Developing architectural students' social competence through the innovative workshop *Great building with blocks*

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ABSTRACT: Accepting the role of a tutor in extra-curricular activities may improve students' social competence, which in addition to knowledge and other skills, is essential in preparing graduates for practice in the 21st century. Against a broader background of key competencies in lifelong learning, models of architectural education and modern elements of education - an example of such activity is presented, which is the *Great building with blocks* workshop combined with a competition. In the workshop, students from the Faculty of Architecture at Silesian University of Technology (FA-SUT), Poland, acted in the role of tutors for pupils in grades 5-7 of primary school. The purpose of this study was to find out in what way students' participation in this workshop could improve their social competence, thus supporting the educational process. In the study, qualitative methodology was used, including direct observation, analysis of documents and creative outputs from the workshop, as well as interviews. The findings indicate that the workshop is an effective, innovative way to build up the required competence and is a source of inspiration for all participants.

INTRODUCTION

The study programme at the Faculty of Architecture at Silesian University of Technology (FA-SUT) in Poland offers a wide variety of classes. In addition to lectures and exercises, students can participate in workshops, design practice and historical-preservation research, plain-air painting and drawing workshops, and have the opportunity to work in student study groups and student organisations. In the educational process, emphasis is placed on the practical exercise of design skills and the development of creative talent.

Graduates are prepared to work in architectural studios, interior design studios, promotion and visual advertising studios, construction and property development and management companies, spatial planning and urban development offices, as well as architectural and construction administration bodies. This architectural education provides a wide range of employment opportunities both at home and abroad, as the university diploma is recognised throughout Europe and graduates are not only good designers using their talent and knowledge in their professional work but also broad-minded people aware of the social mission of the profession of architect and urban and interior designer.

PROFILE OF A GRADUATE OF THE FA-SUT

When designing the catalogue of learning outcomes, it was assumed that competence is the extent of someone's knowledge, skills and experience, and a competent person is a person whose attitude proves that he/she can use the acquired knowledge in an appropriate manner in order to perform a task or solve a problem (hard competencies). Nowadays, social (soft) competencies are more and more important for employers, as they are responsible for the attitude to work, the style of co-operation with others, the willingness to acquire new knowledge or the way of coping with obstacles.

BACKGROUND - ARCHITECTURAL STUDENT COMPETENCIES

The competencies that students should develop and the learning effects that they should achieve during the study are the context of the research. According to the educational effects consistent with the architectural programme of the FA-SUT, a student, in addition to knowledge and practical skills (so-called hard competencies), should also acquire social competencies (so-called soft competencies) [1]. Therefore, based on this document a graduate should be ready to:

- Effect E1A_So4 - lifelong learning, including undertaking second-level and postgraduate studies or participating in other forms of education. This result is in line with the Council Recommendation of 22.05.2018 on key competencies for lifelong learning (2018/C 189/01, published in the Official Journal of the European Union C of 4.06.2018) [2]. Eight key competencies have been identified, which describe the necessary and indispensable

knowledge, skills and attitudes of an adult to function freely in the surrounding and ever-changing reality of the 21st century, such as: 5. personal, social and learning competencies; and 7. competencies in entrepreneurship, creativity and sense of initiative. The explanatory memorandum to the document (point 7) reads:

In the knowledge economy, memorisation of facts and procedures is key, but not enough for progress and success. Skills such as problem-solving, critical thinking, ability to cooperate, creativity, computational thinking, and self-regulation are more essential than ever before in our quickly changing society. They are the tools to make what has been learned work in real time in order to generate new ideas, new theories, new products, and new knowledge.

- Effects np: E1A_So3 - taking responsibility for architectural and urban values in protecting the environment and cultural heritage; E1A_B.S1 - form opinions on achievements of architecture and urban planning, their conditions and other aspects of architectural activity, as well as communicate information and opinions; or E1A_E.S3 - the use of information technology to integrate with other participants in processes and projects, including the presentation of projects and the communication of opinions in a universally understandable manner - are in line with the so-called *third mission* of the university [3], which is to conduct innovative scientific research and development work, educate highly qualified personnel for the benefit of society and the knowledge-based economy, and actively influence the development of the region and local communities. It is implemented through, for example, participation in *Science Fairs*, or organising, for example, *Open Days at the Faculty of Architecture, Researchers' Night*, or various workshops. These workshops, however, not only serve the purpose of bringing engineering knowledge to the lower level of education, but serve the purpose of developing competencies beyond the learning outcomes contained in the Faculty Quality Assurance System [4].

- Effects: E1A_So1 - adhere to professional ethics and take responsibility for actions taken; E1A_So2 - to respect the diversity of views and cultures and to show sensitivity to the social aspects of the profession; E1A_A.S1 - independent thinking to solve simple design problems; E1A_B.S2 - reliable self-assessment, formulate constructive criticism regarding architectural and urban planning activities; E1A_D.S1 - adapt to new and changing circumstances that occur in the course of performing creative work; E1A_D.S2 - properly prioritise actions to accomplish a specific task; E1A_D.S4 - practice of the architectural profession being a profession of public trust, including proper identification and resolution of problems related to the design activity; E1A_E.S1 - effectively use imagination, intuition, creative thinking and independent thinking, and creative work to solve design problems; or E1A_E.S2 - accept criticism of the solutions they present and respond to it in a clear and factual manner - instead, it can be realised through participation in workshops/competitions, which are the subject of this study.

METHODOLOGY

The purpose of the research described in this article was to find out how to support the educational process and develop the competencies of FA-SUT students through participation in the workshop *Great building with blocks*. The practical purpose of the research was also to formulate conclusions and inspirations key to technical education with emphasis on the process of education of architecture students.

The subject of the research is the process of education and development of competencies of FA-SUT students participating in additional innovative forms of educational activities, like the workshop *Great building with blocks*.

In the process of implementing the research procedure, the main research problem was formulated, which took the form of a question: How does the participation of FA-SUT students in the workshop *Great building with blocks* support the process of education and development of students' competencies?

The research was conducted with reference to the methodology of qualitative research, the method of direct observation, analysis of documents and creative works generated during the workshop, as well as individual, overt, partially categorised interviews were used.

PARADIGM

Researchers conducting research in the stream of qualitative assumptions seek to understand the subject of interest, the cognition of which is impossible with quantitative tools since the reality studied in the project is not among the directly observable and measurable creations. Qualitative research conducted in the social sciences requires researchers to adopt a specific philosophical position, which determines the assumptions and research procedures. When designing a model of cognition of the reality of interest, it is necessary to define a paradigm.

Creswell defines this concept as the researcher's adopted way of conducting research and looking at the reality being learned [5]. The interpretive paradigm focuses on the individual and action. For interpretive researchers, the starting point is the individual, and the goal of the research is to understand his/her interpretation of the surrounding world [6]. According to Burell and Morgan, the interpretive paradigm *stems from a concern to understand the world as it is, to*

understand the fundamental nature of the social world at the level of subjective experience [7]. The research presented in this article relied on the interpretive paradigm.

DATA COLLECTION - WORKSHOP

Data collection was carried out during the workshop *Great building with blocks*, held on the 8th of November 2024 in Zabrze, Poland. *Great building with blocks* is a competition for children to construct buildings with wooden blocks combined with a workshop of a young architect. The organiser for the 4th time was the Board of Residential Buildings - Social Building Society in Zabrze, Poland, in co-operation with the FA-SUT. The purpose of the workshop was to familiarise children with the basic principles of construction, develop spatial imagination, manual skills, planning and demonstrate the basic laws of physics, and for both the children and students it was an opportunity to improve knowledge-based and soft skills.

Children from 5th - 7th grades of elementary schools were invited to participate in the competition, which was preceded by preliminary rounds at schools, and subsequently teams of two to three people were selected from among them. The workshop was attended by 18 teams from elementary schools along with 19 tutors - FA-SUT students.

THE COMPETITION TASK AND ITS RESULTS

The competition was divided into two separate stages:

1. Workshop (9.00-10.45) in which tutors-students of the Department of Architecture acquainted the children with the basics of building and construction and the possibilities of using the materials they received - one thousand MAPLE wooden blocks per team. During the workshop, the teams made two works: *Chinese Wall* and *Three towers connected to each other on two levels*;

2. Competition (11.00-12.00), in which the task was to create any building. At the end, the teams' works were evaluated by a jury, which awarded prizes.

Figure 1: Example of workshop work no. 1: *Chinese Wall*.

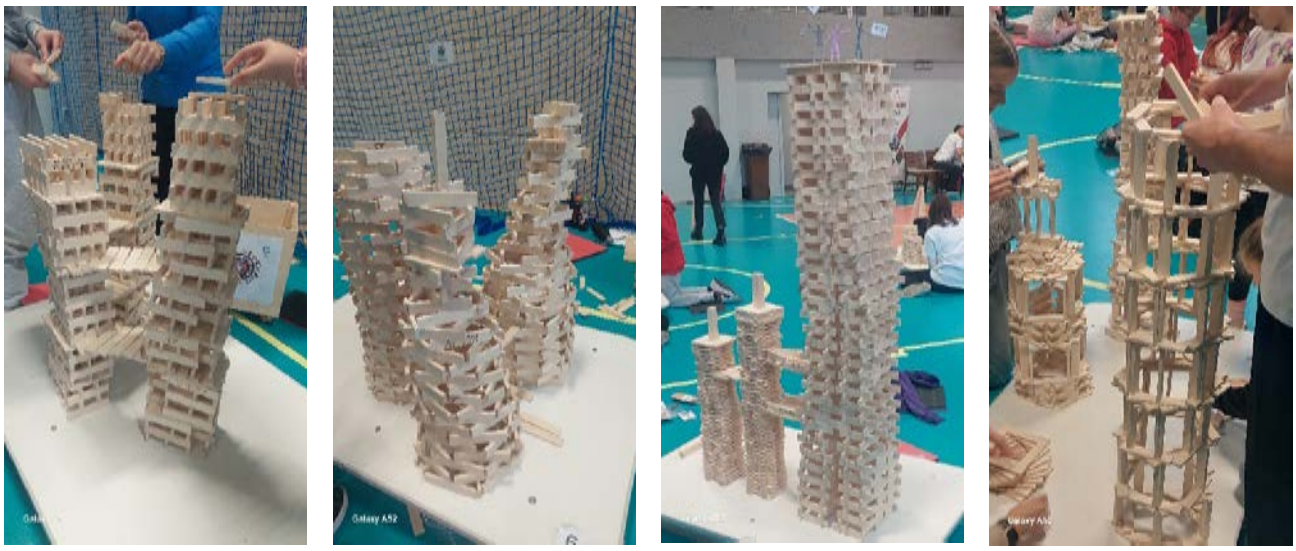

Figure 2: Example of workshop work no. 2: *Three towers connected to each other on two levels*.

The competition task was to make any building from blocks, make drawings for it and provide a brief description of the work. Different themes emerged in each team:

1. *City of the future with a stadium*; 2. *Space base on Mars*; 3. *The seat of the future*; 4. *Museum of imagination*; 5. *Stars of individuality*; 6. *ECO-Rocket - together with* 30 *to a space green school on Mars*; 7. *Space science and fun centre*;

8. *Railway platform*; 9. *Abandoned medieval castle*; 10. *Palace of nature and ecology*; 11. *Fortress*; 12. *Vertical city*; 13. *Magic star shopping centre*; 14. *Water tower in Zabrze*; 15. *MAPLE castle*; 16. *MOSIR coliseum*; 17. *Modern green school without barriers*; and 18. *Futuristic museum in Warsaw*.

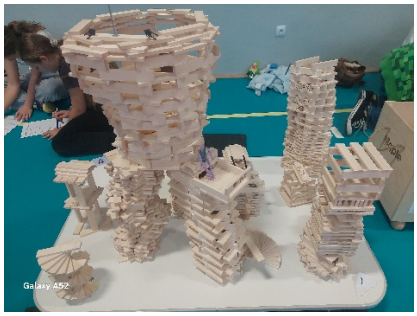
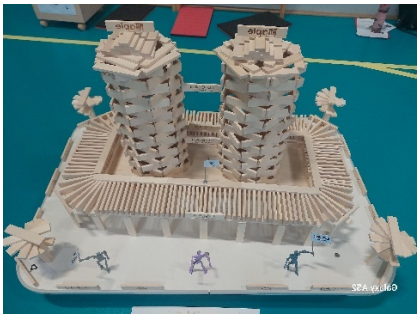
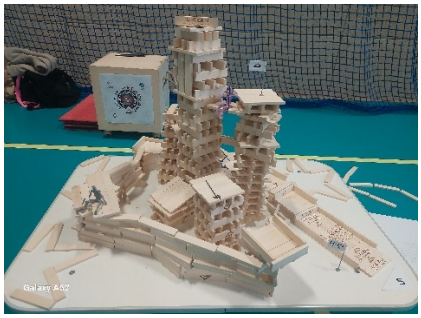

Figure 3: Prize-winning competition entries (l-r): 1st place was won by Elementary School no. 32 (team no. 1) - *City of the future with a stadium*; 2nd place was won by Elementary School no. 26 (team no. 4) - *Museum of imagination*; 3rd place was won by Elementary School no. 27 (team no. 5) - *Stars of individuality*.

DATA ANALYSIS

Based on the research material collected through the aforementioned research tools, it was possible to formulate key conclusions from the realised research. The implementation of the workshop *Great building with blocks* enabled architecture students to strengthen in a practical way, through the implementation of project work, such competencies as: the ability to reach a compromise by resolving disputes and crisis situations in the process of group communication; the ability to work as a team at the stages of formulating goals and their effective implementation; the ability to think critically and analytically; creativity and creative attitudes. Students reinforced attitudes related to acceptance, tolerance and empathy. They also pointed out the necessity of taking logistical measures during the organisation of the workshop, which made it possible to strengthen the competence of strategic thinking, planning and effective implementation of the set goals related to the undertaking, as well as managing emotions in a situation of time pressure resulting from the implementation of the task.

Students also honed competencies in spatial imagination, planning skills, composition, aesthetic sense, time management, selection of appropriate strategies for project implementation. Architecture adepts had a chance to develop their interests in a practical way through teamwork experiences, which will certainly pay off in the future during the execution of assignments and projects.

In summary, the key competencies that students were able to develop and improve through participation in the *Great building with blocks* workshop were social and so-called soft competencies, with particular emphasis on the following skills: communication, solving problems of a practical nature, team co-operation, observation of participants in ongoing projects, drawing conclusions, implementing conclusions in project work. In addition, students had an excellent opportunity to strengthen competencies, which are classified as community and individual competencies that refer to strengthening the individual characteristics and predispositions, and which differentiate and indicate the uniqueness of the construct of each individual, as well as team competencies, oriented towards co-operation, collaboration, empathy and mutual understanding.

MODELS OF ARCHITECTURAL EDUCATION

Architectural education of students is a multifaceted process [8], involving not only the learning of technical design skills, but also the development of creativity, critical thinking skills, understanding of the socio-cultural and ecological context, as well as the ability to communicate and collaborate in interdisciplinary teams. Depending on the university and its educational philosophy, training models may vary, but in general, several basic approaches to architectural education can be identified:

- The first is the classical model characterised by a focus on technical skills, such as drawing, modelling, building materials, and on the history and theory of architecture. The main classes are lectures, workshops, atelier work and freehand drawing. The aim is to prepare students for independent design, develop an understanding of aesthetic and functional principles and the technical foundations of construction.
- The design model (design studies) places the greatest emphasis on active design, students learn by directly solving problems encountered in the design process, hence the predominance of design classes. The programme involves working on projects from concept to technical details, combined with lectures and consultations in effect developing the ability to think design independently and solve practical problems.
- An interdisciplinary model integrates different fields of knowledge, such as urban planning, engineering, ecology, sociology or the psychology of space. Training takes place in interdisciplinary teams that work on sustainable projects and urban planning. This approach enables students to take a holistic approach to a project and to work in

interdisciplinary teams, making them better able to understand the complexity of spatial processes and to co-operate with other professionals.

- The experimental model is characterised by openness - it focuses on creativity, innovation and experimentation. Students engage in non-standard projects using modern technologies [9], such as CAD, BIM and 3D printing, but they also work manually in laboratories and art workshops. As a result, students develop creative skills and are more open to exploring new solutions.
- The practical model is characterised by training programmes based on internships, collaborative projects - in partnership with design offices, construction and industrial companies and administrative units, such as municipalities. The training combines theory and practice, and students participate in real-life projects under the guidance of professionals, and are thus better prepared to work in their profession under real market conditions.
- A model of sustainability and ecology focuses on popularising issues related to green and energy-efficient spaces. The programme includes passive design, the use of renewable energy sources [10] and life cycle analysis of buildings. Students become prepared to work in sustainable construction and adapt spaces to climate change.
- The model combining theory and design practice tries to find a balance between theory, design practice and social and economic conditions. The programme combines case studies, discussions about projects in different contexts and design in real urban settings. Through this approach, future architects learn a multifaceted view of design, capturing both technical and social and aesthetic aspects.

Each of the models cited has its own unique characteristics. Many universities use an approach that combines several of them to create a balanced and comprehensive curriculum to make architectural education as effective as possible. The choice of teaching model often depends on the philosophy of the university, the tradition in which it has developed, as well as its goals in preparing students for a professional career in architecture.

DISCUSSION

The model of education at the FA-SUT can be described as mixed, as it combines both theory and design practice, emphasises sustainable development and ecology, co-operates with the socio-economic environment, provides interdisciplinary education, but is also open to educational experimentation and modern teaching methods (e.g. PBL). Research and teaching staff have the opportunity to improve their teaching competencies (methodical, digital and linguistic), e.g. by participating in a series of training courses entitled Innovative Didactics for Academic Teachers, workshops, courses and other forms of improvement offered by the University's units.

ELEMENTS OF MODERN EDUCATION OF ARCHITECTS

The elements of modern education used at the FA-SUT are, in particular:

- Design thinking (DF) which is a creative problem-solving process focusing on empathetic understanding of users' needs and motivations, creating innovative solutions through iterative design, promoting creativity and collaboration in design teams taking place in five steps/phases: empathy, defining, idea generation, prototyping and testing [11].
- Place-based education (PBE) which immerses students in local heritage, cultures, landscapes, opportunities and experiences, using them as a basis for learning and emphasises learning through participation in service projects for the local community [12].
- Project-based learning (PBL) where students design, develop and construct practical solutions to a problem, with the educational value of developing the creative capacity to solve difficult or ill-structured problems, and it usually takes place in small teams [13].

The above methods were also used when conducting the workshops that are the subject of this article.

CONCLUSIONS

The article highlights the importance of developing a creative attitude and creativity in young people, not only in the context of architecture, but also in solving everyday problems. This provides a basis for the formation of new ideas and innovative solutions, which are crucial in space design.

Co-operation between the young architecture audience and architecture students is indicated as an important part of the educational process. Students act as mentors who not only impart technical knowledge, but also inspire younger generations to think creatively. Working with younger people allows students to:

- better understand how architecture affects society and how it can be used to improve the quality of life;
- gain a greater sensitivity to space and the environment, and support the development of social competencies that are crucial in today's world;
- learn to clearly communicate their knowledge and experience with empathy and understanding, which in the future will ensure that private ambitions or professional responsibilities do not overshadow the equally important sensitivity to the needs of the client;

- become sensitive to the needs and ideas of other team members and, in the future, to the individual needs of the potential user/client.

The research outlined in this article was conducted with the use of the method of direct observation, analysis of documents and creative outputs from the workshops, as well as individual, open, partially categorised interviews. The collected data allowed for the formulation of the conclusions presented here, as well as practical inspirations possible to implement in the process of educating students in the area of technical education.

The qualitative analysis of the research material leads to the conclusion that the participation of architecture students in the *Great building with blocks* workshop supports in a practical way the process of education and development of students' competencies. It is especially so in areas related to social and soft competencies, which allows for the synergy of activities resulting from the implementation of the educational process planned and organised within the walls of a university, with design and practical activities in a non-academic environment. In the process of educating students, the innovative *Great building with blocks* workshop provides a platform for the development of competencies included in the curriculum and creates a range of opportunities to strengthen, develop and improve competencies specified in the study programme and subject syllabuses, which students do not acquire naturally during lectures or exercises.

INSPIRATIONS FOR TECHNICAL EDUCATION

Inspirations for technical education and the student learning process based on the analysis of the presented research results:

- The implementation of the innovative, practical workshop *Great building with blocks* enables students to enrich their competencies and skills through participation in design tasks that cannot be replicated in the conditions of university laboratories, so it is worth implementing similar innovations in existing architect training programmes;
- The participation of students in practical workshops is an excellent reflection of the implementation of the third mission of universities through the emphasis on life-long learning-oriented attitudes;
- The implementation of education through the participation of students in innovative projects, such as *Great building with blocks* develops skills such as: adaptation to changing conditions and changing thinking strategies; the ability to divide project tasks towards effective implementation of objectives, monitoring and evaluation of work results; ability to argue one's opinions with assertiveness and respect in discussion, understanding and objective evaluation of other team members' views; openness to new and creative solutions; flexibility of thinking; ability to share knowledge and use the knowledge of other team members;
- Finally, the implementation of innovative workshops, such as *Great building with blocks* complements the educational programme of architecture students, creating a platform for the diagnosis and strengthening of key competencies in the learning process. It also places an emphasis on the competencies that will be needed in the competitive labour market of the future [14].

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