The Role of Integration of Architecture and Landscape in Shaping Contemporary Urban Spaces

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Abstract. The public spaces of many cities and towns face numerous problems, manifested by the broadly understood disintegration of both social and spatial aspects (e.g. vanishing neighbourhood bonds and communities, the anonymity of the individual within the city space, and the commercialization or neglect of public spaces). The search for methods for the broadly understood integration in space proves necessary, and even the precondition for harmonious development and the effective functioning of a community. Integration of architecture and landscape can be understood and interpreted spatially in different ways. It is pursued not only through references to organic shapes, but also through the use of the site context in order to blend the architecture with its surroundings, to make references to historical and cultural motifs, the use of which allows people to create spaces that are functionally and narratively coherent, to “domesticate” the space by introducing the idea of agrarian urbanism, urban gardening and agriculture into the urbanised space, combining ecological solutions with art, allowing the passing time for a slow but permanent blurring of differences between cultural and natural elements, as well as using symbolism and philosophy. The purpose of this article is: to show the possibility of interpreting the integration of architecture and landscape and to introduce its new definition based on literature studies and analysis of selected architectural projects; to analyse and evaluate two selected examples of development concepts in the context of the adopted original definition of the integration of architecture and landscape (as a synergy of spatial factors); to identify the universal factors (actions) whose synergistic function contributes to the integration of architecture and landscape. These objectives are pursued based on the bibliographical analysis (interpretative studies) and axiological studies (including studies of source materials and field observations) of the two selected development concepts. For the purposes of the studies original definition of integration of architecture and landscape as a mutual complementation and strengthening of elements acting in a synergy was formulated. Each case has been analysed for the manifestation of values relevant to the adopted definition. As a result, actions integrating the architecture and the landscape in these examples and the universal factors whose synergistic function contributes to the integration of architecture and landscape were identified.
1. Introduction

The public spaces of many cities and towns face numerous problems, manifested by the broadly understood disintegration of both social and spatial aspects. Vanishing neighbourhood bonds and communities [1], the anonymity of the individual within the city space, and the commercialization or neglect of public spaces are only a few of the expressions of disintegration. Public spaces shrink or vanish, the community created by city dwellers disintegrates, divisions and segregation appear [2, p. 31]. The presence of non-places and quasi-places becomes the characteristic element of contemporary urban spaces, and typical of urbanisation. The spread of non-places, i.e. temporary, transit spaces (e.g. highways, train & bus stations, airport terminals) with functions subordinated to their temporary nature, where developing social bonds is very limited [3] is, to large extent, the result of errors in the design process. This is because we approach the development of both places and non-places illogically [4]. The disintegration of city space is also connected with the introduction of foreign elements within it that are functionally and morphologically unsuited to their surroundings, and awaken mostly negative feelings [5]. The effect is the escalation of feelings of disintegration and manifestations of isolation within a space, such as the fencing off of public spaces and the construction of enclosed apartment developments [6].

In this context, the search for methods for the broadly understood integration in space proves necessary, and even the precondition for harmonious development and the effective functioning of a community. The integration of architecture and landscape, through referral to local tradition and genius loci, and also the use of multiple elements and actions for creating homeliness (such as agrarian urbanism) seems the best direction for actions to shape contemporary urban spaces. State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

After first paragraph, other paragraphs are indented as you can see in this paragraph. After Introduction, divide your article into clearly defined and numbered sections.

2. Purpose and methods

The purpose of this article is:

- to show the possibility of interpreting the integration of architecture and landscape and to introduce its new definition based on literature studies and analysis of selected architectural projects;
- to analyse and evaluate two selected examples of development concepts in the context of the adopted original definition of the integration of architecture and landscape (as a synergy of spatial factors);
- to identify the universal factors (actions) whose synergistic function contributes to the integration of architecture and landscape;

These objectives are pursued based on the bibliographical analysis (interpretative studies) and axiological studies (including studies of source materials and field observations) of the two selected development concepts. Each case has been analysed for the manifestation of values relevant to the adopted definition of integration of architecture and landscape in respect of location, composition, function, form and social importance. In determining the universal factors relevant for the implementation of the adopted concept of integration of architecture and landscape, we used the research by K. Wejchert [7] and K. Lynch [8] into the elements of urban composition the Ch. N. Schulz’s concept of genius loci as well as Ch. Alexander’s spatial models [9].

3. Integration of architecture and landscape

Integration of architecture and landscape can be understood and interpreted spatially in different ways. According to the Dictionary of the Polish Language, the term “integration” refers to merging, unification and interpenetration, and means the process of creation of a whole from the parts [10]. In architecture, integration is combined with such concepts as sustainable design and green architecture,
and stands for the multi-faceted methods in designing, aimed at achieving the sustainable architecture [11]. In landscape architecture, the concept of integration refers to activities of landscape conservation, restoration of degraded landscapes [12], as well as merging the historic urban landscapes with the contemporary built-up areas [13]. Integration is understood as a set of tools useful for landscape development and management [12]. However, it is difficult to find in scientific publications a precise definition of integration of architecture and landscape. Most often, we encounter only its intuitive understanding in some architectural and urban projects.

The first unconscious manifestations of integration in space can already be seen in prehistoric times, when man adapted the cave for his home. Over the next centuries, conscious shaping of the space and its urbanization made people search for ways to introduce natural elements into the urbanized space. In the 18th and 19th century, projects were implemented in response to the excessive and uncontrolled industrialisation of cities in the form of landscape parks designed to fulfil the idea of the mythical Arcadia.

However, the conscious actions to integrate the architecture and landscape were initiated in the 19th century (e.g. the garden city by E. Howard), in which its architectural context appears together with the works by Frank Lloyd Wright (1867-1959). Inspired by nature and Japanese art, he has become a precursor of organic architecture, an open plan, architecture blended into the surrounding environment and combined with nature, using natural materials. Even today, his philosophy of organic way of building, understood as the organic connection between architecture, art, nature and man [14], is an inspiration for the search for the unity of architecture and landscape and, in a broader context, the unity of a human being and nature. This inspiration is visible among other things in the works of such architects as Bruce Goff, Fay Jones, Kendrick Bangs Kellogg, Toyo Ito and Deca Architecture (Alexandros Vaitos, Carlos Loperena, Elena Zabeli, Kyle Gudsell, Katerina Chryssanthopoulou).

Among the contemporary projects, which are an expression of the search for ways of integrating architecture and landscape, we can find examples of buildings with organic, amorphous shapes and using green and pro-environmental solutions. However, these are exploratory and experimental activities and they do not seem to be sufficient express in full the idea of integration of architecture and landscape.

These explorations most clearly illustrate the futuristic visions of the Belgian architect Vincent Callebaut, who designed the Liliypads in the form of water lilies – an afloat ecopolis – and Aequorea – “super units” – by adapting the plant forms and their structures to create new self-sufficient urban organisms of the future (figure 1). A completely different example is the residential building “Soft and Hairy House” (designed by Ushida-Findlay Partnership Tsukuba, Japan, 1994), showing the explosion of organic forms, making an impression of a fluid environment and a cosy sanctuary at the same time [15, p. 90]. A garden located on a rooftop enhances the effect of integration of architecture and surroundings, enhanced by organic shapes. Developments by Peter Vetsch seem to go one step further, by combining organic forms and a roofed residence [8, p. 90]. His Nine Houses (1993) series of buildings is based on amoeba-like shapes, and the buildings are full of corridors that resemble tunnels. We find organic forms linked by symbolism, and even philosophy and astrophysics, in the works of Charles Jencks and the classic example of the Garden of Cosmic Speculation (1989). The developments by Arthur Quarmby, David Lea and Gianni Pettena, in turn, based on the integration of architectonic objects with terrain topography, and the use of organic shapes, local materials and indigenous plant species are examples of considering the integration of architecture and landscape, in terms of shaping awareness of the importance of nature in human life and ecological education. As a result, the built objects and their surroundings acquire a very approachable and even homely character. The Studio West house (1985) by David Lea is a model solution for simplicity of structure and its establishment in the context of its surroundings, at the same time referring to a form of primitive housing. The House on Elba (1982-1985), designed by Gianni Pettena, is characterized by even greater simplicity – the structure can be compared to a makeshift hut on a beach.

Further visions of the integration of architecture and landscape can be seen in projects, in which ecological motifs are combined with sociological ones. The leader in such an approach is supposedly
the Berlin-based STERN group, which sees a kind of biotope in the city, the balance of which depends on the actions of local communities. The “Block 103” housing objective accomplished by STERN (1991), in which a number of ecological and landscape solutions were applied (e.g. neighbourhood garden, photovoltaic cells on roofs and the so called “vertical marsh” – a waste water recovery system, segregation system, organic waste composting system), was founded in close cooperation with local inhabitants, determining the quest for the sustainable construction [5, 16] and combining the ecological and social aspects.

Still another approach to the integration of architecture and landscape is visible in the Gardens by the Bay in Singapore (design by Wilkinson Eyre, Grant Associates, implemented in 2012), in which futuristic architecture interpenetrates with nature. A characteristic feature of the garden are the 50-metre-high, huge structures made of steel and concrete (so-called Supertrees), which resemble trees covered with plants. They have a double role: of vertical gardens and of ecological sources of water and energy (collect and supply rainwater and convert the solar energy). Gardens by the Bay are an objective, in which the technique and nature create a fine combination, showing new directions in shaping and managing the urban environment. With modern solutions combining technology and art, the garden educates and promotes the integration of the man and nature.

Figure 1. Vincent Callebaut, Lilypads as an example of integration of architecture and landscape through eco-friendly and smart solutions. Source: [17]
Nowadays, the integration of architecture and landscape is pursued not only through references to organic shapes, but also through the use of the site context in order to blend the architecture with its surroundings, to make references to historical and cultural motifs, the use of which allows people to create spaces that are functionally and narratively coherent, to “domesticate” the space by introducing the idea of agrarian urbanism, urban gardening and agriculture into the urbanised space, combining ecological solutions with art, allowing the passing time for a slow but permanent blurring of differences between cultural and natural elements, as well as using symbolism and philosophy (figure 1-2). As a result, this multithreaded interpenetration more and more frequently refers to the spatial and social layer, acting not only visually but also emotionally. Certain space projects are coherent both functionally and narratively, with more profound and often surprising effects. It becomes possible to logically guide the user in time and space, which is not only understandable to him, but also emotionally close. In other words, it is a kind of integration that goes beyond the time frames of a specific project, strongly influencing the multi-level identification of the local community with the space [18]

4. Definition of integration of architecture and landscape as a synergy of spatial factors

The integration of architecture and landscape is sometimes identified with organic, ecological and even social architecture. It seems particularly desirable to understand the integration of architecture and landscape in a holistic way, combining ecological and social motifs with cultural and spatial contexts (Table 1).

For the purposes of further studies, the following original definition was adopted: 

**Integration of architecture and landscape is understood as a result of various synergies of factors, influencing both the spatial and social layer, which results in the formation of basic and non-standard enclaves for the creation of coherent and multidisciplinary social and cultural relations. The effects of synergistic actions are mutually strengthening, complementary, and consequently, more important than the sum of the individual factors being analysed.**

The integration of architecture and landscape understood in this way opens the search for these synergistic factors, which strengthen the resulting relationships in space.
Table 1. The comparison of selected interpretations of the integration of architecture and landscape. Source: W. Bal and M. Czałczyńska-Podolska

| Integration of architecture and landscape | Actions | Effect |
|------------------------------------------|---------|--------|
| Wright’s organic architecture | Building coherent with the surroundings, blended into the landscape (close connection between the architecture and situational context); Form and function united; References to the tradition of the place natural, local materials; Open plan; | Architecture synchronized with the surrounding environment and united with the nature; Lack of domination; Mutual complementation effect; |
| Ecological and social architecture (projects by the STERN Group) | The use of ecological and pro-environmental solutions in combination with the social participation (e.g. social garden on the roof); taming the nature; | So-called sustainable construction industry; Proecological architecture, landscape engineering; |
| Futuristic architecture (projects by Vincent Callebaut) | Production of self-sufficient units – ecopolis being a response to the climate change and to the need of protecting the natural environment; The use of eco-friendly, smart solutions, integrated renewable energy sources (e.g. no CO₂ emissions, solar panels, wind turbines or water purification and storage systems); Ecological cultivation of plankton and algae; farms and gardens; Sustainable urban agriculture | The symbiosis of the human being, nature and technology; A new society living in harmony with nature; Civilizational achievements utilizing natural resources, macro-scale objectives, new forms of mankind’s functioning in the constant localisation and climate change; |

5. Searching for the synergy of space in selected examples of development concepts

5.1. Concept for the rebuilding and development of a recreational square on Sikorskiego Street in Rewal

The town square, located in the north-western part of the town of Rewal, on Sikorskiego Street, Warszawska and Biała, is located some 60 meters away from a public beach, and has the shape of a triangle divided into two functional parts by an access road leading to parking spaces. From the north and west, the square is surrounded by low detached houses. From the north, it borders on the town boardwalk – a seaside promenade. The idea of the redevelopment of the space was to achieve consistency, through recalling the tradition of space and the seaside character of the town and the structure – an easily identifiable and inhabitant-friendly “place” in space.

Due to functional considerations, it was necessary to retain the existing communication system when the square was divided. Even so, the designers attempted to achieve consistency of space through a functional plan that changed the town square into a recreational space and a composition that resulted in small, cosy interiors on a grid plan. Different spatial forms were assigned to each of the interiors, granting them an individual character (figure. 3-5). In the eastern part, the triangular square was planned with a geometric system of flooring, with elements of decorative greenery and small architecture incorporated.

The largest indoor area is arranged as a place where the tradition of the place is particularly emphasized, thanks to the centrally located ceramic spatial object having the form of a whale emerging from the water. The flooring was designed in the form of sea waves, made up of interlocking granite bricks in contrasting colours. In the creation of the identity of the space, the authors embodied references and subconscious connotations for the future recipient, referring to the original shape of the form that stresses the seaside character of the developed area. The proposed structure defines the
designed space, at the same time forming its characteristics and increasing the touristic value of the whole town.

![Figure 3](image3.png)

Figure 3. Project for rebuilding and development of recreational square at ul. Sikorskiego in Rewal (designers Wojciech Bal, Justyna Markiewicz). Source: W. Bal

Among the designed development elements, we also find the *cosmic* line playground dedicated to the youngest users. This was designed in the center of a labyrinth drawn on the floor, connected to form a sphere. The third of the designed interiors was devised as a multi-function drinking fountain in the form of a stone (granite) solid made of four cuboid forms of different sizes. At the central point of the highest cuboid a stone bowl was placed, to collect the water sprinkling from the fountain. Similarly, to the neighbouring place, there were pergolas and convenient seating located at its perimeter.

![Figure 4](image4.png)

Figure 4. Concept for rebuilding and development of recreational square at ul. Sikorskiego in Rewal (designers W. Bal, J. Markiewicz) – view on all three cozy interiors. Source: W. Bal
Figure 5. Concept for rebuilding and development of recreational square at ul. Sikorskiego in Rewal (designers W. Bal, J. Markiewicz) – view on all three cozy interiors. Source: W. Bal

The communication of the square was also solved in a manner that best integrates the designed space with its surroundings. The location of the square at a promenade encourages walkers to rest and relax there. The square becomes a natural stop on a scenic route along the cliff. The integrating action was enhanced by the introduction of homogeneous types of paving. At the same time, this made the square a link between the two adjacent streets. In the north-western part of the square, beach access was provided, additionally highlighted by the round shape of the paving.

As a result of the adopted solution, a space with a clearly defined character, closely relating to local traditions, was created – a town square with a recreational function, designed for different groups of users. The inclusion of different references to the character of the place and genius loci within the concept, and the introduction of the motif of play and recreation in an urbanized space results in the creation of a “place” integrated in both spatial and social planes.

5.2. Concept for the revitalization of the shoreline in Nowe Warpno
The concept for the development of the southern bank in Nowe Warpno includes proposals for its new development and division into four adjacent areas, using its potential for the purposes of nature-oriented tourism. This makes the concept coherent with the mission of Nowe Warpno: the intention of becoming a model transborder resort, using both its natural resources and the geographical-political location at the Szczecin Lagoon to achieve sustainable and permanent social and economic development. At the same time, the concept for the revitalization of the southern cape of the coastline connects directly with the priority of using natural values for the development of recreational and tourism functions, adopted in the strategy of the municipality. The opinion and expectations of residents of the municipality indicate that they perceive it as an important opportunity for development and improvement of the quality of their lives. The charm of Nowe Warpno municipality can be perceived through its attractive location at the Szczecin Lagoon and its proximity to Wkrzańska Forest. In the opinion of the designers, efforts should be made to create a system for the utilization of the coastline, in order to create a specific recreational collar between the fabric of the old town and the waters of the Lagoon. The concept includes a stretch of wasteland and floodplain, previously used by residents in a haphazard fashion (figure 6).
The analyses conducted in this area indicated a commitment to the division of the buffer zone into four parts, with different development types, connected by footpaths and cycle lanes. The respective fragments, divided by platforms reaching out into the Lagoon, were located following the pattern of the historic old town streets. The diverse specifics of functions within the respective constituent areas are connected with the elements of nature found in those places – stressing natural values and introducing an educational-cognitive character. The organic character of the paths and resting places is intertwined with local plants characteristic for a shoreline (figure 7).

The diversity of the paving surfaces adopted is intertwined with their two-level courses. The bridges leading towards the water cross the promenade running along the shoreline. The coherence and integration of such a developed space is supplemented with elements of small architecture: individualized seating, pergolas, lighting, picnic places and also the signage elements placed at the entrances to particular parts. The town beach, sports grounds and playgrounds for children also found their place in the functional-usage plan. The attractiveness of using such a promenade is additionally enhanced by accents located at its ends – namely the vista tower and amphitheatre (figure 8).

The completion of such a planned investment, in the form of integration of natural and urban environments, contributed to the attainment of partial targets that were considered a priority, such as the promotion of environmental protection, the creation of a green heart for the municipality, the definition and development of a municipal tourist product, the creation of an image of the municipality as a model centre for water sports and recreational cycling, and the popularization of sightseeing knowledge about the municipality.
6. Conclusions

The growing problem of the disintegration of the urbanised space leads to the search for solutions that would result in a specific integration of architecture, landscape and people, implemented in the form of “places”, i.e. enclaves essential for social, cultural and spatial relations. Contemporary (although subjective) interpretation of landscape and architecture integration as a mutual complementation and strengthening of elements acting in a synergy, based on ecological, social or cultural motifs, can successfully contribute to the creation of a space convenient for the inhabitants.

The presented two examples of development projects in different baseline scales seem to reflect the most desirable current direction of the search for integration of architecture and landscape, understood as an activity involving something more than merging of space (Table 2).
Table 2. Actions used to achieve the integration of architecture and landscape – a summary of studies on selected development concepts. Source: W. Bal and M. Czałczyńska-Podolska.

| Example | Actions integrating the architecture and the landscape in architectural scale | Actions integrating the architecture and the landscape in urban scale |
|---------|-----------------------------------------------------------------------------|------------------------------------------------------------------|
| **Nowe Warpno** | Reference to the tradition of the place and the coastal character of the village in detail, architectural form and grey-blue colours Elements–signifiers and objects of small architecture emphasizing the water traditions of the village; Native flora species characteristic of the coastal strip; Location of recreation places in areas displaying landscape-related values; use of green materials; Educational values (learning pathway); | Functional programme which corresponds to the mission of the commune (recreational and tourist centre displaying natural values) and social needs (public consultations); Creation of the “green heart” of the commune – a place which the inhabitants will be proud of and which they will identify with; Promoting natural resources of the commune; Using the historical network of streets to locate piers extending into the sea; Sightseeing links between the city centre and its coastal part; Organic, meandering nature of the promenade correspondent to the shoreline; Sightseeing points and openings emphasizing the scenic values of the area; |
| **Rewal** | Reference to the tradition of the place and the coastal character of the village in detail, architectural form (sculpture, waters, mosaic motifs and colours) Use of native species of plants; Educational values (the use of the place’s history); | Use of recreation and fun functions in the public space, creation of a place for social integration; creation of a distinctive place of significant social and spatial importance; Exposing the tradition of the place by means of sightseeing and communication links with the beach; Functional programme so formulated to take into account public consultations; |

The analysis of the above examples shows that appropriately arranged creative processes contribute to multidimensional integration, affecting not only the spatial but also the social context. As a result, places of unique character are created – they connect people in space and with the space. The integration actions identified in these examples can be written down in the form of following universal factors:

- location (making a reference to the situational context by means of character and layout, emphasizing natural values, application of ecological and pro-environmental solutions);
- composition (the use of architectural and landscape-related elements of construction of indoor spaces as well as creating sightseeing links such as compositional and sightseeing axes, sightseeing points and openings);
- functions (creating functional and communication links, formulation of the programme on the basis of public consultations, the use of educational and integration functions);
- forms (making reference to historical and cultural contexts, the use of the place’s tradition, material- and colour-related solutions inspired by local traditions, the effect of balance and harmony of existing forms with the designed forms);
- social importance (taking into account the factor of social integration depending on the context and importance of the subject matter, using natural and cultural values for the education and integration of inhabitants, highlighting cultural and historical heritage).

Taking into account the synergistic effects of these factors during planning and design will contribute to the integration of architecture and landscape, which has a spatial and social impact. The
indicated factors may be and should be the subject of further studies towards defining the detailed criteria and methods of their evaluation.

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