

## Guest Editorial

The world we used to know has completely changed over the recent months. We have stopped travelling, participating in traditional face-to-face conferences, teaching in laboratories or lecturing in large auditoria to 200 or 300 students. The world has shrunk and remote communication techniques are no substitute for direct interpersonal communication. In some countries, it appears that inertia and uncertainty had stopped research activities in the days preceding the introduction of pandemic restrictions. Although distance learning has long been very successful, its global scale has caught teachers unawares. In-depth, multi-faceted research on the effectiveness of remote education has not yet been carried out, and no articles have been written to support teachers struggling to convey, for example, a particular technique or specific knowledge concerning drawing, painting or colour theory.

There are many disciplines in which nuances determine the quality of both the teacher's message and the completed task, and in those cases, electronic transmission cannot replace the direct master-student relationship, where subtle corrections or refinement are needed. Nevertheless, the exchange of research results and experiences in university education for future teachers, especially with respect to methodology, is a key element in the system supporting education and its effectiveness. Therefore, the article by S. Avsec and J. Jerman from the University of Ljubljana on innovative pedagogical methods aimed at broadening the knowledge and skills of teachers in the 21st Century attracts the reader's attention. The authors emphasise the role of creativity as a factor that significantly impacts the proactive behaviour of students.

Similar issues are highlighted by co-authors V. Šuligoj and J. Jerman, who report on preliminary training courses as key factors in developing an appropriate level of knowledge in teaching and learning and, consequently, skills and attitudes in tertiary education institutions around the world.

Discussions on the formal aspects of conducting on-line classes are now particularly relevant and undertaken by many academic teachers. Innovation, ingenuity and engagement in exploring the hitherto unknown areas of didactics constitute the basis for the effective transfer of knowledge in areas that have so far required direct relations between the teacher and student, as in the case of architectural education. This issue is discussed by M. Brzezicki, whose experience is certainly connected with the research of P. Chatwattana, K. Kuntama and R. Phadunghin in promoting virtual interactive 3D classes in the digital age, and thus the need to combine new technological concepts and new teaching methods.

In each area of architectural education, its specific features come into play, as argued by Ľ. Ilkovičová, J. Ilkovič and O. Ivánková, in relation to post-industrial buildings, whose preservation is determined by the creativity and methodology of their conservators. In the next two articles, S. Kowalski, P. Samól and R. Hirsch, as well as G. Schnotale, also focus their attention on new methods of distance learning using university tools. The rigorous, pandemic-imposed requirements in education processes encourage young researchers to take up new challenges, and search for effective ways of transferring knowledge and obtaining optimal results.

One of the most important aspects of engineering education is to summarise the skills acquired by students in the subsequent stages of education. The diploma attainment and evaluation of diploma work, as determinants of professional skills and prospects of future engineers, are discussed in two articles, one by M-S. Kim, and another one by S.R. Chowdhury, T. Ayadat and A. Asiz.

In their article, on the quality of education in undergraduate engineering programmes, D. Pusca and O. Northwood indicate how a positive change can be achieved in this regard. By examining the processes conducive to reaching such a goal, they identify and indicate the essential elements.

The article by E. Węclawowicz-Gyurkovich concerns changes in the teaching of contemporary architecture. The author shows that properly modified programmes in architecture have a significant impact on the awareness of future engineers-architects. As a result of those modification, student projects become more mature and better, due to the alignment with contemporary aesthetic and technological trends.

Two authors, D.M. Makhubele and S. Simelane-Mnisi, present the results of their research on the intensification of students' involvement in practical activities in the implementation of study projects requiring individual and group work. The methods developed and applied by teachers encourage students to cooperate and demonstrate their problem-solving skills.

A. Zachariasz's extensive article concerns the history of establishing and developing the Department of Landscape Architecture in the Faculty of Architecture at Cracow University of Technology (FA-CUT). This is a very interesting material, especially for those who witnessed the actions and struggles of many people aimed to create a branch so necessary for modern processes of protecting the natural heritage and landscape. M. Pieczara raises a similar topic, demonstrating the need to develop a sense of responsibility for the landscape understood as the common good already at the initial design stage. Also, in the next article, K. Porada and A. Zachariasz present and analyse the methods of embedding environmental protection in the curriculum of the Department of Landscape Architecture at the FA-CUT, emphasising the need for a holistic approach to landscape design.

The above articles are closely related to the problem of global warming undertaken by L. Oberfrancová and R. Špaček. They believe that humans already have enough knowledge and advanced technology to reverse the ongoing climate change. At the same time, they state that renewable resources are currently the fastest growing source of energy in the world. Therefore, in urban planning and architectural education, the best examples of energy-saving projects should be showcased, because science and technology can still make one optimistic about the future.

J. Gil-Mastalerczyk writes in a similar vein. In her opinion, in ecology and sustainable urban development, it is important to have an impact not only on a global scale, but above all on a local scale, because the local activities closely affect the everyday users of architecture. Therefore, in educational programmes at technical universities, especially in architecture and urban planning, it is crucial to focus on issues increasing social awareness in this field.

The authors of the next article, M. Kwasek and A. Piwek, justify students' travelling, noting that only direct perception, sensations and emotions resulting from experiencing architecture allow holistic understanding. This eternal truth, never questioned, sounds a bit ironic now, because it seems that the post-pandemic times, for many reasons, will not be conducive to organising research trips for students.

The final article in this issue, by C.K.N. Che Ku Mohd, F. Shahbodin, M.S. Md Saad, A. Mohamad Nor, S.N.M. Mohamad and Z. Saaya, is an overview of educational technologies in a personalised learning environment, which appears particularly pertinent in the pandemic-accentuated on-line education.

In conclusion, it is worth drawing the readers' attention to the archival issues of the World Transactions on Engineering and Technology Education (WTE&TE) also available on-line. They constitute a valuable source of knowledge on engineering education research and experiences. They also include important information provided during numerous conferences that took place across the world, and for this sentimental reason, it is worth returning to them and referring to them in one's subsequent works.

**Maria Jolanta Żychowska**