Open-Air Work Zones for Students at the Faculty of Architecture Depicted on the Basis of Pilot Student Projects

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Abstract. The following article pertains to a student project called: Open-Air Work Zone for Students of the Faculty of Architecture. It elaborates on the scope of pre-design research which preceded projects carried out by students. The context in which such places came to be, within the space of contemporary campuses, was also analyzed. Next, two concepts put forth by students were described as the result of end-of-semester papers completed at the Department of Design and Qualitative Research of the Faculty of Architecture at the Silesian University of Technology (Gliwice, Poland). The publication also contains a brief description of the changes made to the structure of the Polish higher education facilities, as a result of significant factors which influenced the new methods of making use of the space and its new quality.

Keywords: Higher education · Universities · Students' zone
Learning and teaching space

1 Introduction

The idea for the Open-Air Work Zone at the Faculty of Architecture of the Silesian University of Technology came into being a few years ago. There had been, of course, requests made by the students for places where one could spend their leisure time during breaks between classes, outside the building. Before the start of the project and at the very beginning, pre-design research was done together with students, which would diagnose their needs as to the projected space and would indicate the proper location, in the closest vicinity of the building of the Faculty where the open-air work zone would be located. In recent years, there have been lots of analyses made by students of the Architectural Faculty of the Silesian University of Silesia in the scope of pre-design research and concept designs connected with locations intended for spending leisure time between classes. During these breaks, one could either relax and socialize, or work and learn. In the course of research carried out by students in their own environment, it turned out that they wished to see a space for both work and leisure that would be located in the vicinity of the faculty's building and would function better than the contemporary one.

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2 New Functional and Spatial Needs at Contemporary Universities

Common access to sources of knowledge possible by means of the World Wide Web led to the situation where forms of work changed along with the ways in which knowledge was acquired. What is more, new phenomena in the process of socializing also arose. At present, human beings, and in this case we are referring to students, may be active wherever they wish set foot; they could decide to work, learn and collect data of off the Internet at each place. They have the possibility to work at any given place, on the condition that they could find there appropriate working conditions. The possibility of using the Internet and its resources, at any place of the university, caused that new forms of work came into being along with possibilities to socialize at places where it was impossible in the past. [9, 10]. What is truly significant today for the shaping of new university structures and for the sake of innovative and functional solutions is the knowledge of the forms of work used today, as well as the cooperation in the scope of learning, and also the way people behave at that particular moment. According to OECD[1], the most basic form of the academic faculty's development process, along with their buildings (in terms of the shaping of the space) is the knowledge of users' needs. In the 21st century, OECD claims that we are facing a new image of space and facilities, based on the following assumptions: information and communication technology (ICT); students' expectations, their lifestyle (features of an information-based society); social interaction in the scope of the learning process [10, 11]. The aforementioned assumptions have a significant influence on the design of the space intended for learning. At present, one should no longer perceive the space of the university in a traditional way. Forms of learning and activities used have changed for the following models:

- Collaborative model which consists in actions based on team work, with a larger number of people.
- Immersive model which consists in individual work, requiring more focus.
- Mixed model which serves as a combination of group and individual work, such as works done at laboratories, where a high-level network connection is provided just like a proper space for group work.
- "Anywhere" model where knowledge is being acquired in both formal and informal spaces[2]. Inside the existing buildings of the university, more open and public-access spaces are being planned for. Their arrangement will allow students to work wherever they wish to. That model, according to the students who were interviewed, goes beyond the buildings themselves. As a result, the external space of the campus becomes almost equivalent in relation to the interiors of the buildings.

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[1] OECD – Organization for Economic Cooperation and Development; OECD constitutes an international institution which deals with qualitative research into higher education systems. It assesses, supports and promotes good practice for the sake of the quality that the scientific environment should maintain. Source: A. Blyth: OECD Programme on Education Building. www.oecd.org/edu/facilities.

[2] The division made by OECD [13] D. Winnicka-Jasłowska's description based on the publication [12].

3 Statutory and Organizational Changes at Polish Academic Facilities

Polish universities of today have undergone a series of transformations in the scope of education and higher education system. Of course, there have also been some organizational and social changes made to the academic facilities. In 1989, Poland as a socialist country (until 1989) changed its political system into capitalism, which caused that legislature connected with education and higher education also had to undergo a thorough transformation. But the most important changes were made in 2004 when Poland became a member the European Union.

At first, the main changes were brought about by way of a reform passed in 2005. After that, a highly significant document called: *The Strategy for the Development of Higher Education in Poland until 2020* was prepared by Ernst & Young B.A and the Institute for Market Economics. That very document became the key strategic act and since 2012 it has been implemented at Polish academic facilities accordingly. Actions taken on the basis of that document are to help increase the quality across all fields of the university's activity, especially in education, scientific research and the relationship with the social and academic environment. According to the authors, raising the quality of the higher education requires Strategy [12], and action in the scope of six strategic goals:

- Diversity in the academic facilities and courses of studies;
- Mobility on the part of the academic staff and students;
- Competition in the higher education system;
- University's effectiveness in being able to take advantage of their own resources;
- Transparency in the activity of the facility;
- Openness of the academic facility to the social and economic surrounding.

Three out of the six strategies presented above can undoubtedly have an influence on the material resources of higher education institutions. These include: the openness, mobility and competitiveness [12].

Openness of universities requires a new approach to the shaping of the space within buildings and the campuses. When referring to the openness, the authors of the Strategy [12] determine the principles connected with the flow and transfer of knowledge between universities. However, the notion of openness also pertains to greater freedom and needs in the scope of relationship between various internal and external environments of academic facilities. Openness stands for, among others, actions that are aimed at closing the gap between external environments and the scientific environment. Through different modes of action as well as greater accessibility - academic facilities are becoming the organizers of numerous events of scientific and promotional character. Such an approach is currently very broad and requires new spaces within the structures and within the areas that belong to campuses. As many an event take place outside, the external space should be thought of differently than in the past.

Mobility of students and of the academic staff has become popular in Poland. As a result of that change, the quality of work and studies have significantly improved over the last 10–15, which means that Polish academic facilities have now found themselves

in the same league as foreign higher education institutions. This pertains not only to the shaping of the space, the process of equipping the laboratories but also to the esthetics of the structures and buildings together with all academic areas. The fact that academic facilities can now compete against one another, which constitutes one of the conditions of the Strategy [12], has also had an influence on the above.

These three main strategic conditions - openness, mobility and competitiveness have significantly changed the methods of the functioning of academic facilities, along with their organization. They also influenced the ways the space is being used and improved its quality.

4 Silesian University of Technology - Revitalization of the Campus Area

Over the last couple of years, the Silesian University of Technology, has made numerous beneficial changes which caused that the quality of the usable space has improved. New structures equipped with common functions appeared, such as the Education and Congress Center (built in 2004), or the laboratory structure called the Center of New Technologies (2014). The latest investment made by the Silesian University of Technology was the reconstruction and functional and spatial modification of the whole area of the university's campus (2014). That undertaking was radical in its scope. It encompassed, above all, a project which involved the exclusion of the Akademicka Street from the vehicle traffic and the construction of a shared zone which now runs through the campus, from the eastern part to the western part. The pedestrian zone was significantly broadened and thus creates recreational spaces and offers a new image of squares in front of the entrances to the faculty's buildings. New landscaping elements were introduced such as: benches, fountains and pedestals with the names of the faculties. What is more, also the underground infrastructure for the installations was replaced.

The process of the campus reconstruction lasted for about two years. Changes which were made generated numerous subjective comments and assessments within the student and worker environment. These changes also influenced the decision as to whether the research should be done to make an assessment of the new solutions[3] (Figs. 1 and 2).

[3] Qualitative research at the campus of the Silesian University of Technology was done several times by different research teams. For the first time, the campus was examined in 2014/2015 by a team of students supervised by Doroata Winnicka-Jasłowska. That research was described at length in the authors scientific monograph, written in Polish [10].

Fig. 1. Campus of the Silesian University of Technology after the revitalization. View of the building of the Civil Engineering Faculty and in the background visible is one of the laboratory buildings of the Chemistry Faculty. Photo taken by D. Winnicka-Jasłowska

Fig. 2. Campus of the Silesian University of Technology after revitalization. View in the direction of the Faculty of Mining and Geology. Photo taken by D. Winnicka-Jasłowska

5 Pre-design Research and Student Projects Concerning the Open-Air Work Zone

Students have recently been speaking out about their own needs as to the space within and without the building of the Architectural Faculty, as well as the whole area of the campus. As part of classes[4] conducted at the Faculty, they made an assessment of the current condition and then they proposed a modification to the existing solution. They discussed the following problems: way-finding, security of people and property, ergonomic solutions in the scope of universal design. They also proposed open-air zones within the nearest vicinity of the building of the Architectural Faculty. During the research process, they precisely specified their needs concerning work and time spent during, after and in between classes. Moreover, they also specified their needs connected with the process of socializing. That aspect is currently more important than ever before. It is connected with the development of knowledge and science in the scope of sociological sciences and environmental psychology. On the basis of the conclusions drawn from the research process, the students carried out projects connected with changes made to the arrangements so that more places could be designed for learning and socializing out in the open space, in the vicinity of the building where the Faculty of Architecture is located.

The main method implemented in the pre-design research was the Post-Occupancy Evaluation[5]. At the beginning, site inspection was performed together with stock taking of the places deemed potentially suitable for designing an open-air work zone. After that, interviews were conducted with the members of the Student Government of the Architectural Faculty, on the basis of which the survey was composed. The survey was conducted among the students of the whole Faculty. The research questions were steered so that needs connected with the designed space could be recognized. The questions were formulated in such a way as to assess the current condition of the buildings in terms of places intended for learning. The most desirable elements of the equipment intended for the open-air work zone, in the eyes of the respondents, were pieces of furniture that included: relaxation poufs, sofas, arm chairs, couches, wide and large table worktops; comfortable chairs.

It should be added that students showed a lot of creativity in that respect. In teams of two, they presented some really interesting and diversified solutions - in terms of functionality, technicality and esthetics. The projects included: spatial development of the chosen area close to the entrance to the building of the Faculty, projections and views of the furniture along with their visualizations which best represented the whole concept. It should be highlighted that the most interesting concept belonged to Oliwia Kwaśniewska and Magdalena Wójtowicz (Fig. 3). It depicts a large table in the shape of piece of a jigsaw puzzle with stools placed around it. The whole thing stands under a roof in the

[4] The project was carried out in the scope of classes run by Joanna Tymkiewicz PhD. Eng. of Architecture, Dorota Winnicka-Jasłowska, PhD. Eng. of Architecture, under the patronage of the Dean of the Architectural Faculty of the Silesian University of Technology, Klaudiusz Fross, PhD. Eng. of Architecture in the academic year 2016/2017.

[5] Author's own methods for qualitative research based on POE, as well as examples of opinions concerning the structures and pre-design research carried out by the authors of the following publication were discussed in the following references [1–10, 13–18].

Fig. 3. Concept design for the Open-Air Work Zone for students of the Architectural Faculty. Visualization. Design and graphics made by Oliwia Kwaśniewska and Magdalena Wojtowicz.

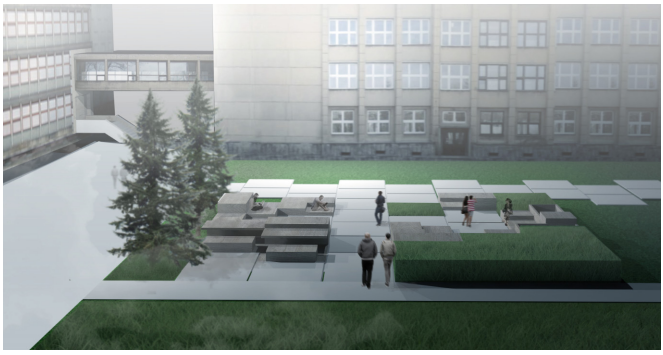

Fig. 4. Concept design for the Open-Air Work Zone for students of the Architectural Faculty. Visualization. Design and graphics made by Natalia Płoskonka and Anna Krawczyk.

form of a canopy. A structure which has an intriguing shape makes for an attractive city sculpture. Thanks to the fact that it is made from concrete, one can be sure of its strength. That piece of furniture is located in a visible place, by the main square of the campus and the fountain, in order to decorate the spot and integrate the student environment.

The second project which also deserves recognition is the furniture complex for both sitting down and for work, which makes up the spatial composition based on kind of boxes. These crates play the role of a table, bench and flowerbeds. The whole structure has been composed into a square which is near the entrance to the building, in a quiet and secluded place. That project, unlike to previous one, is more suitable for work and relaxation in peace owing to its location, tables and separate spots for sitting down. The authors of the project are Natalia Płoskonka and Anna Krawczyk (Fig. 4)[6].

[6] Both projects have been completed under the supervision of Joanna Tymkiewicz, PhD. Eng. of Architecture and Dorota Winnicka-Jasłowska, PhD. Eng. of Architecture.

6 Summary

Contemporary users of the academic spaces expect to see new spatial solutions. This phenomenon is especially visible in the spatial organization of the academic space. Both buildings as well as entire campus areas, which belong to higher education institutions, are currently used in a different manner than in the past. New needs have given rise to new solutions within buildings and also in the scope of the development of campus areas. The Silesian University of Technology, as one of the most prominent technical and educational institutions in Poland, has also undergone a metamorphosis which caused that the quality of work and education stand at a very high level.

The following case study, concerning the design development for the competition for the Open-Air Work Zone for students of the Architectural Faculty, constitutes a good example of research by design as well as a didactic analysis. Besides the measurable design effect, students also appreciated the role of the pre-design research in the creation of proper architectural solutions.

All works carried out by the students - made up of posters and also models that go with them - were presented during an exhibition held inside the buildings of the Architectural Faculty. As expected, they drew a lot of attention on the part of the whole academic community (Fig. 5). During the said exhibition presented were also concept works completed as part of the didactic project which took place at the same time and was connected with the proposal to take certain actions (the so-called "soft interventions") which were aimed at breathing a new life into the Academic Zone.

Fig. 5. A fragment of the exhibition showing students' ideas for the open-air work zone, the Faculty of Architecture of Silesian University of Technology, June - September 2017, Photo taken by J. Tymkiewicz.

All examples of the concept solutions indicate that there is a high level of efficiency when it comes to pre-design qualitative research, useful in the manner of assessing the true needs of the users. Finally, it should be added that the design for the Open-Air Work Zone, described in this article, is one of the many projects currently being carried out in the scope of classes conducted at the Faculty of Architecture of the Silesian University of Technology. The scientific staff and all teachers from the Department of Design and Qualitative Research in Architecture are specialists in research on structures and urban space, with more than 20 years of experience and they have worked out both new didactic methods and individual techniques as well as research tools. Earlier experiments which took place with students were described, among others, in the following publications: [1–10, 13–18].

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