

Contemporary architecture within the context of architectural education

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ABSTRACT: Analysed in this article are the diploma projects of students of architecture in European countries. The aim was to examine how students approach an important issue related to sustainable development, i.e. the integration of newly designed architecture into the existing historical, cultural and natural context. The rational use and protection of the environment requires the skilful shaping of urbanised space. Many changes in the surrounding space, which result from the work of architectural engineers, have a huge impact on the quality of this space. Special emphasis was placed on creating methods for educating future professional engineer architects to understand the need for the proper coexistence of newly designed urban and architectural solutions within the existing historical, cultural and natural context, as well as having the skills to create such solutions.

INTRODUCTION

It is crucial to provide students at faculties of architecture with the skills to incorporate newly designed architecture into what is already present. Of the many factors that must be taken into account in the design process, the most important is to respect the historical, cultural and environmental context. These factors should provide the foundation and guidelines for analyses and spatial activities.

For many years, especially in European cities, where there are attractive and historically defined neighbourhoods, there has emerged a dilemma of how to modernise the existing architecture. Every development in these parts of cities should be particularly well-thought out, because it is an exceptionally delicate matter. Such places have extraordinary potential, and therefore, particularly spectacular effects can be achieved. Additionally, it is important to analyse, during the design process, how solutions will influence the shaping of the identity of cities saturated with historical buildings.

Edge Architecture & Planning CEO Keith Ray's definition of context distinguishes three types of architectural interventions in the existing tissue: alteration, addition and infill. Ray also discusses ways in which this task can be undertaken respecting context: compatibility by copy, compatibility by congruence and compatibility by contrast. One should be aware that the choice of a particular path or paths or their interpenetration will have a direct impact on the visual, functional and social effect.

It is accepted that the effect of context on an architectural object, and hence its role on design, has emerged with the postmodern trend. Contextualism, as it is well known, came from the desire to resolve the problems regarding harmony with the historical environment and the placement of new buildings within historical surroundings that were apparent throughout the postmodern period. Therefore, it became significant in the relations between the architectural object within the urban fabric and its proximal surroundings [1].

A cultural analysis of the environment is an important factor that should be taken into account. Reference to the architecture in the region is an essential factor for obtaining correct conceptual solutions. The designed structures, with the land development, should not function in isolation from the customs of the inhabitants and the traditions of the place.

Only when the creation of a new design is preceded by an analysis and understanding of the place - both its current state and the past - and the design itself is a creative activity, and not only, often noticeably so, a copy of Western projects, can we have good architecture, suited to the place and in harmony with its surroundings. And only such architecture becomes alive, becomes an important point, a marker of urban space [2].

Contrary to the predictions of the proponents of globalisation, a kind of local renaissance is observed in highly developed countries, but at the same time, contrary to the predictions of antiglobalists, it is not happening in isolation from the civilisation's achievements of the modern world. This is the realisation of the well-known saying, think globally act locally [3].

Environmental context is another factor having an increasing influence on the assessment of future investments. This was studied by Lucyna Nyka from the Faculty of Architecture at the Gdańsk University of Technology [4]. When considering taking care of nature, a dilemma arises as to how the concept of ecological architecture should be interpreted in the modern world. Should it ...aim at reducing materials, costs and technology or, on the contrary, should it focus on (often costly) technologies, and aim at developing more and more advanced solutions? [5]

Ecology can be implemented into modern construction from many perspectives. There are many supporters of highly innovative technologies that help to recover natural resources for the construction of buildings, while at the same time focusing on an ultra-modern solution. There is another perception of ecology, consisting of utilising natural resources and self-build. A complete escape from advanced solutions seems to be impossible. It can be feared that it could cause a slowdown in the economy, and thus an economic crisis, which would disturb the harmonious pursuit of the components of sustainable development. Nevertheless, such an escape is tempting, and the possibilities of using already produced materials available on the second-hand market is worth considering. It would certainly be ideal to be able to balance both trends.

The best available is the category that meets this need, identifying the best available solutions in a specific context. A sustainable building is one where, during its design and construction, the utility and aesthetic values, operating savings and capital expenditure appropriate to its economic, social and cultural environment were taken into account. Such an approach in practice requires a well-developed ecological and technical culture, as well as knowledge of local conditions [6].

However, irrespective of which method is adopted, certain factors occur when moving closer to the philosophy of eco-design. These include concern for energy efficiency, the use of natural heating, rainwater recovery and the use of environmentally friendly materials.

Thus, the development of technical thought can successfully bring Bergen's principles closer to reality: taking into account the laws of ecology, designing for a specific location, maintaining the independence of the functional requirements of the project, designing to maintain optimal energy and information efficiency, and being aware of the values and objectives that drive the project.

CONTEMPORARY ARCHITECTURE IN THE CONTEXT OF HISTORY, CULTURE AND THE ENVIRONMENT

Making students sensitive to issues related to the historical, cultural and environmental context is an extremely important goal in educating future generations of architects. It is necessary to achieve harmony and balance between new and historical architecture.

The ability to look for inspiration and design solutions from emerging creative thought is of high importance in design, especially in higher education. Access to the Internet is a very helpful tool, but it may limit the creativity of young people, trapping them into thoughtless duplication of global trends and neglecting in-depth contextual studies.

It is necessary to adapt the entire system of monument protection, including architectural education, to current needs. It is necessary to treat monument protection as one of the elements of sustainable development closely related to the issues of social development and also the protection of natural resources. Due to the current pace of social, political and natural change, it is not possible to maintain the traditional model of architectural education that was based on the development of solutions previously accepted, and on rigid models and academic theories. Students today must be able to recognise and solve new and emerging problems of the surrounding world [7].

Is the work of Generation Y students (born 1981 to 1996), who are growing up with universal access to advanced technologies, therefore devoid of care for the cultural and historical heritage? Is their sensitivity to environmental issues and respect for the natural environment as important for them as for Generation Z (born beyond 1996), who are following them? Is it even possible to combine modern and architectural trends with specific cultural identities and a respect for the history of a given place, while taking care of the natural environment? The answers to these questions seem extremely important in the context of the direction to be taken resulting from present thinking about the world and the creation of a built environment in which everyone will live.

The difficulty is that the architectural work should last into the distant future. The architect creates the scenery for a long, slowly developing storyline, so it must be flexible enough to adapt to unexpected



improvisations. At the design stage, the building should, as far as possible, be ahead of its time to [better] suit the period of its [future] life [8].

Hardly anyone wonders which products of our architecture society will be able to enter into a dialogue within a hundred or two hundred years' time. The value of real architecture is that it lives and talks. Every generation is looking for its own self-definition in symbols; architecture is such a symbol because it characterises the creative and aesthetic community. We need this in order not to become a colourless generation [9].

STUDENT PROJECTS IN THE CONTEXT OF HISTORY, CULTURE AND THE NATURAL ENVIRONMENT

An examination of the above issues is not only a difficult task, but also requires a thorough analysis of the project work of students living in different parts of the world. To make the research on this subject more detailed, the methodology has been limited to a comparative analysis of diploma projects of students from Poland and other European countries.

The diploma project, which is the crowning achievement of the second cycle studies of higher education, is a summary of the effort of architecture adepts and the didactic contribution of academic staff. It also reflects the impact of the implemented curricula on the final educational outcomes. It allows, to some extent, the mapping of the future paths along which the creative development of the future generations of architects will progress.

The diploma projects examined in this study were divided into six groups, in which each project awarded a prize in a given year was analysed in terms of its integration into the historical, cultural and environmental context. The first two groups consisted of the winning diploma projects and the diploma projects awarded with a first degree distinction in the annual Polish competition, the Zbyszek Zawistowski Diploma of the Year. In this case, the diploma projects from 2009-2019 were analysed.

The other four groups consisted of diploma projects that won the European Architectural Medal for Best Diploma Projects, i.e. the ACE Prize for Societal Impact, EAAE Prize for Intensity and Courage in Problem Solving, and the UAUIM Prize for Artistic Quality. Due to the short duration of these competitions, the timeframe was limited to the years 2015 to 2017. Entries were scored on a 3-point scale, with a score of 1 being the lowest and a score of 3 being the highest in each category.

Most of the winning and awarded works in the Zbyszek Zawistowski's Diploma of the Year competition were characterised by a very good integration with the historical context of the place. The project by Michalina Frątczak, MSc arch., was *On the Edge. Expansion and Adaptation of the Sanctuary and the Pilgrim's House to a Place of Silence*.

Cape Espichel in Portugal was supervised by Jakub Szczepański, from the Faculty of Architecture at Gdańsk University of Technology and deals with issues related to context in architecture [10]. The jury justified their decision as follows:

The prize has been awarded for the courageous undertaking of the challenge to save Europe's material and spiritual heritage. The author, with great sensitivity, uncovers the potential of the sixteenth-century sacred complex set in the harsh Portuguese landscape as a place that has a chance to restore balance to a man lost in the age of information. She proposes an intimate architecture that reveals the value of what is found and at the same time introduces what is necessary to sustain the life constantly smouldering here. The tools and materials of these treatments, in themselves unquestionable achievements of technical progress, have been used in such a way that they do not interfere with the original beauty of nature and testimonies of the human contact with it since time immemorial. These tools serve the overriding purpose: to protect and make the matter and spirit of this place accessible to the next generation of people who are striving to find respite from the hardships of existence. The project toolkit provides real support for the local community, which, without meeting the challenges of the modern world, will not be able to save and show all its spiritual wealth.

The diploma projects awarded in this competition usually fit well into the existing cultural context. The winning project from 2015, by Mikołaj Adamus, MSc arch., whose theme was the new Oceanarium in Gdynia. This diploma project was supervised by Jacek Droszcz, MSc arch. The site is located next to the building, built in the 1930s, in which the Gdynia Aquarium (Oceanarium) has been operating, very much rooted in both the culture and history of the city since the 1970s. This project is impressive not only for its consistency, maturity and elegant simplicity, but also for its delicate neo-modernist style, ideally fitting with the character of Gdynia's buildings. This prize was granted for:

...accurate identification of the issues in one of the main spaces in the city of Gdynia. Extremely sensitive approach to the subject resulted in subtle architectural forms embedded in a properly designed urban space. Noteworthy are the functional solutions which, in a thus designed architectural setting, will undoubtedly improve the attractiveness of the pier area in Gdynia and create a new landmark.





a)

b)

Figure 1: a) *New Oceanarium in Gdynia*; b) Mikołaj Adamus diploma project, Gdańsk University of Technology. Zbyszek Zawistowski Diploma of the Year Main Prize 2015.

PROJECT RATINGS ON HISTORY, CULTURE AND THE NATURAL ENVIRONMENT

Projects were ranked on a scale of 1 to 3 on three criteria, viz. integration into an existing historical, cultural and natural context (Tables 1 and 2; and Tables 4 to 7). Point 1 on the scale means little or none, 2 means fair to reasonable, and 3 means comprehensive.

An attempt to incorporate a new or modernised object into the existing natural environment posed the biggest design problem in the projects. Although the majority of the projects satisfactorily met the requirements, many seemed to approach the subject in a superficial way. The research showed that among the diplomas awarded in the Zbyszek Zawistowski competition, integration into the existing natural context was rated at 76% on average where 100% implies fully integrated (Table 3).

Because these analyses were carried out for the best projects, no project author actually ignored the ecological approach to design. However, there may still not be enough emphasis placed on respecting the existing natural context, as well as ecology in construction. For comparison, the average rating of the projects for integration into the existing historical context was 85%, while integration into the existing cultural context was 83%. It should be noted that among the surveyed projects, there was a number that managed to fit perfectly into all three examined criteria, including the natural environment.

A slightly different approach to the subject of ecology and respect for the environment was noticeable in the winning entries in the European competitions. The diploma projects that won the European Architectural Medal for Best Diploma Projects competition, as well as the other three competitions that are part of it, fit very well for integration into the existing natural context, with an average rating of 86% (Table 8).

It is moot whether these statistics result from a greater ecological awareness of European competition judges or whether it is related to a more pro-environmental teaching and approach to design outside Poland. The diploma project, *Biological Research Platform, Bicaz Lake, Romania*, by Andreea Irimia from the Ion Mincu University of Architecture and Urbanism (UAUIM), Romania, tutored by architect Octavian Neculai, awarded the 2017 EAAE Prize for Intensity and Courage in Problem Solving, deserves attention in this context. As the author of the project writes:

Romania already has several research and monitoring stations working in the field of biodiversity, with a special interest in natural resources. Their goal is to keep under close watch the quality of environmental factors and to take protective measures regarding the maintenance and the improvement of these factors. The choice of the programme and its methods is due to a special interest in the influence of nature upon the architecture and in innovative environmental technologies. The project will rely greatly on energy from renewable sources, trying to identify a set of environmental factors that can be integrated in the functioning of the facility. Several examples of such factors are the water currents, the waves, the water level variations from one season to another, the water luminosity, thermal frost regimes, physical and chemical variables, and even the phytoplankton. The construction shall be conceived as a floating organism, in an attempt to mirror the research activity in the architectural object. The proposal aims at reconfiguring the existing research site and station, through the direct involvement of the concerned public. On the water surface lie two ensembles, on the two shores of the site. One of them is dedicated to the research area, the other is for touristic and leisure activities.

The integration into the historical and cultural context in the projects of students from other European countries was at a similar level to that in the projects of Polish students. The average rating for diplomas was 86% for integration into the existing historical context of the place and 84% for integration into the existing cultural context.

Table 1: Analysis of subjects: Zbyszek Zawistowski Diploma of the Year Awards.

| Year | Main prize | | |
|-------|--|--|--|
| | Integration into an existing historical context (1-3 points) | Integration into an existing cultural context (1-3 points) | Integration into the existing natural context (1-3 points) |
| 2009 | 3 | 2 | 1 |
| 2010 | 3 | 3 | 1 |
| 2011 | 2 | 2 | 3 |
| 2012 | 1 | 2 | 1 |
| 2013 | 2 | 3 | 1 |
| 2014 | 2 | 2 | 3 |
| 2015 | 3 | 3 | 3 |
| 2016 | 3 | 3 | 3 |
| 2017 | 2 | 3 | 2 |
| 2018 | 3 | 3 | 3 |
| 2019 | 3 | 2 | 3 |
| Total | 27/33 81% | 28/33 85% | 24/33 73% |

Table 2: Analysis of subjects: Zbyszek Zawistowski First Degree Honourable Mentions.

| Year | | First Degree Honourable Mentions | | |
|-------------|---|--|--|--|
| Project No. | | Integration into an existing historical context (1-3 points) | Integration into an existing cultural context (1-3 points) | Integration into the existing natural context (1-3 points) |
| 2009 | 1 | 1 | 2 | 2 |
| 2009 | 2 | 1 | 2 | 3 |
| 2010 | - | 3 | 3 | 3 |
| 2011 | 1 | 3 | 3 | 1 |
| 2011 | 2 | 3 | 3 | 2 |
| 2011 | 3 | 3 | 3 | 3 |
| 2012 | - | 2 | 3 | 3 |
| 2013 | - | 3 | 3 | 3 |
| 2014 | 1 | 3 | 3 | 3 |
| 2014 | 2 | 3 | 3 | 3 |
| 2014 | 3 | 3 | 3 | 2 |
| 2015 | 1 | 3 | 2 | 2 |
| 2015 | 2 | 3 | 2 | 2 |
| 2015 | 3 | 2 | 3 | 1 |
| 2016 | 1 | 1 | 3 | 1 |
| 2016 | 2 | 3 | 2 | 3 |
| 2016 | 3 | 3 | 2 | 3 |
| 2017 | 1 | 2 | 1 | 3 |
| 2017 | 2 | 3 | 3 | 2 |
| 2017 | 3 | 3 | 3 | 3 |
| 2017 | 4 | 2 | 1 | 3 |
| 2017 | 5 | 3 | 1 | 2 |
| 2018 | 1 | 2 | 2 | 3 |
| 2018 | 2 | 3 | 3 | 2 |
| 2018 | 3 | 3 | 2 | 3 |
| 2018 | 4 | 3 | 3 | 2 |
| 2018 | 5 | 3 | 2 | 3 |
| 2018 | 6 | 3 | 2 | 3 |
| 2019 | 1 | 3 | 2 | 1 |
| 2019 | 2 | 3 | 2 | 1 |
| Total | | 79/90 88% | 72/90 80% | 71/90 79% |

Table 3: Summary of the Zbyszek Zawistowski competition.

| Years | Integration into an existing historical context (1-3 points) | Integration into an existing cultural context (1-3 points) | Integration into the existing natural context (1-3 points) |
|-----------|--|--|--|
| 2009-2019 | ~85% | ~83% | ~76% |

Table 4: Analysis of subjects for the European Architectural Medal for Best Diploma Projects.

| Year | European Architectural Medal for Best Diploma Projects | | |
|-------|--|--|--|
| | Integration into an existing historical context (1-3 points) | Integration into an existing cultural context (1-3 points) | Integration into the existing natural context (1-3 points) |
| 2015 | 3 | 2 | 2 |
| 2016 | 3 | 3 | 3 |
| 2017 | 3 | 2 | 2 |
| Total | 9/9 100% | 7/9 78% | 7/9 78% |

Table 5: Analysis of subjects for the European Architectural Medal for Best Diploma Projects, ACE Prize for Societal Impact.

| Year | ACE Prize for Societal Impact | | |
|-------|--|--|--|
| | Integration into an existing historical context (1-3 points) | Integration into an existing cultural context (1-3 points) | Integration into the existing natural context (1-3 points) |
| 2015 | 3 | 3 | 3 |
| 2016 | 3 | 3 | 3 |
| 2017 | 3 | 3 | 3 |
| Total | 9/9 100% | 9/9 100% | 9/9 100% |

Table 6: Analysis of subjects for the European Architectural Medal for Best Diploma Projects, EAAE Prize for Intensity and Courage in Problem Solving.

| Year | EAAE Prize for Intensity and Courage in Problem Solving | | |
|-------|--|--|--|
| | Integration into an existing historical context (1-3 points) | Integration into an existing cultural context (1-3 points) | Integration into the existing natural context (1-3 points) |
| 2015 | 2 | 2 | 1 |
| 2016 | 3 | 2 | 3 |
| 2017 | 2 | 2 | 3 |
| Total | 7/9 78% | 6/9 67% | 7/9 78% |

Table 7: Analysis of subjects for the European Architectural Medal for Best Diploma Projects, UAUIIM Prize for the Artistic Quality.

| Year | UAUIIM Prize for the Artistic Quality | | |
|-------|--|--|--|
| | Integration into an existing historical context (1-3 points) | Integration into an existing cultural context (1-3 points) | Integration into the existing natural context (1-3 points) |
| 2015 | 3 | 3 | 3 |
| 2016 | 2 | 2 | 3 |
| 2017 | 1 | 3 | 2 |
| Total | 6/9 67% | 8/9 89% | 8/9 89% |

Table 8: Summary of the European Architectural Medal for Best Diploma Projects.

| Years | Integration into an existing historical context (1-3 points) | Integration into an existing cultural context (1-3 points) | Integration into the existing natural context (1-3 points) |
|-----------|--|--|--|
| 2015-2017 | ~86% | ~84% | ~86% |

CONCLUSIONS

The results from the study have shown that the vast majority of the diploma projects awarded prizes and distinctions/mentions, created in recent years at the Polish and European faculties of architecture, are very well integrated both in the historical (85-86%) and cultural (83-84%) contexts. Despite widespread access to new technologies and globalisation of architectural thought, European and Polish students have, in most cases, found the golden mean between fashionable trends and the tradition and culture of a given place. However, integration into the natural context is much more noticeable in projects from the European universities (86%) than from the Polish universities (76%). Therefore, placing strong emphasis on pro-ecological approaches to design should become one of the priority guidelines for improving design curricula at the faculties of architecture in Poland.



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