old. In its vicinity, there is an old Orthodox churchyard with the visible foundations of a non-existent church (broken stone foundation) and preserved wrought iron crosses from the domes resting *in situ*, in place of the presbytery. It is surrounded by a fenced cemetery with several

stone tombstones made by local stonemasons (it is worth mentioning that there used to be as many as three cemeteries in Beniowa). Within the cemetery, there is also a beautiful distinctive baptismal font base with a carved fish symbol, made from a block of sandstone. Currently, a few buildings can be found only on the Ukrainian side. On the Polish side, you can see old roadside crosses, cellars and old wells. In 1991 a nature trail was marked out here, and in 1996 the area of the former village of Beniowa was included in the Bieszczady National Park.

From left: Fig. 20. Iron wrought crosses – remnants from the Orthodox church in Beniowa, October 2021, photo: K. Zielińska.
Fig. 21. Probably a baptismal font base with an engraved fish symbol, made of sandstone, October 2021, photo: K. Zielińska.

Polany Surowiczne

In the eastern part of Low Beskids, not far from Jaśliska, we can find Polany Surowiczne. It is a place that shared the fate of other displaced villages, now entirely dominated by nature. This beautiful empty valley was once a very large village. Today we can find the parish cemetery, traces of cellars, crosses, a student hostel open in summer season and a restored bell tower.

The first mentions about the village can be found in sources relating to the donation of the land to the Orthodox church in 1533. The village was founded, like others in the region, under the Wallachian law. The first tiny temple was probably built in the mid-16th century. In 1690, the village counted 665 people. In 1728, construction of a second Orthodox church began on the site of the first one; it was then gradually expanded up to the 20th century. However, the church was demolished in 1946. The brick bell tower, which still exists today, was probably built in 1730.

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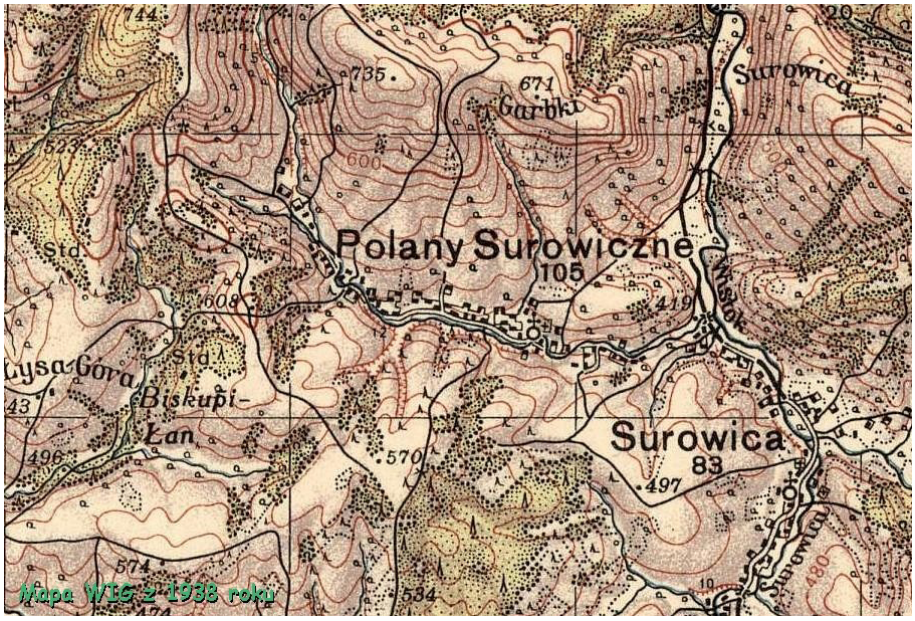

Fig. 22. Archived village map with view of buildings, http://www.beskid-niski-pogorze.pl/galeria_regionu/nieistniejace_wsie/polany.s/polany_surowiczne.php [accessed: 14/04/2022].

In 1936, more than 1,000 people lived in Polany Surowiczne, almost all of whom were Greek Catholics. Therefore, less than 90 years ago, it was a very large village, which is very hard to believe when we observe the landscape today. After the end of World War II, the people living in the village left or were forced to leave it.

Fig. 23. Phases of the renovation of the bell tower in Polany Surowiczne, http://polanysurowiczne.waw.pl [accessed: 14/04/2022].

Thanks to the social efforts of the lovers of Low Beskids, the Electrical Faculty of the Warsaw University of Technology, members of Magurycz, the 'Res Carpathica' Association and the STYKI tourist club, we can now admire the beautifully restored bell tower.

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Identity of a place hidden in sound and time

The examples of selected places mentioned above form the basis for an analysis of the identity of a lost, obliterated place. The sketchy outlining of their stories is intended to give an idea of how strongly a place can be transformed, dehumanised, how its characteristics can be blurred. How the once distinctive features can almost completely disappear. At the same time, it involves an attempt to recreate the sensation of being in a particular place and a particular time by means of engaging various senses that support our imagination and comprehension in a specific way. The habits of development are contrary to what we observe in the examples above. The landscape is being destroyed. The place ceases to exist in its previous form, impoverishes, disappears. Are we somehow able to evoke and preserve its characteristic elements, even though they do not physically exist? Can smells, sounds, images, be reliably evoked to some extent? How can we transfer time without physically interfering with the current state of the place?

Places – machines, vehicles of memory. Although they are lost, it is safe to say that in their orphaned elements, which are still building the present, they are immortal. In this case, shreds of elements of the places physically survived. But what sense do they have without human presence? Seeing the landscapes of the displaced villages, we imagine their past. What do we want to see and what do we see? What do we feel? The smell of drying hay, apples ripening in the afternoon sun, the coolness and the rocky smell of the stream – associations appear almost immediately in our mind. The theme taken up is only an example based on which we can think about a way of 'designing' the past time. Technology offers possibilities that are not only able to recreate the desired elements of the space, but at the same time do not interfere with the landscape as such. Museums known as 'sound banks' have been created for a long time, which; they act like seed banks of endangered plants, preserving sound, displaced by time, technology and sometimes uselessness. How often do we hear the clatter of the typewriter that was once so popular? It is being superseded by the computer keyboard or the soundless smartphone touch screen, or even by the action of 'writing' a text by speaking into a voice recorder that captures words and turns them into written text. It is the scale of the action that determines the degree of interference.

Place. When returning to this now familiar, tamed point in an unfamiliar space, we imagine its sound.[24] Let us stay in the same place - permanently. Let us close our eyes, listen, try to interpret the sounds, as if we were participating in a sound walk. Now that we have tuned in, let us try to let that sound go backwards. Let us turn back the time. Let us keep going back. Let us listen. What do we actually hear? How far back in time have we gone? Are we already hearing our place from a week ago, maybe a year ago? How has it changed? We go back in time. A bell is ringing somewhere. Let us go further into the past. Something drives by, a clatter is heard. 30 years back? 60? Let us step back slowly,

24 Cf. A. Kłopotowska, *Dźwięki architektury*, Białystok 2015, pp. 193–195.

capture, recognise, identify, let it all become familiar. After all, this is our place... What do we hear? A door slams somewhere, close by; the nearby mountain makes the sound echo, it sounds clearer, like after a rain. Far away, the bell is heard again. It is the Orthodox church, where the service is about to begin. The loud sound spread from afar across the valley. You can catch in this sound the rush of people, you can hear a call, someone singing, returning from the field. Let us locate. Let us keep listening. Somewhere in the back, the water whispers. It is a stream, but the sound is sort of unnatural, exaggerated. It is a sawmill. After all, there were three of them here, I can remember that. Let us open our eyes. Where are we?

Emptiness. Is anyone here?

The valley, the trees, the grasses, the road. Chapels remained from our journey; a cemetery is visible in the distance. In Beniowa, just over the border, a train passes in the distance. In Polany Surowiczne the wind whistles through the bell tower canopy. In the abandoned orchard in Nieznajowa, wild apples are falling, and in Krywe, old trees creak, stroking the branches of the remains of the abandoned ruins of the Orthodox church.

> As far as the eye can see, the moment reigns.
> One of those earthly moments
> asked to last.
> [W. Szymborska, *Chwila*]

Images of memory and the present

> [...] matter woven from voices, images, premonitions given in visions, sensations, delusions, visions...
> Images:
> They appear, disappear, reappear, outside the realm of meaning, in a dialogue that cannot be translated into definable words. A procession of real and unreal characters, mythical phenomena that only expect us to acknowledge that they exist.
> It is all tangled up: the real-unreal: a dream, a delusion: an abyss interspersed with voices, with lights where, it would seem, time is only just emerging to become time, somewhere between living matter and the great realm of the dead, between waking and dreaming, between reality and hallucination: in an area filled with signs that come from nowhere and ultimately do not know what they mean.
> And then - long afterwards - perhaps in that mysterious space, called 'khora' by Plato, words appear. And questions asked blindly. Is this my world? Someone else's? Is it seen? Felt? Where? When? In what dream? In what memory?[25]

It is worth referring to an example of the *Trees are clocks* project by Professor Adrian Newton (Bournemouth University), which shows, through a combination of sound art and music, how ancient trees are able to record climate change over the past centuries.

25 A. Wodnicki, *Contrapunctus*, Kraków 2020, p. 9.

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The piece uses field recordings made during one year in dying beech trees in the New Forest National Park in Great Britain. The passage of time is marked by the sound of breaking twigs and branches of trees that have recently died. These elements are combined with vocal textures derived from a set of chords with roots that move along a cycle of fifths, representing the cyclical dynamics of the forest ecosystems. Each chord is presented in a basic version and two inversions, with the different types of extended chord reflecting the contrasting moods of the different seasons. These movements are completed by an improvised cello performance, created in response to the other sound elements.[26]

Desires of places

The undergoing project *Desires of Places* (author: K. Zielińska) aims to develop concepts, ways of defining the identity of a place using, among other things, memory as the building block. Memory is also understood here through its reference to a broadly understood identity (e.g. place, society, activities, traditions, habits).[27] Only a fixed image of the past provides the solidification of a stable basis through which a given identity can be constructed in the present moment, absorbing it – or not – into the present: co-participating and, at the same time, involving the future in a desirable way. Memory, which is also part of the identity of a place, lies in this case not so much in the concrete space, but also in the people's understanding of it, which equally defines its multiplicity. Identity, on the other hand, would seem to belong to a place. The continuous processes that affect memory (e.g. cognition) are able to redefine not so much the space itself but rather its image in the human understanding: the sphere in which we exist, which we have come to know and which, if necessary, can be re-created through memory.[28]

Landscape is not static: there is time, history and place interacting in it, the identity of landscape consists of the relationship between all of them. These are the distinctive elements that the landscape contains that define the methodology for the appropriate selection and development of a method/technology for evoking memory in the creation of an image of this space, which is the consideration of the research activities in the project. It is an open relationship, constituting the identity of the place.[29]

The memory is fixed, the landscape is changeable. So, is the identity of the place changing or not? To what extent does it remain primary? Does it depend on the nature of the space itself? Can we, through the landscape, evoke emotions, convey feelings and if yes – what kind of feeling and on what do they depend? Can we influence them: bring them out, hide them, direct them? Is this even desirable in this case?

26 https://www.youtube.com/watch?v=eFdXqk9k0-k [accessed: 14/04/2022].
27 Cf. S. Macdonald, *Krainy pamięci. O dziedzictwie i tożsamości we współczesnej Europie* (*Memorylands: Heritage and Identity in Europe Today*), Kraków 2021, p. 17.
28 Cf. I. Calvino, *Jeżeli t = 0*, Warszawa 2021, pp. 162–163.
29 Cf. O. Gitkiewicz, *Nie zdążę*, Warszawa 2019, pp. 107–108.

Although the spaces referred to in the article remain similar in their characteristics, the research area of the *Desires of Places* project is largely an analysis of the same problem in terms of types of space (a general idea supported by an example), e.g. EXISTING SPACE (place) / NON-EXISTING SPACE (virtual one) – RESIDENTIAL SPACE (current activity) / ABANDONED SPACE (visible cultural influence but no current activity) / NATURAL SPACE (natural, landscape) / MODIFIED SPACE (predominant human activity) / HISTORICAL SPACE (past) / MODERN SPACE (present) / FUTURE SPACE (future) / SACRAL SPACE (temple) / SECURAL SPACE (house).[30]

The aim is to define the building element in a given space, depending on its nature and based on available source material, for example non-existing objects: analysis of available documentation[31] – virtual development (model, VR panorama, etc.) – analysis of the place / situation of the place: e.g. approach in the context of the space around, development plans in the next few years with the result of matching the technology / mode of communication to the content communicated in relation to the space concerned.

IDENTITY = LANDSCAPE / SPHERE + CONTENT + FORM

The places referred to in the article have been transformed. It is precisely because of this, that they form the basis for considering how to describe their past through a variety of sensory experiences: both *in situ* and with the possibility of experiencing this without being physically present in the place.

Part of the project's realisation will be presented in the form of an exhibition in July 2022 at the Fashion Start-up Gallery, a gallery created as part of the project "Designing the Future. Development programme of the Jan Matejko Academy of Fine Arts in Kraków 2018–2022".

30 Cf. P. Zumthor, *Myślenie architekturą*, Kraków 2010, pp. 33–34.
31 Cf. J. Pallasmaa, *Oczy skóry. Architektura i zmysły*, Kraków 2012, pp. 16, 41–43.

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Prof. Beata Gibała-Kapecka, Anna Dettloff, PhD
Academy of Fine Arts in Kraków

PEREGRINATIONS... DEFINING (ONE'S OWN)* SPACE

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Abstract

The research issues undertaken concern the deliberations on whether the need for semantic designation of spaces, objects and places still exists. Do the form and matter indeed have to be filled with content, contain messages in the layer of significance? In the light of the formed architectural space of opportunities considered here, we superimpose ideas and interpretations, without any claim for them to be the only right ones. In confrontation and dialogue, the properties of space, objects and places disappear alternately, as they remain dependent on time – including the one of the recipient's location.

Keywords

peregrinations, design, semantic structures, process of associations, computer graphics, space semantics, cultural spaces of equal opportunity, personal construct

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Peregrinations ... Defining ones (own) space

The process of socialisation and thus making the city more attractive stands a chance of succeeding, however – based on the examples completed – only if we propose socially desirable solutions, either by inventing services aimed at meeting new needs and performing specific functions, or by introducing objects of avant-garde forms.

By their nature, architectural objects create and foment the atmosphere by directing the perception of the recipient towards associations, often referring to the memory of primary spaces. As a result of the assigned formal features and their developed mutual configurations, the created architectural space of a given place is or happens to be filled with tensions and qualities, such as anxiety, satisfaction, drama, congestion, largely as a result of further interpretation – whether symbolic, iconic or resulting from the context. At the same time, the recipient acquires the ability to identify the place, to interpret its unique individual features within the consistency of communication codes.

The system of the introduced semantic structures and their interrelations with the existing functions of buildings and views, adapted or modernised towards the new needs, produces multithreaded references to be deciphered and relations to be experienced and interpreted. Not only are new spaces and viewing sites created, but also areas of interaction, as a result of which associative images are born by the power of activated imagination, enhanced by sensory sensitivity, accumulated experiences and acquired knowledge. Spaces that generate reactions engage fragments of the environment which, filled with emotions, give an excuse to confront one's feelings and sensitivity at the meeting point of the "historical" and the "contemporary", the "traditional" and the "modern"...

In such a context, the essence of space architecture of a place, its value, lies in usefulness, which results precisely from stimulating and inspiring, including provoking participants to visualise and "create" pictures in their imagination, each time developing new, individual relationships with the space. In effect of this imaginary interaction, subsequent meanings are added in the space formed. Its components and the space itself fulfil their social functions, inspire cultural processes and – importantly – create and establish an area/environment in which many times accumulate, stories overlay, eras permeate – contemporary, modern... postmodern...

The objects brought to life as formal and intellectual **constructs**, permeable in their nature – "openness to new phenomena[1]» – together with natural and artificial light, have the possibility to change the connections between the created objects, open and closed interiors, urban and architectural, dispensing their mutual continuations, overlaps and intertwinings. Constantly available owing to their close relationship with the recipient/user, they have the possibility of continuous activation. Therefore,

1 *Konstrukt osobisty*, [in:] *Słownik psychologii*, ed. J. Siuta, Kraków 2009, p. 417–418; *George Kelly*, [in:] *Słownik psychologii*, p. 128.

having alternative ways of building meanings in the theory of interpreting events constitutes their essence[2]. The scenario thus created – the concept of spatial „representation" – abounds in plays of form with lines, spots of colour, contrasts of lights and shadows, determining the essence of the philosophy of space. It triggers the need to create commemorations in the sphere of each participant's associations, to the extent that they interpret things as similar or different, known and liked, depending on the events[3]. Their physical manifestation materialises when the recipients/users return to these places, objects and spaces for these desirable moods. As a result of conveying uttered meanings and content, as well as visualised images which complement them, we finalise readable layers for a given place in the form of images and associations for recalling. Thus, spaces, objects and places (stationary) take on a timeless character of anthropogenic values. The user applies the poetics of space, anticipating phenomena by structuring the repeatable[4].

Thus, we are dealing with the machinery of art serving to shape the human environment as a *continuum*. Each time, the creator undertakes to design purposeful images, placing objects, elements, forms and, as a result, aesthetic qualities in the frame of these views, and, using them, composes culture-forming values which, from the social standpoint, must appear in the view of the future recipient. Based on the real, existing and available, spatial conditions, the creator works the assigned functional programs, i.e. the future real view of a given enclave, which is a sequence of the general scenario. Then she continues composing the space of interiors, places and objects, conducting conversion based on the use of exemplary concepts such as "merging", "emphasising", "limiting"...

The conceptualisation of space takes place in a premeditated manner, often based on scientific foundations, where each formal element is assigned a meaning that is not necessarily semantic and a role in the planned sequence of events. This attribution of meanings provides orientation and the hierarchy of importance of the emerging images, allowing for the correct perception of the designed architectural space of places, at the same time enhancing its exposure and thus the relationship with the recipient[5], contributing to the creation of a cultural message marked by the poetics of everyday life.

The end of the twentieth century and the beginning of the twenty-first one outlined the need – recognised by the majority – to build community systems which provide space for symbolic meanings and identification. Therefore, communication competences in the field of understanding symbolic and factual connections, identifying cultural codes, in particular those that do not refer to the common heritage, are becoming relevant again. Parallel to it, a necessity arises of adapting in practice the accepted norms and hierarchy of values, with reference to various forms of cultural activity in different

2 See: *Słownik psychologii*, ed. J. Siuta.
3 A. Paszkowska-Rogacz, *Teoria konstruktów osobistych Georga Kelly'ego w doradztwie zawodowym*, [in:] *XVIII Ogólnopolska Konferencja Szkoleniowa SDSiZ RP*, Lubniewice 2008 (formacie ppt format presentation).
4 A. Paszkowska-Rogacz, *Teoria konstruktów osobistych Georga Kelly'ego…*
5 *Inne przestrzenie, inne miejsca.Inne przestrzenie, inne miejsca. Mapy i terytoria*, ed. D. Czaja, Wołowiec 2013.

social groups in order to build a network of connections and, consequently, social trust[6]. These new parameters of cultural change, dating from the turn of the century – such as "permeation", "transparency" or „simultaneity" – often introduce prophetic features into the spaces designed. At the same time, an opportunity arises to assimilate differences and dissimilarities in a dialogue where ideas are confronted and attempts are made at forming cultural spaces of equal opportunities. In their structural character, such spaces and sites suggest and promote the creation of new needs through their function, they stimulate reflection and the achievement of the expedient, anticipated level of aesthetic awareness by exchanging socio-cultural activities.

Consequently, the goal seems to be to maintain the need for continuous releasing and familiarising spaces and places as a result of visualising associative images, building the history of places at the same time, so that it can be subjected to the process of identification and defined as one's own, as a result. Going further in such considerations, should the function – that is, the purpose of an **object** – be recognisable in its external form and internal space, or shouldn't it? Is it important that the message conveyed by its external qualities should translate into a clear suggestion of the function it serves, revealing the types of activities pursued inside the facility?

After a long time, problematic formal issues come back again, among others: are the cases when objects are allowed to possess their own spontaneous expression significant? Can the identification of an object remain suspended? Is there a need for a mutual interpretation of the outer and inner space? If so, what do our senses, culturally conditioned by semiosis, confabulate faced with the presence or absence of such relationships? To what extent and whether at all, the individual perception of the recipient's impressions and feelings constitutes own his risk as a user (both a sender and recipient)? After all, the outer space is a country, urban or domestic space... with each of these, the interpretation will stem from the awareness of things and meanings, a result of combining impressions, desires, feelings and thoughts in the process of associations it triggers.

The semantics of a space, object or place raises basic questions and reflections of the most important symbolic nature: in the view and context of "this aesthetic matter and its decor" can one "kill a carp?" – relationships and contexts, mutual references, chains of thoughts and the power of associations incapacitate or liberate thoughts, reactions – including important ones, – that are a consequence of our behaviour. Lack of sensitivity, lack of awareness, emptiness in place of reflection, relativism which makes life an existence without obligations and burdens... without consequences with respect of the inner critical voice. This is not a manifestation of **prophetism** in the sense of vision, but a reference to taking, each time, responsibility for the appropriate compilations of form and matter, together with the symbolism of the colour of the shapes, as well as the functions attributed to them

6 E. Mianowska, K. Walentynowicz-Moryl, *Konceptualizacja i operacjonalizacja kapitału społecznego*, https://docplayer.pl/300172-Konceptualizacja-i-operacjonalizacja-kapitalu-spolecznego.htm [access:: 17.04.2022].

– aesthetics – to some extent determined by the existing situation, dictated by necessity. The mutual context, together with the proportions and tensions triggered between the elements – objects – causes, creates, forces or suggests the abandonment of some or other behaviours and activities. It is still about pragmatics, rather than the sacralisation of space. It is about the appropriate selection of means to create a clear context for the specific desired activities planned, behaviours and reflections occurring between the signs and their users in human conduct, demonstrating the conjunctions of the elements of psychology, sociology and knowledge about culture.

An important tool that we can use to establish the contact between the creator and the recipient is undoubtedly the common scope of knowledge about the surrounding world, called a system of "shared experience" or presupposition[7]. Presupposition is a collection of information, *implicit* (classified, undisclosed) or *explicit* (disclosed, known) data, including knowledge of how to translate the use of references and meanings encoded in the constructed space and its structure, and to decipher them as a result of view or analysis. In the process of creation, the contextual-pragmatic presupposition is equally important, as it results from the assigned context and the existing conditions[8]. Social awareness and the scope of knowledge of the potential recipient directly affect the selection and reception of information, both of the expressed one, shaped and implemented, i.e. constructed, as well as the one encoded – sometimes deliberately not articulated. With these relationships, it becomes obvious that perlocution is yet another tool to implement purposes and plans connected with the intended meanings and forms. It provides us with the possibility to introduce and apply thematic leaps in the creation of space and its structures. In the light of the formed architectural space of opportunities considered here, we superimpose ideas and interpretations without any claim to be the only right ones. In confrontation and dialogue, the properties of space, objects and places disappear alternately, as they remain dependent on the time, including the one of the recipient's location. Certainly, lack of recognition for unity and acceptance of the constant changes resulting from the dispersion of concepts, theses and thoughts combine to form the desired uncertainty...

On the other side… ambiguity, elusiveness of actions aimed at undermining the ingrained beliefs and habits as a result of critical reflections which open up new spaces of different experiences resulting from the discovery of the new. The gradual reconfiguration of the functioning codes perpetuates the depravation of meanings. In this situation, places, spaces and their architecture remain open to the reception of various activities, which, more and more frequently, are of a fluid nature, often on the verge of contractuality, and subject to permanent change. At the same time, consent and, thus, the permission for the users to perform many functions at the same time, results from the fact of a universal, therefore total and irreversible process of networking taking place between everyone, all the time.

7 See: http://is.muni.cz/th/13299/ff_d/09_Presupozycja.pdf.
8 http://is.muni.cz/th/13299/ff_d/09_Presupozycja.pdf. 88.

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In such realities and in virtual view, is there still a need for a semantic distinction of space, objects, places and non-places? Do the form and matter indeed have to be filled with content, carry messages in the layer of significance? Is it just "pure energomatter"?
Frequently, it is the structure which gives unity to the whole and constitutes a superior value for the space of the architecture of places, as it refers to the search for universal – owing to their abstract nature – forms of communication

Continuum. PEREGRINATIONS_ Sequence II**

Moment, order, organisation, image, geometry – so many seemingly Carthesian figures[9].

Pierre Soulages

The set of an **image**, **installation** and **object** created, through interconnections and derivations, an interior full of tension, full of symbolism and ambiguity of relationships, thus giving the opportunity to create new interpretations

The painting *Zamieć (Blizzard)* constitutes a definition of one's own space, world order and rules, the elements of which, called "chips" by the author, determine the continuum in real time.

The installation *Kamienie (Stones)* comprises three-dimensional tangible objects of intended meanings and forms.

As a structure subject to spatial configuration, the object *Chmura (Cloud)* is an attempt at designing, through the physical space, also the mental one for oneself and for others. Filled with images, saturated with emotions, it creates the opportunity to enter the zone of new experiences.

9 A.L. Gołąb, *Przestrzeń powiększona*, „Art Papier", 130 (2009), no. 10, http://artpapier.com/index.php?page=artykul&wydanie=84&artykul=1930 [access:: 17.04.2022].

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Fig. 1. Exhibition *Peregrinations II – Defining (Ones Own) Space*, Beata Gibała-Kapecka, Kaja Czajczyk

Fig. 2. *Zamieć (Blizzard)*, Beata Gibała-Kapecka, painting on canvas, the artist's own technique.

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Fig. 3. *Kamienie (Stones)*, Beata Gibała-Kapecka, instalacja, technika własna.

Fig. 4. *Chmura (Cloud)*, Kaja Czajczyk, glued fabric.

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Fig. 5. *Chmura (Cloud)*, Kaja Czajczyk, glued fabric.

On the margins of the exhibition by Beata Gibała-Kapecka and Kai Czajczyk *Peregrinations*, March 2022 [Anna Dettloff]

Plan, scenario, predictability – the basic assumptions of many exhibitions and shows we visit, watch, "celebrate". The presentation *Peregrinations* by Beata Gibała-Kapecka and Kaja Czajczyk in the Fashion Start-up Gallery also had its "scenario" – however, it is understood as a concept of a spatial "presentation". Adopting such a form of space philosophy makes each participant of the event create his or her own "commemorations" tailored to their own interpretation, determined by events[10]. Owing to this, in a tiny gallery at ul. Piłsudskiego 21, a true poetics of space was born – it is a specific interior filled with objects which "familiarised" its neutrality and, at the same time, made it a place of a character universal and timeless on the one hand and strongly involved in the "here" and "now" on the other.

The "here" and "now" of the artists was marked by the date of 24 February 2022 – the beginning of the war in Ukraine, which coincided with the planned commencement of the exhibition. It will not sound overly lofty to say that this day changed our reality. There was a moment of doubt – is it worth creating and writing about art in the face of such events? There was a certain drama, some tension in our – the artists and mine – first meeting at the gallery We began to talk, looking at the exhibits, at the place with the eyes that had previously seen the war reports of death, blood, indescribable suffering. This network of images of the present influenced the perception of the exhibition. Under the new perspective, art began to bud, an artistic vision was shaped by the reality that we experienced. Therefore,

10 I refer here to the text of Beata Gibała-Kapecka Peregrination... defining (one's own) space which is the word accompanying the exhibition, and the related article by A. Paszkowskiej-Rogacz *Teoria konstruktów osobistych Georga Kelly`ego w doradztwie zawodowym*.

doubt lasted only for a short time and the only answer was a brief: YES! It is worth creating art and it is worthwhile writing about it!

The beginning of the war cleared the minds covered with a thick shell of illusions. The memory brought out events and works from the past, from among which I would particularly like to recall two: Karolina Lanckorońska's *Wspomnienia wojenne (War Memories)* and Pablo Picasso's *Guernica*. Once again, I went back to that difficult book and that terrifying painting. I will quote a passage in which Lanckorońska describes the period of imprisonment in the concentration camp in Ravensbrück, where she stayed from January 1943 until the end of the war, secretly conducting "lectures" for her inmates:

> In this torment, one symptom was puzzling. The denser the crematorium smoke got, the closer and more directly each of us looked death in the eyes, the more the need for spiritual goods increased, simply intellectual hunger. The demand was impossible to satisfy, orders for "lectures" multiplied. Every afternoon, there was a lesson at the „rabbits' place"[11] in the third block. A group of girls returned to the block at this time, pickets were stationed and a lecture on the history of culture from the times of Charlemagne began, or a lesson on Gothic style. The listeners, who never knew whether this was not the last day of their lives, listened with great focus and real interest.[12]

With great simplicity, these words describe an extreme situation demonstrating that talking and writing about art is significant and valuable. Lanckorońska's lectures in Ravensbrück brought at least a moment of comfort to the women locked within the walls and barbed wire perimeters of the camp, which can only be compared to hell on earth.

A few years earlier, in 1937, *Guernica*, a huge painting by Pablo Picasso was created – one of the most powerful artistic expressions of opposition to the war in the 20th century, which has remained valid to this day. The painting is a reference to the events of 27 April 1937, when Hitler's air force, supported by the fascist opposition led by General Francisco Franco, bombed Guernica, a town in northern Spain. It was the first carpet raid on civilians in history, aimed at intimidating the population and causing terror. Battle planes fired at the defenceless civilians running for their lives. The destruction was terrifying – 70% of the city was turned into rubble, and one third of the population, that is, 1,600 people, got injured or killed. We had never thought that we would see such scenes in reality in the 21st century. Picasso's painting, executed with a dark, monochrome palette of grey, black and white, has an incredible power of expression. It is filled with death and suffering. The impact of this painting is powerful, as evidenced by the events of several years ago. In February 2003, when the United Nations delegation in the Security Council opted for the US to initiate military intervention in Iraq, a copy of Picasso's *Guernica* was covered with a dark cloth during the press conference. After all, the enormity of suffering shown in this painting is a summary of every war, which is always evil

11 In the Ravensbrück camp, this was the name given to young girls subjected to cruel 'medical experiments'.
12 K. Lanckorońska, *Wspomnienia wojenne. 22 IX 1939 – 5 IV 1945*, Kraków 2011, p. 324. Descriptions of secret lectures can be found on other pages of Wspomnienia Wojenne, among others, on p. 243, 277, 312.

and an accumulation of unimaginable suffering. Picasso's work shows the unique power of art, especially in the face of such events.

In this context, the question returns: what should art be like? Neutral, self-centred, indifferent to the turbulences of life and history? Or, perhaps, involved, responsive, commenting on the reality? These questions have arisen in various forms and are very common. Probably, first of all, it should be sensitive, empathic, co-creating our world, the reality – simply, present.

Such "presence" determined the space of *Peregrinations* to a great extent. The formal play of lines, of flatness and three-dimensionality, of blankness and spots of colour, of white and colourful, light and shadow, darkness and brightness, leads us along the threads of a poetic narrative. We cease to feel the micro-scale of the room – the narrative builds new, infinite spaces, pulling us out of the constraints imposed by the wall. A small physical space becomes a boundless space of our thoughts, feelings and experiences. The lines of narration go beyond the barrier of physical enclosure and enter the space of events – the suffering of people torn out of their places of residence, stripped of their identity, lost and lonely among the crowds at Kraków Central Station and in the darkness of the night in Ukraine. Thus, spontaneously, the exhibition space became the presence, *continuum* of reality. The installation was supposed to tell about art, about man, about philosophy, about space from an existential and metaphysical perspective – however, the intense experience of the present events overlapped with the original thought, carving new lines of narration in them. The nature of human experience is the path from vague feelings to clear concepts. The human mind strives to read and name the reality. The idea of a story, a narrative is inscribed in our nature, as it guarantees understanding, and, as Olga Tokarczuk rightly points out in her Nobel prize ceremony speech, the awareness of oneself and one's fate. The simplicity, clarity of form, and even a certain severity, which determined the principles of the *Peregrinations* exhibition allowed, at the same time, for the peregrination of our thoughts and associations to various traces of memory, opening new spaces of experience.

In Beata Gibała-Kapecka's words in the author's comment on the exhibition, an extremely capacious and accurate term "claim" is used in this context. If Beata Gibała-Kapecka and Kaja Czajczyk had had claims against the *Peregrinations* exhibition, if they had carried out only their own, preimposed plan, this exhibition would not make any sense today, in the circumstances in which it is now presented. This exhibition gained its greatest value by existing in a specific time and space, in which objects themselves imposed new, unforeseen forms of interrelations, flows and meanings. The narrative threads weaved in the original vision, merged with the events and experiences of the reality in which we had to find ourselves again. I remember my first conversation with Beata Gibała-Kapecka in January and then the doubt, the sense of meaninglessness and the process of installing the exhibition, which began to live its life in the process of creation from 24 March 2022. At this point, there were no more claims – I saw both authors standing next to their work and observing with amazement what happens

when something more emerges, when the work begins to create the script itself, speaking in words that have never been entered into its "database". It is in this lack of claim that true art is born, which, especially in the face of war and barbarism, takes on an additional meaning and sense.

In the presentation *Peregrinations*, symbols and codes deeply rooted in our consciousness appeared. These include: word, whiteness, stone, bull, cloud. Identifying their meanings becomes a condition for understanding the narrative recorded by means of the object and form – and, especially, their mutual relationship and the way of communicating the content.

In the *Word* accompanying the installation, Beata Gibała-Kapecka tells a parallel narrative about her own scientific, philosophical and artistic peregrinations around the space, place and object – their relationship towards the recipient, user. She enters into a dialogue with the world of concepts, meanings and discourses surrounding man and space, their mutual ways of communication. She deals with an important aspect of the awareness of things and meanings in the process of associations in both the sender and the recipient. The artists poses a question about the risks this process entails. This key question can only be answered in the affirmative – yes, there is risk associated with any relationship, which, in its essence, must be at least bilateral and always associated with freedom. Encroaching on the liberty of another being is always subject to risk. She writes about responsibility – an issue extremely important in the process of creating new spaces, places, and objects which always leave their mark on the initiation of behaviours resulting from the created contexts, proportions or tensions. As a basic tool for establishing contact between the creator and the recipient, she mentions a common scope of knowledge about the surrounding world – the so-called "shared experience" or presupposition. Unfortunately, the recent tragic events of the war in Ukraine and various ways of reacting to the beastly behaviour have broken our optimistic belief in the possibility of agreement and dialogue. The world is just as big as it was tens, hundreds or thousands of years ago, and the achievements of the last industrial revolution – digitisation and rapid information transfer – have given us a sense of the "global village" and unity in multiplicity only for a short time. The way of perceiving reality, including artistic reality, is entangled in a network weaved of many mental, cultural, geographical[13] or political interdependencies. The artists asks about the reasonableness of determining the constructed spaces, objects, places and "non-places" by imposing on them preconceived definitions, meanings, ideas and interpretations.

In the small space of the gallery at Piłsudskiego Street, what was described by Beata Gibała-Kapecka in the word accompanying or, rather, co-creating the exhibition, took place:

> In this situation, places, spaces and their architecture remain open to the reception of various activities, which more and more frequently are of a fluid nature, often on the verge of contractuality, and subject to permanent change.

13 Geographical, especially in the sense of the so-called humanistic geography represented by, among others, American geography professor Yi-Fu Tuan (b. 1930), author of many books devoted to this issue.

The message that the installation conveys becomes universal, but not uninvolved. Elsewhere, we can read:

> Not only are new spaces and viewing sites created, but also areas of interaction, as a result of which associative images are born by the power of activated imagination, enhanced by sensory sensitivity, accumulated experiences and acquired knowledge.

Our experience, multi-sensory perception of reality, the knowledge we possess, always determine the act of recognising, or even noticing, the new. In the context of artistic creation, the author touches upon the most basic issues – the cognitive process, the development of the human brain, which, despite the progress of neurobiology and other sciences, is still more mysterious than the space around us... We still have more questions than answers.

So what is the word that determines our perception of reality in general? The word is not our tool, it is a part of us – a piece of our humanity. Without the word we are helpless – naming and verbalisation are the conditions for understanding the reality. I remember Professor Jan K. Ostrowski's lectures during the first year of art history at the Jagiellonian University, when he spoke about the importance of describing a work of art, because without translating what we can see into a sequence of logical verbal statements, we are never able to get to know a work – not only of architecture, sculpture or painting, but also of art whose means of expression is acting, becoming, changing, or, for example, conceptualism, where language is the basic and often the only medium of communication. To this day, I am faithful to this basic action of a historian, a critic of art. Verbalisation of visual experiences in research on art is always the primary instrument and no shortcut is possible here. The word describes experience, but it also has the power to create reality. Both these functions are revealed in artistic activities, for which philosophical reflection is an extremely important, even indispensable, tool.

The primitive man began "artistic activity" 40–30 thousand years ago, decorating the first stone tools, creating ornaments, geometric signs and impressive engravings as well as rock paintings. He used the first symbols, which are evidence of emerging thinking in terms of language[14]. The subsequent, very long stage of this process is recording words, statements, finally stories. The written language marked the end of the millions of years of prehistory. It seems that it was one of the key moments in the development of civilisation. Also because "written language had power over time and the unique power of creating reality"[15].

The word, placed closest to the entrance, simply written on white paper, introduces us into **whiteness**. Initially, a piece of paper is always white. Although cut into equal sheets, it feels to be infinity,

14 The basic role of language in human development, both in terms of phylogenesis and ontogenesis, is repeatedly emphasized by Prof. Jagoda Cieszyńska in many books and articles, including in: *Na początku było słowo*, *Annales Universitatis Paedagogicae Cracoviensis*, ed. B. Faron, Kraków 2009 (Studia Historicolitteraria 9).

15 J. Cieszyńska, *Metoda krakowska wobec zaburzeń rozwoju dzieci. Z perspektywy fenomenologii, neurobiologii i językoznawstwa*, Kraków 2013, p. 24.

nothingness, beginning – a *tabula rasa* that will become the beginning of a story, an event. It is the place where the word begins to exist in time and space. "Something that happens, and is not told, ceases to exist and dies."[16] Also, a word – only spoken – exists for a short time and vanishes into oblivion. It used to be recorded in various ways, today we associate its specificity and "tangibility" primarily with the whiteness of the paper or the computer screen. Whiteness has the power to preserve, but also the energy to absorb. It is enough to observe what happened to the suprematist figures of Kazimierz Malewicz – eventually absorbed into the infinity of whiteness in *White on White*. When, in turn, the white of the fog comes, we do not see the shape, the colours.

Whiteness is associated with a new beginning, empty space, openness, purity (primarily moral, but also sterility), innocence, with submission (white flag), but also with victory. It is also a symbol of sadness, grief and death (especially in Asian cultures). Whiteness denotes goodness, neutralises and calms. Also, whiteness came to be traditionally perceived as classical with respect to ancient art (which, *nota bene*, used to be very colourful) but also the one that somehow referred to it. It is rich in meanings. From the technological and scientific point of view, white is not even a colour – it is a shade, it complements other colours. Colour is an expression of light, the result of reflecting and absorbing light waves – it is not a substance, it is rather an "accident" of a substance. White reflects almost all the light. Sometimes it seems transparent (for example, after submerging a white fabric in the water, we obtain a semi-transparent effect).

The walls of the gallery, the paper of pages written on, the large image that hangs opposite the entrance, and, finally, the cloud suspended in the centre are dominated by white. It seems that, together, they create a homogeneous clean space in which stories and messages leading us along the narrative path are recorded – preserved by means of the word, a painterly and sculptural form, as well as a digital message presented on the cloud.

When we enter the gallery, we are absorbed by whiteness (behind the glass door, there is already darkness), our eyes have to get used to it, our senses slowly calm down. We can see the painting, with the three-dimensional cloud overlapping it. On the side, at the height of our faces, from the corner of the eye, we can notice strings of black words, resembling abstract images. We are not able to interpret them as yet, because it takes a moment to familiarise with the captivating white interior. They act more like the "encrypted" numerical paintings by Roman Opałka. The word is still a visual abstraction. We move on and stand in front of the submerged in whiteness forms of the painting entitled *Zamieć* (Blizzard) which seems suspended in a vacuum. As a result of the movement of the air, the surface of the image trembles slightly. It is like the surface of water in its flatness and dominance of

16 *Nobel speech by Olga Tokarczuk* delivered at the Swedish Academy in 2018.

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white in the painting. The layer of white is applied thickly, sometimes with circular movements of painting tools. It creates a subtle, chiaroscuro texture, somewhat foggy in appearance.

Out of the whiteness of the image, various rounded shapes emerge, in shades of grey and foggy blues, reminding **stones**. Fine, subtle touches of the brush on their surfaces are suggestive of simplified shapes of people, or maybe angels. One of these forms clearly dominates – located on the left, similar to a large boulder, it reminds an animal form – a bull. As we go further, it turns out that the painting has not ended, but it is continued by its "chips" – this time in the three-dimensional form of stones – embedded in the wall, arranged in an irregular strip, as if thrown in there with great force. The author, Beata Gibała-Kapecka, called this work – painting and installation – *Zamieć (Blizzard)*.

We live in a climate in which we sometimes have the opportunity to experience a natural phenomenon called a blizzard – i.e. a strong bitterly cold wind accompanied by a widespread heavy snowfall (as we can read in the Collins English Dictionary). Because I love words, I'll go even further. We can also use the related verb "zamiatać" (sweep) when thinking about the wind, and, as we can read, it means: "to remove from a surface with or as if with a broom or brush" (Merriam Webster Thesaurus). Talking about a blizzard, we also sometimes use the term "snow storm". Well, a storm is, first of all, a "disturbance of the atmosphere marked by wind", and, secondly, a "tumultuous outburst" (Merriam Webster Thesaurus), as in the term "storms of history".

Precisely these concepts: "sweeping","shifting", "power" and "shock" are key for understanding the artwork. A stone, especially a large one, cannot be easily moved. Perhaps, it even should not be moved – according to the philosophy of the Far East, every stone, as a part of nature, has its own pace in the universe, intended for it. In various philosophies, a stone is a symbol of power and strength of survival. In a film story from 1990–2000, Andrzej Strumiłło, an artist and philosopher, talks about the journey of granite boulders from the ice age from Scandinavia to the Suwałki region, stating:

> What I can say about a stone is – it lives long, it has seen a lot and keeps silent, while what can be said about man is that he lives briefly, knows little and speaks a lot.

In the history of the Earth, huge forces moved mountains, stones and carried boulders (called erratic rocks). A stone is a part of the earth, it is a natural element, it underwent a long path of transformations before becoming stable solid matter. Often, the process of shaping it has taken millions of years. Ultimately, it rested in a particular place – like a man. Therefore, the stones in the painting can be perceived as symbols of people – settled down, inhabiting specific spaces, creating places and habitats. According to Yi-Fu Tuan:

"Space" is more abstract than "place." What begins as undifferentiated space becomes place as we get to know it better and endow it with value.[17].

Stones in the painting are framed – limited by the rectangle of the image. In a way, they are "settled" in this place. Those thrown into the wall are forcibly torn out, devoid of context, lost in the boundless whiteness of the wall, lonely despite sticking together. This is not their natural environment. Looking at these stone forms, I can see images of people fleeing war, ripped from their places, wandering on foreign soil. The author calls them "chips" of the image transferred into the third dimension. They are real, tangible and yet ambiguous and elusive. They force our thoughts and ideas to go beyond the familiar, "settled" area.

There is great power and hope hidden in the stone. We can look at the stone from the perspective of the philosophy of the Asian cultures, in which the contemplation of emptiness dominates – in the Zen gardens, spaces between stones are the most important, the equivalent of which is "not holding on" to any thought in meditation, getting rid of discursive thinking. However, in interpreting this painting, the European tradition of the "cornerstone", which was once laid at the quoin of the house, seems to be more adequate. Originally, it had a structural significance, it was a support. Later, it became primarily a ceremonial element, a beautiful custom. But, to this day, the term "cornerstone" remains to be used in the meaning of the basis, the foundation of something – also in a metaphorical sense. In one of the Old Testament psalms there is the following passage: "The stone rejected by the builders has become the cornerstone" (Ps 118: 22). This is about Christ – the stone, which was first rejected and then accepted as the chosen stone. This beautiful metaphor describes the process of rejection that gives rise to a new transformation. This biblical message gives hope, like the words of Christ to Peter: "You are Peter [or Rock], and on this Rock I will build my Church" (Mt 16: 18). The symbolism of the stone plays a huge role in the Bible. St. Peter even uses the term "living stones" with reference to his listeners (1 Peter 2: 5), and at the time of his entry into Jerusalem, Christ turns to the Pharisees: "I say unto you, If they be silent, the stones shall cry out" (Luke 19: 40). The biblical symbolism revives the stone, gives it a word – the power of speaking. The stone ceases to be a dead shard of earth, it gains life and energy.

In our culture, stone is a unique symbol, and its deep metaphorical layers can be read on various levels. The wealth of the meanings in the Biblical symbolism of the stone seems to be closest to the essence of the message contained in the painting and the installation *Zamieć* (Blizzard). Perhaps both meanings – the Far Eastern philosophy of emptiness and the Christian philosophy of fullness and life - have merged here? The symbolism of the stones in the painting and the "chips" in the wall opens for

17 Y.F. Tuan, Przestrzeń i miejsce, Warszawa 1987, p. 16, https://www.academia.edu/19846369/Yi_Fu_Tuan_Space_and_Place access: 8 May 2022

us the space of experiencing the painting and installation as a metaphor of the storm of war endured by Ukraine – being torn, scattered, full of uncertainty and questions about the possibility of return.

Among the stones, however, another symbol appears – a **bull**. At the beginning, I referred to Picasso's *Guernica* and we can interpret this figure according to this key. The bull holds a huge number of meanings. It can symbolise the Sun, fire, sacrifice, death, silence, abundance, masculinity, fertility, strength, power, energy, courage, fury, savagery – and these are just some of the wide range of its meanings[18]. In the painting *Zamieć*, the bull-shaped stone may be understood as strength, energy, perhaps even dangerous savagery, enclosed – rendered harmless – in a stone. In this situation, the bull is not able to wreak the havoc present in *Guernica* – it will not hurt anyone anymore, its energy has frozen in the matter. But we can also read it as a sacrifice resulting in fertility, rebirth, the chain of life. In Sumerian beliefs, both meanings are combined – god Enlil, transformed into an unbridled bull, throws himself at a wild cow symbolising the Tigris River and fills it with fresh, life-giving water[19]. The circle of life is thus closed.

When we turn away from the painting and stand in the middle, we find ourselves in the space of the suspended "cloud". A **cloud** is one of the transient states of water. Sooner or later, it will change. After all, it is an element – variability, fluidity, transition from one state to another constitutes its identity. Water, seemingly unstable, does not cease to exist – there is always the same amount of it, although each time we see it in a different form. The author Kaja Czajczyk chose a cloud – condensed water vapour – a kind of fog that blurs shapes, limits the spaces seen, strives to float high. You can hide, "disappear", find peace in it. Two presentations are simultaneously projected onto the white of the cloud – a moving, flowing crowd of figures and graphics by the artist, in which colourful abstract forms are doused with pulsating grey disappearing in a vibrating black circle, reminding the eclipse of the sun. The elongated irregular form of the cloud is made of delicate material fixed in a rigid, lightweight form. The slightest movement of the air makes it move. It seems elusive, "airy". Its form is open, we can stand under it and feel as if we were in its interior, which is also the screen for presentation. The space of the cloud becomes a projection of reality. Images that we see inside the cloud go almost completely dark for a short moment – it brings the association with the blackout, terribly dark map of Ukraine at night, observed by satellites. This comparison is, in our opinion, extremely real, because the shape of the cloud resembles the elongated shape of the Ukrainian country. But the cloud is also an attempt to define one's own space, its boundaries in the physical and mental sense.

Each place creates a network of connections with the distant spaces we know, in which we were, which have left a permanent mark in our memory. Viewing the exhibition, we transfer our experiences into the exhibition space. In this context, a fragment of Professor Karolina Lanckorońska's

18 W. Kopaliński, *Słownik symboli*, Warszawa 1990, p. 37–39.
19 W. Kopaliński, *Słownik symboli*, p. 38.

memories is poignant, who was detained in darkness for seven days following her arrest by the Gestapo in 1942. This is how she describes this time:

> I was alone, and I was calm. […] Soon I got used to the new situation and invented a pleasant way to spend the day. Every day, I moved to one of the great European galleries in my imagination and viewed the paintings. Naturally, I started with the Viennese gallery I had "grown up" with. Then it was Prado, Louvre, Uffizi and Venice. I sometimes achieved an astonishing intensity, and I can assure you that the Venetian colour tone never seemed as fiery to me as it did in the dark cell. […] I moved back to the world that once used to be mine, and I felt fine[20].

How to define space and place in this context? As Beata Gibała-Kapecka rightly points out, entering into any interior, man transforms it, interprets it anew, bringing his knowledge and memory to it, destroying its limitations with his mind. Owing to the images stored in her memory, feelings and experiences acquired in various spaces, as well as to the incredible power of the human mind, the limited place of Lanckorońska's imprisonment, narrowed down to the very limit, turns blackness, nothingness – "non-place" – into a new space: an intense, almost real one, allowing her to survive.

In this respect, much is also explained by humanistic geography, which perceives man as the creator of the world of values, including spatial ones. Perhaps it is worth recalling the words of Yi-Fu Tuan here:

> Enclosed and humanized space is place. Compared to space, place is a calm center of established values. Human beings require both space and place. Enclosed and humanised space becomes a place. In contrast to space, a place is a peaceful centre of fixed values. Human beings need both a place and a space.[21].

As he points out, human life is a dialectical movement between safe shelter and adventure, between attachment and freedom. A healthy being eagerly accepts both restriction and freedom, the limitation of a place and the openness of space. Space, according to the concept of humanistic geography, is a projection of various values created by diverse human cultures. In space, there are not only material structures, but also codes allowing to interpret and find the meaning of human life in both the purely biological and metaphysical dimensions[22].

Creating a place saturated with artistic, cultural and emotional message, the authors of the exhibition gave it a deep meaning. They allowed the original concept – a theoretical construct , a planned sequence of events – to undergo a spontaneous modification, which resulted from entering into a relationship with the reality. As a result, a network of multiple threads was created.

20 K. Lanckorońska, *Wspomnienia wojenne…*, p. 161–162.
21 Y.F. Tuan, *Przestrzeń i miejsce*, p. 75 https://www.academia.edu/19846369/Yi_Fu_Tuan_Space_and_Place access: 8 May 2022
22 D. Jędrzejczyk, *Geografia humanistyczna miasta*, Warszawa 2016.

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** Exhibition *Peregrinations II – Defining (Ones Own) Space*

Painting/installation: Beata Gibała-Kapecka

Object *Chmura*: Kaja Czajczyk

Fashion Start-Up Gallery, ul. Józefa Piłsudskiego 21, 33-332 Kraków

ttps://fsug.waw.asp.krakow.pl/

The exhibition was held from 18 March to 7 April 2022 at the Fashion Start-up Gallery at the Faculty of Interior Design of the Academy of Fine Arts in Krakow as part of the project "„Projektowanie przyszłości – program rozwoju Akademii Sztuk Pięknych im. Jana Matejki w Krakowie na lata 2018–2022, umowa nr POWR.03.05.00-00-Z217/17".(Designing the future – the development program of the Jan Matejko Academy of Fine Arts in Krakow for the years 2018-2022, agreement no. POWR.03.05.00-00-Z217/17)".

On the margins of the exhibition by Beata Gibała-Kapecka and Kaja Czajczyk Peregrinations, March 2022, ***

Anna Dettloff

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