

Teaching architectural design through competition, motivation and challenge

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ABSTRACT: In this article, the authors describe an experimental Interior Architecture Design course offered at Kielce University of Technology (KUT). The subject of the design was a mobile school project, according to requirements of the International FINSA Award (IFA) student competition, which addressed rapid climate change and the effects of atmospheric phenomena, such as droughts, floods and hurricanes. The Master's degree in architecture students were motivated to design a temporary school pavilion that satisfied the needs of a small social group. The projects had to be adaptable to different climate conditions, environmentally friendly, and easy to assemble and disassemble. The research question was this: how introducing a design challenge, such as creating a temporary structure competition project along with the interior design, while working in groups, will affect the final course results? The result was extraordinary designs for the competition and the developing of an experimental didactic method on the basis of the authors' concept.

INTRODUCTION

Kielce University of Technology (KUT) is a technical university in central Poland and it is the *alma mater* of more than 10,000 students. Architectural education in this facility has been carried out since 2008 at the Faculty of Building Engineering and Architecture in the two-cycle system of seven undergraduate and three graduate semesters.

Interior design is taught in the ninth semester, which includes a one-hour lecture and four hours of design studio per week. The original syllabus for the course was prepared in 2012 when one of the authors formed a team of four lecturers and began working with more than 80 fifth-year KUT students. The design task at that time was of a residential office commercial or patio interior based on students' own designs, prepared in the previous semesters, and which included materials, structure and lighting design.

Web sites for the Royal Institute of British Architects (RIBA) and the Architects' Journal promote competitions in architectural practice. However, there is little written about the use of architectural competitions in education, so it was decided by the authors to base this course on the requirements of the Nationwide Student Competition, viz. *Interior: Light & Shadow*.

From 2013 to 2017, the subject of the design was not changed, but the introductory task was incorporated to help students cope with the interior design which, after the first year of teaching, was found to be most difficult. The architecture major students tended to see their project as completed after it was functionally arranged and structurally built, and they did not see the need to conduct further work on the identity of the place. Most of the projects were properly designed in terms of the finish, furnishings and lighting, but they lacked the overall idea of what makes the space unique - the most important indicator that makes it able to be described as an architectural design.

CHANGES IN THE SYLLABUS

In the winter semester of the academic year 2016/2017, the International FINSA Award student competition was announced. It was open to architecture and design students working individually or in groups of up to five under the supervision of an academic teacher.

The goals of the contest were to encourage students to use design as one of the tools with which to create a resilient community that is prepared for any future natural disaster. For example, the objective was a project of a temporary building of the school that may be easily assembled and disassembled in situ by a local community affected by disaster; and this to prevent long-term interruption of learning. The challenge was to construct the building with renewable materials, making it as sustainable as possible. Moreover, the structure had to be adaptable to different climatic conditions.

The school should have capacity for 25 pupils, providing a functional layout and proper infrastructure. The requirements of the competition would match the educational goals of the KUT curriculum, but they would exceed the normal workload demanded in this semester. Finally, the decision was made by the design studio leader that students would have a choice whether they wished to proceed with the regular design assignment or take the challenge of the competition, which might result in the prestigious award in the International FINSA event. Eleven out of 45 students chose to prepare a competition design, although they were aware that the assignment would require more research and commitment.

DESIGN ASSIGNMENTS

The course, Architectural Interior Design, starts in the winter semester with a short assignment called *My Place - an interior through which I can express myself*. The subject of the design task is the spatial and functional arrangement of the residential interior of a small studio or flat on a given layout linked to external space - garden, public space, small architecture, greenery. Students work individually as a preparation for their final assignment due at the end of the semester.

In the academic year 2016/2017 both design assignments - interior design theme *Elusiveness of colour*, as well as the *Interior design of the mobile school* - were conducted simultaneously, according to the overall aims of the course, which were:

- an ability to correctly arrange the interior;
- applying the principles of architectural and plastic composition to obtain a specific character of the interior;
- indication of the relationship between theory and design practice through the use of products available on the market;
- treating the interior as an indispensable part of the sequence of perceiving architecture - the space surrounding the building, the building structure and the space inside the building;
- searching and studying elements of compositions consistent with contemporary trends and leading technology.

The students, under the supervision of staff, were obliged to prepare an interior design. For the theme, *Elusiveness of colour*, it was based on the structure they had designed in the past, during the design studios. The subject of the design task was the spatial and functional arrangement of the selected architectural interior in combination with the entrance zone, garden, public space, small architecture and greenery. Particular attention was to be paid to the creative use of daylight and its significance for the variability of interior colour.

The evaluation criteria for that assignment were:

- unique use of colour effects and chiaroscuro for interior creation;
- applying the principles of architectural and artistic composition to achieve the assumed character of the interior;
- correctness of the interior spatial and functional arrangement;
- treating the interior as an indispensable part of the sequence of perceiving architecture - the space surrounding the building, the building structure, the space inside the building;
- emphasising the links between theory and practice through the use of existing products on the market, of contemporary high-quality design in giving the interior its unique character;
- application of elements of compositions consistent with contemporary trends and leading technology.

The students working on this assignment had the possibility of participating in the Nationwide Student Competition, *Interior: Light & Shadow*, organised annually by Cracow University of Technology. The group of students that had undertaken the challenge of participating in the international competition were to design a structure that would provide the shell for the interior. In this case the main theme was education. The subject was the design of the interior and the shell of a school that can accommodate 25 students and be quickly assembled in the event of a natural disaster or other event, so that the break in school activities is as short as possible.

The design task was the spatial and functional arrangement of the architectural interior of a mobile school with lighting in combination with the entrance zone, garden, public space, small architecture and greenery. The interior design project had to provide adequate space for classes, administration, sanitary and recreation facilities. A functional and spatial programme should be proposed, providing space for food serving, health, social and psychosocial services, as well as catering for children of various levels of reading, and for disabled children.

The evaluation criteria for the competition assignment were, apart from the correctness and uniqueness of the arrangement and linkages with surrounding space:

- Possibility of implementation: it should be possible to construct the structure using commonly available materials.
- Flexibility: it must be adaptable to different circumstances and places where it will be implemented.
- Cost: the project should include the cost of implementation per m².
- Conditions: it must take into account the cultural conditions of different parts of the world.

Due to the complexity of the project, the students were given the opportunity to work in groups of up to three, which was consistent with the competition requirements.

In both cases the students' projects were evaluated according to the given criteria, with grades from 5.0 to 2.0, where 5.0 was very good, and 2.0 was not satisfactory.

WORKING ON THE DESIGN

During the semester, the students taking the design studio Architectural Interior Design work individually, supervised by staff. Each of the group leaders - in this case the authors - guides up to 15 students. They work on the graphic, as well the text (analytic) part of the project. They have to prepare the boards in 1:100 scale presenting clear information about the authors' architectural ideas. This includes a spatial context, containing the plan, at least one section showing the interior finishing and the selected fragment of the perspective view presenting the character of the interior. Optionally, a schematic representation of the location of the interior in the building might be provided to display its relationship with the outside zone, and the reflected ceiling plan showing the lighting fixtures arrangement.

After completing the first, introductory design task during the first six weeks, work starts on the final assignment. The students benefit from face-to-face revisions of the project by the university staff and also invited guests representing architectural glass, lightning and furniture industries. The students participate in two open reviews of the project. During those events, there is a discussion about technological, spatial, functional and compositional issues involving all the students (i.e. the whole year) and the academic tutors.

From these reviews, the students obtain grades reflecting the current development of their projects. They are graded separately for the idea, function, technology and the presentation, so that they are able to determine the areas on which they should concentrate during the remaining part of the semester. In the academic year 2016/2017, all the events, such as reviews, as well as glass and furnishing consultations were organised for both groups of students working on the temporary school and the hallway interior. During the reviews, the students were divided into two groups preparing different assignments supervised by the tutors.

At the end of the semester, the students had to present the boards according to the same requirements and they could prepare a coded and complementary submission as the competition design. Each of the presented projects was to contain:

- A concise description of the original idea (project synopsis).
- In the descriptive part (placed on the board or in the form of a separate study):
 - detailed description of the subject;
 - data characterising the programme;
 - a brief description of the original idea;
 - sketches showing the progress;
 - optionally, photos of the physical model.
- In the basic graphic part (functional and spatial concept):
 - clear information about the authors' architectural idea with a spatial context;
 - 1: 100 scale plan;
 - at least one section with a view showing the development of the interior walls in the 1: 100 scale;
 - isometric view or perspective view;
 - original sketches.
- In the additional graphic part:
 - spatial representation, i.e. isometric view or perspective views depicting light effects (colour) obtained with the use of lighting;
 - description of the interior and external lighting, furniture and glass used in the project;
 - description of technical solutions applied to materials, multimedia and control technologies.

DISCUSSION OF THE RESULTS

The 2016/2017, the Architectural Interior Design course resulted in 45 students completing their final projects, either individually or through working in groups. After the final evaluation, it was found that students who undertook the challenge of a more complex design were graded higher. In order to draw conclusions on the efficiency of architectural education, the following grades were compared: overall grades for the whole year; grades of students taking the regular course (national competition); grades of IFA participants (see Figure 1).

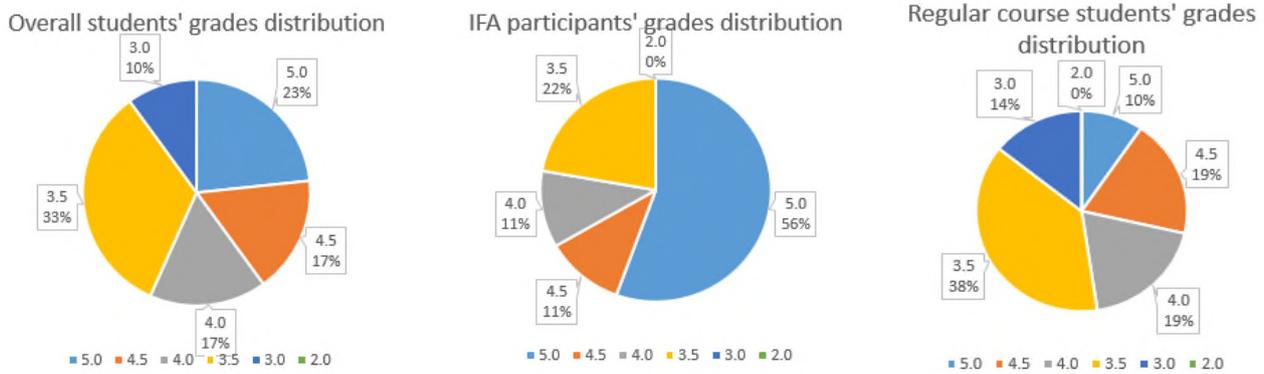


Figure 1: Distribution of grades in groups of students by different assignments.

It was found that the more difficult assignment was either a challenge undertaken by the most qualified students or the vision of the more prestigious international competition motivated students to work harder. One of the projects submitted for the competition was advanced to the finals and achieved an Honourable Mention (see Figure 2). The design was complex, coherent and efficient, taking into consideration climatic, as well as functional and aesthetic requirements. It reached beyond the design assignment topic, e.g. in terms of sustainability, which is one of the most obvious concerns in contemporary architecture and urbanism [1].

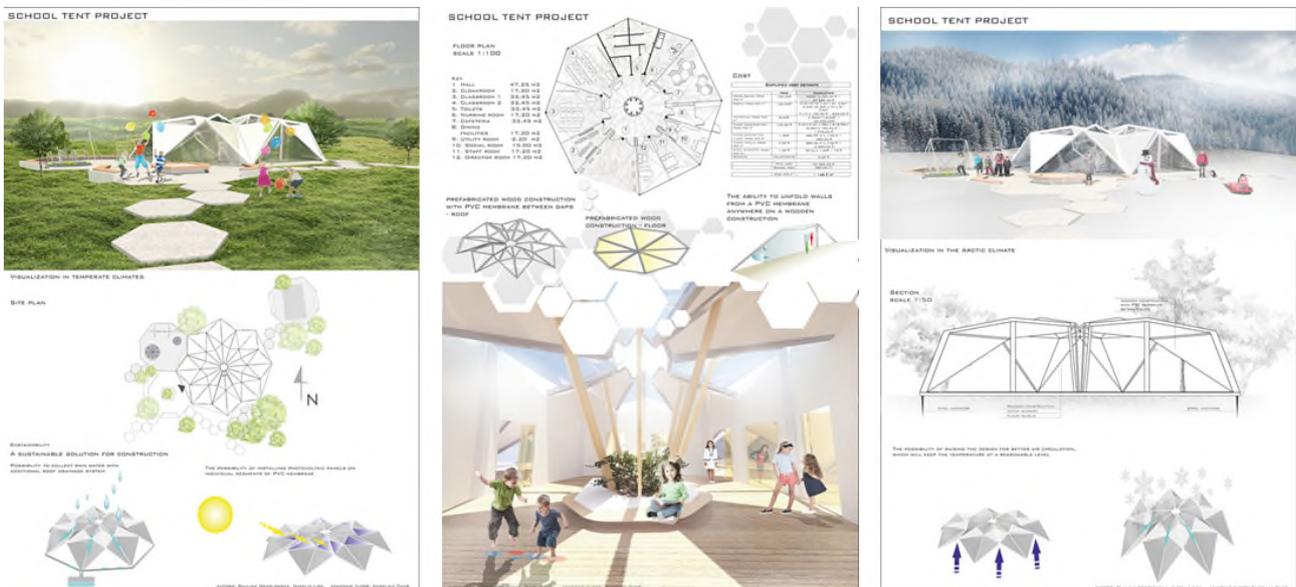


Figure 2: The International FINSA Award student competition 2017 finalist - Honourable Mention. Paulina Mezglewska and Natalia Lipa, *School Tent Project*, *Architectural Interior Design*. Group lead Angelika Chyb MSc Arch; Design studio lead Patrycja Haupt, PhD Arch. Team included: Angelika Chyb MSc Arch.; Sylwia Mochocka MSc Arch.; and Małgorzata Wijas MSc Arch.

Similar results were achieved in the second-year design studio at Coventry University London in 2015/2016 by Bibbings, Bieluga and Milles. They used the TRADA student competitions as a basis for the subject of the course. It was found that:

...the competition brought out the competitive side of the class, pushing them to achieve their goals and to collaborate through others. It was of a much higher standard than that of previous years' students and their work has been on display within the building to entice people to see their designs and layouts [2].

Guilherme identifies other benefits arising from architectural competitions:

Competitions, in particular international competitions, test architect's capacities beyond controlled systems of social relations, comfort zones, age, gender or even expertise, in a fast sublimation process, as well as induce a recognition and publicity that surpasses the investments in time, energy and financial resources, forcing a (re)interpretation of the role of the architect [3].

Academics argue about architectural education and design studio teaching practices. Masdéu and Fuses stress the need to reconceptualise the design studio and to incorporate pedagogical approaches such as distance learning in order for the learning paradigm to be updated continuously [4]. On the other hand, the notion of autonomy in

learning architecture is discussed, examining the effect of using a mixed methods approach to integrate theoretical and practical assignments relevant to students' performance and understanding of complex architectural concepts and phenomena [5].

The practice of the authors in the field of teaching a design studio based on the architectural competition assignment shows that entering a prestigious event is a great motivation for students to undertake more difficult tasks, as well as to bring them to a successful end. Through this research based upon the academic year 2016/2017, it was shown that this type of education promotes the best students with no harm to the other, less ambitious ones. As Al Khalifa states *...learner autonomy is not a new approach to education; successful students have always been autonomous* [6].

SUMMARY AND CONCLUSIONS

Multiple sources point to the significance of encouraging students to aim for the highest educational levels. One of the means of implementing this idea is the provision of design tasks that develop special skills, such as teamworking, and by requiring competitiveness.

The construction of the assignment, based on the terms of competition, may also provide the opportunity of development within the course curriculum, and then continuation and completion to meet the submission requirements.

The most talented students are eager to invest their time in gaining knowledge, and architectural competitions' themes deliver the specific, professional, up-to-date topics to study. Therefore, teachers should encourage students to search for new possibilities for gaining knowledge, and they should be motivating students by all possible means, also as a part of their academic training.

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