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INTUITION AND RATIONALISM IN ARCHITECTURAL EDUCATION

INTUICJA I RACJONALIZM W EDUKACJI ARCHITEKTONICZNEJ

Abstract

In the course of our architectural education in the period from infancy to adulthood, we tend to adopt alternating intuitive and rational attitudes. As in the foreign language acquisition process, the ability to use one's native language is more natural than the use of a "foreign" language acquired through the rational understanding of its rules. At the same time no effort made in the process of mastering the native language (grammar, vocabulary) may lead to its degeneration.

Architectural education starts early. The first haptic and olfactory experiences shape the spatial relations to an equal extent as the images and acoustic sensations. A child intuitively learns about space and creates its own individual image of the surrounding world. Further on, school education helps children to rationalise their sensory feelings, to modify their perception of space, to evaluate and co-create it.

This article focuses on the issues of architectural education and the specific nature of its acquisition. It, furthermore, poses questions pertaining to the proper methodology thereof and identifies the most urgent threats in this area.

Key words: Architectural education, intuition, rationalism, language of designing

Streszczenie

W „drodze do architektury”, którą przebywa dziecko od okresu niemowlęcego do dorosłości, podejście intuicyjne i racjonalistyczne przeplatają się ze sobą. Umiejętność posługiwania się językiem macierzystym jest bardziej naturalna od posługiwania się językami „obcymi” – poznanymi przez racjonalistyczne rozumienie reguł. Jednocześnie brak pracy nad doskonaleniem języka macierzystego (gramatyka, literatura) może prowadzić do jego degeneracji.

Edukacja architektoniczna rozpoczyna się bardzo wcześnie. Pierwsze doświadczenia zmysłowe: dotyk, zapach czy smak, kształtują relacje przestrzenne na równi ze wzrokiem i słuchem. Dziecko w sposób intuicyjny poznaje przestrzeń i buduje indywidualny obraz otaczającego je świata. W późniejszych latach zorganizowana edukacja pomaga mu zrationalizować doświadczenia zmysłowe, zmodyfikować sposób odbioru przestrzeni, oceniać ją, a także – tworzyć.

Artykuł porusza zagadnienia związane z edukacją architektoniczną oraz specyfiką procesu jej użytkowania, zadaje pytania o właściwe metody postępowania oraz próbuje wskazać najważniejsze zagrożenia.

Słowa kluczowe: edukacja architektoniczna, intuicja, racjonalizm, język projektowania

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*The intuitive mind is a sacred gift
and the rational mind is a faithful servant.
We have created a society that
honours the servant and has forgotten the gift,*
Albert Einstein

For many centuries now a variety of people – designers, academics, art critics and also ordinary users of space – have been fascinated with architectural works. Is there a discipline any other than architecture that would be so interesting and at the same time so close to man? Developed areas have dominated the natural landscape, becoming a daily reality for a large majority of people. Buildings – streets and squares, concrete and glass – are for modern children their natural environment. Meadows, forests or rivers might look like a ‘whole new world’ to them. At the same time, the fact that children continue to build temporary shelters from pillows and blankets, whose forms bring to mind the first constructions made by primitive man to get shelter from cold and wild animals, is thought-provoking.

The searches for the sources and conditions underlying the creation of architecture and its genesis and forecasts of its future forms are combined with social, technological, economic, ecological and aesthetic issues. To solve complex spatial problems arising from the development of technologies and changing social needs, extensive theoretical and practical knowledge stemming from a variety of disciplines is required. For this reason, modern architectural education is an intricate process focused on the maintenance of the right proportions between the rational and empirical criteria as well as idealism and economy. The best solution is often found as a result of synergy stemming from the intuition of the author/creator.

Almost everyone has something to say about architecture. Among them, there will always be someone dwelling on the advantages of the solutions applied in their own flat or house, or someone who, talking about colours at a party, will provoke an open dispute. The so-called ‘jacks of all trades’ who always know best are a real nightmare for architects. Many potentially successful designs have totally failed due to the ‘good’ advice of some handyman. We must remember that the acquisition of skills indispensable for architectural design is an extremely complex process, which encompasses knowledge acquired by the designer in the course of his education as well as his personal experience gained before or after university education, directly or indirectly related to space and its valuation. General knowledge gained in the process of organised education merges with a series of apparently unrelated events which indirectly affect the spatial and aesthetic sensitivity of an architect – a unique set of useful data bordering on such areas as sociology, psychology, ergonomics, logistics, logic, mathematics etc. On top of that there is also the author’s/creator’s personality, features of their character, empathy or its lack, mental predispositions and social competencies. The final total of these values predetermines activities undertaken in the field of architectural design. Many architects may, however, fail to meet the above criteria and as a result blemish the renown of the profession giving grounds for undermining the competencies of architects in general by investors.

Almost one century ago, Lech Niemojewski stated that the profession of architect is not a craft but a mission. In his opinion (...) *there are three (elementary) ideas of architecture: truth, beauty and wisdom. Wisdom in particular, because it encompasses all signs of human*

*life, attempts to understand them and to find the most ideal form for them*¹ [translator's own translation].

1. Intuition – laying the foundations for architectural education – creative activity

What a child senses first is the attraction to space and the surroundings. By direct contact with objects, people and places the child learns the fundamental laws of the world. In the first months of its life, an infant learns to identify its needs and to satisfy them. This is the period when contact with parents or guardians is the most important; the close bonds guide the child towards maturity. Physical contact is crucial (touch and hugging – calming when crying). Yet, to properly develop physically and mentally, a child must find themselves in the right surroundings which facilitate the establishment of close bonds between the child and an adult (mother or another care provider) who from then on will become a model to follow as regards the interpretation of the surrounding world and building one's own self-esteem². In the first year of their lives, children intensively examine the surrounding world and on the basis of relations therewith create their own image. Acquiring the ability to stand, a child significantly changes its observational perspective, whereas mastering the ability to move around – it extends the areas of its activities – space of the child's bed, floor of the child's room, area of the flat or the house of its own family or that of befriended families, garden, playground – they all become the experimental grounds where the child has a chance to learn the governing rules of space.

Between the sixth and ninth month of life children become actively involved in a variety of hide and seek games (bo-peep!) – they feel incredible joy due to repeated activities of hiding and finding and receiving confirmations that something hidden does not vanish, this is one of the most important lessons as regards spatial competences they learn at that period of development. Around the age of eight months, children start comprehending that they are separate beings that are not physically connected with the mother's body (care provider's body). A child crawls, creeps, attempts to stand up and is happy to move around. It learns to identify obstacles and dangers, examines the surroundings with all the senses – the senses of seeing, hearing, touch, taste and smell. At this stage, the child instinctively establishes its first spatial and aesthetic relations: over, under, behind, next to; hard, soft, rough, smooth, interesting, boring, sweet, bitter.

The creative activities of children as regards the examination of shapes and space have been the scope of numerous research studies initiated at the turn of the 20th century by Johann Heinrich Pestalozzi, Jean Jacques Rousseau, Friedrich Fröbel and Maria Montessori. At present these activities are deemed a prerequisite for the development of creativity and a stimulus for the development of mathematical thinking and spatial sensitivity³.

¹ L. Niemojewski, *Uczniowie cieśli. Rozważania nad zawodem architekta*. Trzaska, Evert i Michalski, Warszawa 1948, p. 6.

² A. I. Brzezińska, M. Czub, R. Kaczan, *Dziecko przedszkolne. Jakie jest? Jak możemy wspierać jego rozwój?*, Instytut Badań Edukacyjnych, Warszawa 2013.

³ B. Bilewicz-Kuźnia, M. Centner-Guz, *Natura, architektura i zabawa jako źródła przeżyć estetycznych*, *Problemy Wczesnej Edukacji / Issues in Early Education*, 4 (31) / 2015, p. 101–121.

According to the studies, one of the crucial developmental periods is the time spent at nursery school, when children between three and seven for the first time enter the world other than the world of their own home. In that time children undergo tremendous physical, mental and social changes. From clumsy and helpless three year old children they transform into fit, agile and largely independent kids, who consciously acquire new skills and knowledge, establish social relations (first 'serious' friendships, team cooperation, contacts with adult care providers) and above all who discover places and encounter situations they would not have been able to discover or encounter at home.

2. Rationalism – conscious participation in architectural education – creative activities

According to the theory posed by Maria Montessori, the so-called “prepared environment”, i.e. organised area for educational experiments, is an indispensable element of proper development. In the opinion of this Italian researcher (a physician and educationalist), a child from the very first days of life until the age of around six accumulates sensations felt in contact with the external world, yet until the age of three this is an unconscious absorption, when a child reaches the age of three the sensations accumulate in a conscious way. Thus, the functional layout of a nursery school building, where a child spends around 6 to 10 hours a day, is a priority in the process of education. The importance of appropriate preparation of nursery schools and primary schools was also stressed by another Italian educationalist, Loris Malaguzzi, the founder of the educational philosophy on early childhood education which prevailed in the 1960s in Reggio Emilia (northern Italy). The preschools constructed in compliance with his guidelines envisaged the functional layout of the building and its form as an additional teacher showing the children how to live in harmony with the rules prevailing in true communities. It must be remembered that a child, despite being a legitimate participant of space, often encounters interpretative problems stemming from contents hidden in space via the designer's unique language of forms and symbols. Cognitive abilities and the child's brain operate on the same principles as those of an adult; the child, however, lacks the models and experience facilitating the comprehension of the observed phenomena.

Pre-school children intensively acquire spatial competencies and build aesthetic sensitivity via their creative activities⁴. A child is open to new stimuli and new sensations and free of any limits posed by prior experience or by accepted rules of conduct. Owing to prior observations and analysis of situational problems as well as the physical contact with the objects and phenomena, the child actively absorbs the stimuli and creates its own sensations of space, including architecture and artefacts encompassed therein. Proper (creative) support from parents (guardians) stimulates children to form their own set of values and to learn the cultural background that in future will be part of their identity. This educational philosophy envisages a pre-school or school building as an active participant of the process of learning. The respective layout of the building supports at first intuitive, and next, in the due course of education, more and more conscious, process of acquisition of spatial competencies⁵.

⁴ K. J. Szmídt, *Pedagogika twórczości*, Gdańskie Wydawnictwo Psychologiczne, Sopot 2013.

⁵ J. Zwiernik, *Podjęcie mozaikowe w badaniu doświadczania przez dzieci życia codziennego w instytucjach wczesnej opieki i edukacji*, Przegląd Badań Edukacyjnych, NR 15 (2/2012), p. 159–176.

The rational and intuitive approaches alternate in architectural design. Here, we may find an analogy to the language acquisition process – in the first years of a child’s life, the child learns intuitively by being immersed in the language. In further years of education, the child becomes aware of the grammar rules so far applied intuitively, and next – he/she develops the knowledge of language by studying literary works and by writing school compositions. Every secondary school student is required to submit their own pieces of writing as well as to examine the structures of other literary works and to analyse the symbols and meanings hidden in the writer’s words; even if many of them may not pursue literary professions of e.g. poets or writers in future. This commonly accepted process of education to a large extent contributes to the creation of national identity via the acquisition of knowledge on one’s own national culture. With no such educative activities, language pauperisation and its slow degeneration is unavoidable.

Spatial education follows a similar pattern. In the first years of its life, a child learns to recognise and sense space intuitively, typically with extensive involvement and curiosity. Children often willingly engage into building and constructing activities. Unfortunately, the complacent and ossified school system in Poland and reductions in budget spending on education have been the reason behind a decline in art and creativity promoting classes – cultural education is very much neglected in Polish schools (few hours of classes) and architecture and space related issues are reduced to the indispensable minimum. One or two pages in a course book cannot replace a true outing to a Gothic church nor can brief descriptions fully represent the richness of details, the play of light and shadow observed through the stained-glass windows or the complex symbols of projections...

However, the scope of architectural education and the methodology of its teaching are not the only problems here. Lack of qualified teachers that could adequately provide instructions on space related issues poses another challenge. Such teachers would have to demonstrate the ability of proper classification of architectural heritage and knowledge in the assessment criteria. They would have to be able to tell traditional and modern architecture apart and to discuss the issues related to the design process, to social participation and to shared liability for the public space. Such competencies go beyond the presentation of a single, often deprived of context, facility representing a given historical epoch. Society that is deprived of proper spatial education is unable to independently evaluate its surroundings on the basis of well-thought of and objective aesthetic criteria underlain with know-how in the history of art and culture as well as extensive experience. Such a society has no ability to appreciate the golden proportions or to observe subtle spatial relations, patterns or details. Nor the work of a designer.

Furthermore, the condition of buildings to be dedicated to architectural education adds to the problems raised above. Most Polish schools fail to comply with the postulates of Maria Montessori concerning proper preparation of the educational environment. Old buildings typically require heavy repairs and newly designed buildings, even if they display different aesthetics of the façade and modern interior finishing diverging from the ‘greyness’ (or rather ‘beigeness’) of the old schools built in the socialist regime within the program of Poland’s Millennium Memorial Schools, still resemble the spatial layout of the old Polish schools. The basic spatial school unit – the classroom – has not changed its outlook for ages. Rows of benches, a blackboard, students facing the teacher and a course book as the basic source of knowledge – even if a modern school might be equipped with interactive boards, slide projectors and computers, its functional

structure – division into halls, classrooms and labs – has basically remained the same. Even non-public schools are rarely accommodated in buildings designed in support of their educational philosophies.

In theory, involvement space into improvement of children's behaviour, as an element facilitating good social relations and reducing tensions and violence, has been positively reviewed and has been proclaimed as needed. It is associated with high values, philosophical approaches to designing and education and with the leading figures in psychology, sociology and teaching methodology. Nevertheless, a down-to-earth and economical attitude to space, old and long-term habits and the unwillingness of school authorities have prevented any material changes in this respect. Renovation works most frequently undertaken typically consist in painting the walls of school halls or classes (the latter usually upon an initiative of the parents of the first form schoolchildren who by their own effort and at their own cost paint the classroom scheduled for their children's class.) There are, however, no efforts made to redesign the functional layout of the school building to properly address the changing educational needs and support the school in solving current problems – aggression, alienation and addiction to social media and computer games.

We can observe that the children gradually refrain from active participation in artistic education at the level of a primary and secondary school. Fine arts, music, DIY classes are more and more often offered as elective classes focused on the theory from course books rather than on any creative activities. At this stage spatial education ceases to be continued, only a few students, interested in the topic, independently search for information, becoming then passionate about it, only to turn this passion into their profession in the end; others most often cease any creative activities or limit them to an indispensable minimum.

3. Synergy – intuition and rationalism

The combination of rationalism and intuition in architectural work is something more than just a total of components. It is a moment of finding a perfect solution, where each part finds its right place.

Modern architectural design is at present facing an identity crisis. Its origins might be sought in the issues related to the condition of Polish spatial and architectural education as presented above. An architect today is more legible if his works are based on rational criteria – lack of proper architectural education translates into a society that has no competencies to get involved in a dialogue on the symbols, proportions and codes hidden in a building form. You could well discuss Polish literary masterpieces with somebody who only knows a limited set of Polish phrases, now and then supplemented with commonly known vulgar words.

Modern cultural trends, consumerism in particular, are also a challenge for spatial education. Mass media created attitudes foster the lack of effort, quickly obtained pleasures and simple and strong emotions. Bearing the above stated in mind, can we still accommodate education and development of higher level needs, especially that their understanding requires an additional effort? The tastes of the majority of Poles are largely unrefined and based on the information broadcast in popular television programmes and published in colourful magazines. All of us enjoy a wide access to all types of guidelines on designing in the Internet. On the one hand, they supplement certain deficiencies in our education, yet on the other hand,

they also simplify the issues and cut them off from any references to architectural context, local climatic conditions, domestic building materials and cultural heritage that are crucial in architectural design. This state of affairs contributes to further depreciation of the profession of architect⁶. Lack of reliable knowledge is unfortunately followed with several additional ‘sins’ of the investors – aesthetics sacrificed for cost-efficiency, golden freedom of nobility (investors), disrespect for official orders and bans of authorities, disrespect for common welfare, mistrust of new solutions or to the contrary – unrestrained ambition to stand out from the crowd..

What’s more, architecture is a serious investment, restricted by a number of economic factors. In this context, a design based on irrational criteria such as intuition, emotions and sensitivity of the author seems irresponsible. Yet, is intuition in designing something other than a synergy of knowledge, experience, emotions and sensitivity? Without this synergy architectural designing would be a mere craft and would have to be deleted from the list of fine art disciplines.

Architecture is more than just a process of construction based on the knowledge of civil engineering such as the technology of erection of walls, ceilings and roofs or technology of extension of the systems in the building. If it were, designing could be easily entrusted to contractors.

Architectural design is more than that. It also involves the aforementioned passion and mission, the sense of form and function going beyond the total of components (guidelines falling from the location, the building law or the economy). The intuitive feeling stems from the database of our experience recorded in the time span from infancy to death. Even if a designer may not be fully aware of its contents, he/she refers to it within the framework of the synergy to find the ideal solution. As Buckminster Fuller once said – *When I’m working on a problem, I never think about beauty. But when I’m finished, if the solution is not beautiful I know it’s wrong.*

R e f e r e n c e s

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⁶ Richard Rogers, an architect and propagator of preschool architectural education suggested that every designer sensitive to social problems should dedicate several hours a year to educating a community, M. Dudek M., *Children’s Space*. Architectural Press., Oxford 2009.

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