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VZGOJA IN IZOBRAŽEVANJE O ARHITEKTURI: MED
TRAJNOSTNIM RAZVOJEM IN ZAZNAVANJEM OKOLJAARCHITECTURAL EDUCATION AND SCHOOLING: BETWEEN THE SUSTAINABLE
DEVELOPMENT AND PERCEPTION OF THE ENVIRONMENT

izvleček

Če menimo, da je vloga vgoje in izobraževanja in njunih posledic pri oblikovanju kritične in zavestne uporabnika arhitekture pomembna, bi morali razmisliti o povezavi le-te z avtentičnimi in dejanskimi problemi naše družbe. Eden od njih je zavedanje o značilnostih grajenega okolja. V tem primeru je razvoj izobraževalnih strategij, povezanih s trajnostnim razvojem našega skupnega prostora in okolja postalo temeljno. Naša mesta so v resnici rezultati plastenja časa in prostora, ki delujejo kot enote prostorskih izkušenj v vsakdanjem življenju. Najstarejše stavbe so ikonično referenčne točke in njihova preprosta prisotnost prinaša zbirko edinstvenih pomenov v kolektivnem spominu kulture. Njihovo rušenje v mnogih primerih uničuje podobo mesta in spomin nanj. Ključno vprašanje je, kako razviti ustrezne programe na vseh stopnjah vzgoje in izobraževanja za spodbujanje kritičnega in odgovornega odnosa do skupnega okolja, ki bi zajemal vse vidike, ki oblikujejo koncepte trajnostnega prostorskega razvoja, hkrati pa ohranili svobodo glede na formalne vidike arhitekture.

Ideje, predstavljene v prispevku so podprte z empirično raziskavo o podobi arhitekture in okolja, ki je potekala med srednješolci v Sloveniji. Raziskava je temeljila na ideji, da ena najbolj učinkovitih strategij v edukaciji s katero bi razvili kritičen odnos do sveta, je brezpogojna povezava in pogled na umetnostno in arhitekturno delo z zornega kota "vsakdanjih življenjskih pogojev" za spodbujanje vzgoje in izobraževanja kritične in odgovorne graditelje in uporabnike okolja.

ključne besede

arhitektura, zaznava prostora, trajnostni razvoj, vloga vzgoje in izobraževanja, strategije edukacije

abstract

If we consider the role of education and its implications in the formation of a critical and conscious user of architecture, it is obvious that the development of educational strategies related to our common space and environment become fundamental. The comprehension of the concept of sustainable development is essential. Therefore, it is worth reflecting on how to develop proper programs at all educational levels to promote critical and responsible attitudes towards the common environment covering all the aspects that should shape the concepts of sustainable spatial and environmental development, enhancing at the same time great freedom regarding the formal aspects of architecture.

The ideas presented in the article are supported by an empirical research on the image of architecture and the environment, held among secondary school students. The research based on the idea that one of the most efficient critical attitudes towards the world would be to develop an unconditional tie of the art work with everyday life conditions. That is why part of the activities within the research was devoted to recycling relevant architectural spaces. The results show a very heterogeneous image of architecture in the eyes of the students which sometimes overvalues contrasts and originality, disregarding tradition

key words

sustainable art education, architecture, spatial perception, the image of architecture

Sustainable development and architecture

In our throwaway society, it has always been common for the big-time building entrepreneurs to tear down an older standing building in order to put up something shiny and new. Several big-time building magnates do this without care, wasting energy, resources, and valuable raw materials, just to put their name on a project and stroke their own egos.

In the present conditions it makes too much sense to reuse an older building and rebuild the parts that are necessary. Walls for rooms can be built up or taken down, depending on need. Safety additions like sprinkler systems, fire escapes and magnetic doors can all be added at a far less expensive price than building something new.

Preservation, restoration, and rehabilitation in architecture cause much less destruction to our natural resources than new construction. To appreciate this, architects must be sensitive to the energy used in the production and assembly of materials needed for new buildings, from their origin to their end of life and subsequent reuse.

Statistics reveal that building construction consumes 40 percent of the raw materials entering the global economy every year. Interestingly, about 85 percent of the total embodied energy in materials is used in their production and transportation. Even

before they reach the construction site, building materials have consumed large quantities of fossil fuels.

If all the hidden costs were spelled out in the balance sheet, the recycling of architecture would be perceived as the only rational strategy for the management of material resources. Then we could appreciate huge areas of abandoned and semi-abandoned built tissue as resources, not obstacles for future growth.

Modern construction methods are incredibly wasteful of resources. Up to 25 percent of the total waste generated in the United States, India, and other countries is directly attributed to building, construction, and demolition activities. Demolition of existing buildings wastes the embodied energy as well as the energy consumed in tearing the building down, which can be considerable, given the quality and strength of older structures. Designers sensitive to sustainable practices can establish a recycling program to reduce the amount of solid waste resulting from construction and choose materials which are themselves either recyclable or reusable [Anderson 2008].

By contrast, adaptive reuse is much more labour-intensive than new construction, because it involves the reconditioning the existing structures to adapt to modern day requirements. This dependence on human resources encourages the local community to participate and potentially revives a vernacular

rhythm in architecture. This activity can remind us that vernacular architecture is one cornerstone of our identity. As much as we all like to see change for the good, sometimes change isn't the right way to go about things. There is a certain familiarity about city space, a comfort to know that the building we have known all our life hadn't changed much. We could navigate from point A to point B looking at buildings, and telling at anytime and anyplace exactly where we were because the structures around us hadn't changed and we identify with them.

From a hermeneutical point of view we need to reflect on the issue of sustainable development in order to understand how to approach spatial design in general and how to create a connection between an incomprehensible tradition and a culture that should insist on the conservation of certain elements, in this case, the conservation of specific places or architectural objects worth proper qualification in specific cases [Tomšič Čerkez 2013].

Architecture, perception and environmental information

The definition of architectural space has been throughout history, from the Renaissance onwards, increasingly linked to the product of subjective projection and introjections and hence opposing the idea of space as a constant "container" for things and bodies.

Today, the world of architecture offers a wide range of new experiences: deep shades, due to different occupations of space, loss of the idea of the classical facade and the clarity and "readability" of the principles on which the building was designed replaced by reflecting materials "mirror materials" which transform the conditions of interior and exterior architectural space with reference to the human body. Space without barriers and almost no "foreseeability" is slowly replacing the traditional, centred on the human body, architectural space.

From a semiotic point of view we should unfold the narrative program of a specific place as well as the phenomenological elements in order to elucidate how content and form would combine in the creation of a precise spatial experience.

"Urban space analysis" is consistent with what Gibson called "scanning," or broad "collection of ambient information" (the pickup of ambient information). Individuals explore the sequence changes in the organization of space to obtain knowledge of the "map" of their environment [1986]. Interesting parts of the structure of the environment attract individuals' view, particularly the movements and displacements, differences, certain details contain more information and attract our first sight, says Gibson. Places and objects define space and give space "personality". Space becomes a place when it gets precise definition and meaning [Tuan, 2003; Hiss, 1991]. Things get importance especially after the dictates of culture. Verbal language may also differ in the ability to articulate the levels of experience, therefore, says Tuan, art and rituals take on the task that verbal language cannot. Art works show material images that resulted from emotional images, making contemplation and thinking available. There is an interesting paradox: mind creates distance and simultaneously destroys the immediacy of experience. Reflection on our past returns selected particles, thereby gaining permanence. We always depart from the perception of the cultural characteristics

of the environment. So the forms that we perceive are the unique ones that a particular social context allows. Even the most basic postulates of Gestalt psychology, are largely the result of "cultural situations", not only the consequences of our perception capacity [1979]. Man makes up a kind of dialectic between successive perceptions. Based on current perceptions and previous ones he establishes the new dimensions of perception and attention. Subjects show a certain material, objective qualities and characteristics plus what is added in accordance with previous perceptions. Man establishes the characteristics of nature and nature forms the image of human beings. This process is influenced by an ideological basis, the social context, conscious and unconscious interests, space, time, and by numerous foreseeable and unforeseeable factors more.

The architect creates the image of culture: the natural and human environment is present, which reflects the characteristics of functional rhythmic patterns, which define and constitute a culture. These patterns are a complex of personal and social life. Architect intuitively detects cultural rhythm and seeks to find a symbolic form, creates a world that is "naturally" complementary of an individual: at a personal level, this is his/her home, at the social level, this is expressed by representative buildings and their surroundings, says Tuan [2003].

S. Holl says that to "open" architecture to perception means to leave aside rational understanding being open to intuition, which leads us to the nature of space. Dynamic perspectives series generate fluid space from the viewpoint of the body moving and constantly changing axis. Axial view is not included in a two-dimensional surface, but in three dimensions and is also manifested in the force of gravity, electromagnetic fields, time, etc. The phenomenon of "current perspective" is the basis of spatial experience [2006]. Light, colour and materials open processes which continually raise new relationships. On the other hand, the author adds that in reality there is no other place than points. Summarizes the interesting definition by Bergson, namely that space is a "combination of homogeneous time" that is reflected in a duality: multiplicity of points and continuous stream at the same time.

Architecture consists of two terms, says B. Tschumi, which are dependent on each other, but are mutually exclusive: the reality of architectural experience and the abstract reality of the experience of absolute truth, which arises from emotion. The author says that any architectural intervention today always means a sort of combination of different elements, organized into categories in a complex process of (re) formable relations. The work of the architect is therefore also in the formulation, "invention" of new relationships. Architecture can no longer be bound to composition or function, but to a long and broad list of variables that allow countless combinations [2001].

In such a broad context, we can see the spirit of this study: major changes in attitudes, perception and evaluation of events in the world of architecture, which occur in parallel with major shifts in the school environment and the appearance of a new "viewer-user-generator," student; rapid functional changes in his or her life and our responsibility as managers of the reproductive system of the ideological apparatus that school still is as a necessary part of our social order.

Education for architecture

K. Lynch [1998] said that as a work of architecture, the city is a building of a large scale. The perception of space in the city is gradual, with time intervals. The image of the city is a combination of all perceptions. So important are the stationary elements as the components that move. The author is interested in the visual quality of the city and the "readability" of urban landscapes that develop an urban image, the product of sensory experiences and memories, which are the basis for the interpretation of any spatial information. He says that effective environmental image gives strong emotional support and confidence. This image is a product of a bilateral process between the viewer and the environment. The environment suggests distinctions and relationships and is the viewer who chooses how to organize and make sense of what he/she sees. That's why the images created by different people are different. Either way, there is something that could be called "basic public architecture", a mental image of the city, which is common to most viewers.

Environmental images can be analyzed in terms of identity, structure and meaning. Efficient images have distinctive characteristics. This is what we call identity. It suggests a spatial relationship with the viewer and other objects. These images contain a practical or emotional significance for the viewer. It is necessary to consider the physical quality of the elements that make up that image. They must be significant enough to permit identification of the structure of space and operation of imagination and "readability". Regarding the development of the relationship between the viewer of images and visual images, there are two poles on which to build: first, demonstrate the changes generated in the environment and on the other, offer the viewer new incentives they can change the images created in the past. This should be the main objective of education at all educational levels.

Research: Education for Architecture

The ideas presented in the article are supported by an empirical research on the image of architecture and its links to the definition of identification with architectural space, held among first year secondary school students. This "pedagogic moment" is very important in the presented context, considering the role of education and its implications in the formation of a critical and conscious "user" of architecture and architectonic space. The inclusion of such contents from the very beginning of elementary school and the education of future architects defining their role as a kind of "social service", shaping the physical and cultural context of life should mean an important challenge enhancing great freedom regarding the formal aspects of architecture and at the same time a great sense of responsibility.

Methodology

The pedagogic research was specifically planned for the field of architecture within the subject Visual Art Education, where students develop their own projects in the different fields of spatial design.

The research included 189 15-16-year old Slovenian high school students from schools in Ljubljana, the capital city of the country.

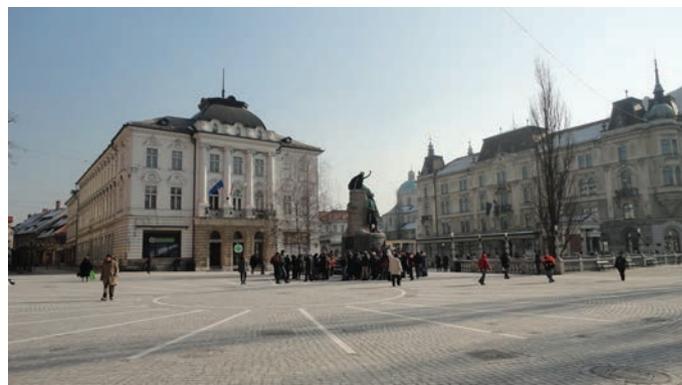
The testing instrument (considering the whole research) was one of "initial achievements" in the field of architectural design encompassing a test of creativity and a concrete task from architecture: the resolution of a project entitled "The Home of Your Dreams." Because the detailed presentation of the entire research exceeds the objective of this article I will present the results of two questions from the test of creativity.

The question we wished to find answers to, is how students evaluate the image of an architectural object, what kinds of



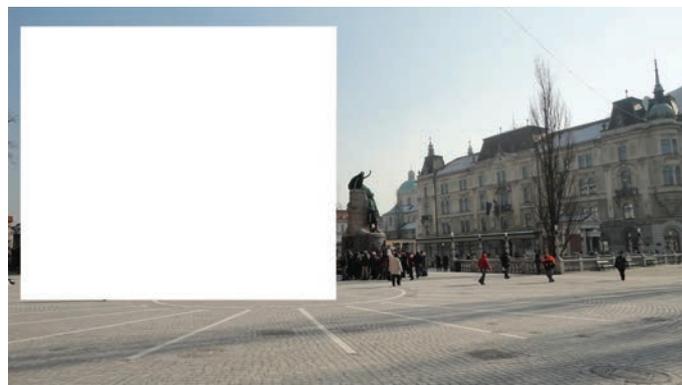
Slika 1: Fotografije različnih arhitekturnih objektov uporabljene pri 1. vprašanju preizkusa.

Figure 1: Pictures of different architectural objects used in the 1st question of the test.



Slika 2: Prešernov trg v centru Ljubljane.

Figure 2: Prešeren Square in the centre of Ljubljana.



Slika 3: Nepopolna fotografija Prešernovega trga.

Figure 3: Incomplete image of Prešeren Square.

impressions they state at first site, how they feel the environment where they live and on what basis do they shape their vision of the world that is linked to the image of architecture.

Students had to answer to the following three propositions:

1. Take a look at the pictures of the three architectural objects below. The pictures present the fronts of three different buildings. Which one do you like most and why?

It is important to state that the chosen images within the first question show images that were not familiar to the students and belong to very different contexts [Frampton, 1992]. Manipulating with them meant a process of analysis, abstraction and evaluation to be applied to the context where they live.

In the second phase of the investigation and after discussing the specifics of the space on a central point of Ljubljana - Prešeren Square - each student received an incomplete drawing of the site. The task performed each student was to suggest a new role and a new way for the "occupation" of the city space. Students could draw, paint, collage or use any other technique of two-dimensional representation.

Results

The introductory questionnaire responses were analyzed in two stages: First, we considered the number of responses - the number of points achieved by each image; second, the type of information contained in the explanations of the students. From these data we tried to develop a qualitative interpretation of the answers.

The results were as follows in the case of the first question: picture 1 was chosen by the 4.49 % of the students, picture 2 by the 48.31 % and picture 3 by the 47.20 %. Regarding the reasons for the election, students that chose picture 1 stated that "it looks exotic", "it is not for our context", one of the students wrote that "it could be built in a more developed country than ours". Students that chose picture 2 stated that "it does not contrast the surroundings", "it is beautiful", "it is nice colours," "because of the shape of its windows and roof", "it looks balanced", etc. Students that chose picture 3 stated that "it contrasts its surroundings," "it is especial, different, imposing" etc. Half of the students said that "they like it because it looks modern, contemporary," many said that "it reminds them of a modern and big city." 39.57 % of the students that chose picture 3 stated that "they like it because it looks monumental."

The results of the second phase of our research were reviewed by three independent reviewers to ensure the objectivity of the evaluation. The evaluation was conducted based on a common format for the three reviewers, which contained the following evaluation criteria: type of relationship with the environment , formal characteristics, proposed function, originality and use of artistic techniques chosen.

According to these, in 89 % of cases we speak of an image, as in the responses to the first questionnaire, that expresses wishes about a utopian city that lacks among other features expected; monumentality. Probably these responses are related to the image of Ljubljana, which is not monumental but quite the opposite. Another formal characteristic of the majority of the works is the contrast with the environment, either through colours , materials or shapes. As for the functions chosen by the

students for the buildings of that specific place, it is important to note that the absolute majority, 100%, predicted activities of collective type (gallery, theatre , shopping centre etc.) showing that in general they understand and respect the nature of public space in the city . The proposals were generally very original and very heterogeneous, in most cases, students did set the image of the environment, tradition, and the idea of the "event" to create



Slika 4: Tri primeri likovnih izdelkov dijakov.

Figure 4: Three examples of works done by the students.

architecture. To perform the work, most students chose artistic techniques combined painting, drawing and collage, achieving very expressive images.

Our main goal was to open roads of reflective and critical thinking about the values of culture, related to architecture and urban space. This was the first step in the creation and acquisition of adequate knowledge about the environment and sustainable development of the architecture of the city.

This exercise was also an introduction to the problem of recycling of architectural space and the formal aspect of urban space, especially in terms of its function. The next step is to think about the transformation of an existing building, which obviously is not an easy task, considering the technical possibilities and the knowledge of students in the first year of high school, emphasizing aspects that relate to the sustainable development in the field of art and culture in general and architecture in particular.

Discussion

However, it is not possible to bring definitive conclusions as far as we would need much more information about the experiences of the students in the city. Nevertheless, the analysed questions were particularly interesting because they focused on the characteristics of the reception of architecture in the eyes of the students. In spite of the fact, that figures do show conceptual oppositions, the answers are quite similar and reflect a special attitude regarding the values architecture fosters in students: it is in a way the materialization of romantic goals and desires: "the noble savage" hidden in a beautiful hut or the dream of progress, modernity and monumentality as a condition for self acceptance. At this point equilibrium becomes a fact that matters. Actually, equilibrium implicates the pre-existence of a dialectical pair, a counterbalance. In the case of questions 1 and 2, students speak about "an image that fosters [romantic] desires and about things they do not possess." The same could be applied to "monumentality". In any case it reflects that there is always an element that is missing and that we should pay attention to what kind of ideas we oppose in our analysis [Livingston, 1993; Willis, 1999].

Some students are not aware of their relation to space and of the fact that how its changes affect them, while others are quite aware of that. Nevertheless, the majority feels space as a category that is quite constantly linked to their own vital experiences.

It is possible to conclude that these results show a kind of lack that could be eventually filled in, [paradoxically regarding the third question] by architecture. The architect can become "the realizer of a dream", filling the blanks of what individuals see as a lack in the elements that originate their identity and identification with a specific space. This also in a way helps us explain the unclear reality of architecture today: renegation from rationalism, application of certain foreign models while not accepting others, criticism of the possibility of global strategies mostly because there is a necessity to replace a lack of local experience [Vidler 2001]. Probably, one of the reasons is, that Post-Modern, actually born in the field of architecture and often characterised by the pursuit of local and contingent theories

unlike the grand and totalising theory of modernism adopted very specific forms in our context [Rossi 1971, Grosz 2001].

Recent thinking about the reposition of architecture into the social sciences [Beck, Giddens, Lash 1994], so that architectural development can be seen in conjunction with other areas of culture opens new questions and encourages the location of dialectical pairs that consider the balance between the individual and the social, the historical and the contingent, local and foreign, style and place, utopic and real etc. Posed in these terms, the question of modern architecture, once articulated within the cosmopolitan, moves architecture beyond the image while still allowing for the image of architecture, which of course is never mere appearance, mere image, says A. Benjamin [2003]. This is in my opinion a good starting point for the reflection about the implementation of concrete strategies in art education and specifically in the field of architecture.

Conclusion: Conserving Cultural Energy

The dichotomy of ideas and facts in the field of architecture is also the reason why we can affirm that art education at the beginning of the 21st century faces new challenges. It is obvious that a global sight on the pedagogical process of art education demands the inclusion of a new, specific way of accurate evaluation of activities that would enable students to experience architecture from different points of view: as users, critics and eventually as producers. In fact, the understanding of past as well as contemporary interventions demands a set of complex and rich experiences, which is one of the principal objectives of education at all levels. These experiences must contain a clear consideration of spatial sustainable development. Some illustrative facts were shown at the beginning of the article. Probably it is not a coincidence that none of the students mentioned sustainable development in their answers.

The barriers that once separated the different fields of art no longer exist. New technologies brought an entirely new range of experiences and possibilities. Dynamic socio-cultural changes affected artistic expression of all kinds, also within architecture; debates about the cultural identity of minority groups, issues of national identity, rapid changes in technology, and the advent of the post-modern philosophy of fragmentation and plurality reshaped assumptions supporting art, architecture and education. These transformations affected the way we approach and learn about architecture.

The evolution of our societies is reflected in our building types and styles. This relationship gives older buildings a character we value and identify with. However, the corporate mentality does not seem to appreciate the long-term economic value of buildings nor their cultural spirit. Such devaluation is part of so-called "globalization".

The famous quote by Louis Sullivan, "form follows function", seems to have become an outdated philosophy. Today's corporate approach to architecture often would suggest that this sentiment could be reworded as "form follows fashion." Many modern buildings do not reflect the richness and complexities of cultural evolution. Few contemporary designers seem to value the emotional spirit of architecture.

When a building of historic merit is preserved or restored for adaptive reuse, its cultural energy is also "recycled." Old buildings preserve the local culture and identity and create a sense of belonging. In a way, we recycle embodied human resource energy along with material energy. We bring alive the past to be a part of the future, creating important connections through time.

In this context the commitment with authentic and actual problems in our societies must be between the main objectives of sustainable art education. One of them is the awareness about the characteristics of the built environment. Our cities are in fact the results of time-space plasters that function as units of spatial experiences in everyday life. The oldest buildings are often urban milestones. They are iconic points of reference and their simple presence brings out a collection of unique meanings to the collective memory of a culture. Composed by strong formal and symbolic elements, they are easily recognizable. Even whether or not they are still used for their initial function, they nevertheless invite passers-by to contemplation. Their demolition should in many cases injure the cities' images and memory. This theme – recycling of architectural spaces instead of destruction - should be one of the important authentic tasks that could be realized within visual art education in order to develop awareness about the idea that it is possible to recover relevant objects in the urban framework that are no longer in use and to assign them a new use eventually associated to the contents of collective memory. Stress on the values of collective memory is undoubtedly another key goal of Art Education at all levels.

In effect, a global understanding of our past as well as our contemporary world demands this set of complex elements and rich "connecting experiences," which should be one of the principal objectives of education at all levels, developing at the same time an unconditional tie of the art work with "everyday life conditions" and promoting the education of critical and responsible "perceivers" of the environment.

The next step in this research should be to consider the educational strategies and methods that would ensure an improvement in the awareness about the serious situation the world is facing. However we should consider experiential learning as the basis of these strategies.

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