EDUCATIONAL
ARCHITECTURE
Challenges of Change

Conference Abstracts

International Conference

Educational Architecture. Challenges of Change

Tarptautinė konferencija

Švietimo architektūra. Pokyčių iššūkiai

22–23 November 2018
Council Hall of Vilnius Municipality,
3, Konstitucijos Ave., Vilnius

VGTU leidykla TECHNIKA
Vilnius

Editor of the text Jurga Grunskienė

ISBN 978-609-476-145-4
e-ISBN 978-609-476-144-7
doi:10.20334/2018-054-K

Image on the cover: Sketch of the schoolchildren's house in Palanga by architects Irena Likšienė and Gintautas Likša, 1986

EDUCATIONAL ARCHITECTURE
Challenges of Change

The purpose of this conference is to bring together international scholars working in the field of educational architecture in the broadest sense of the words. Especially expected is the discussion of researchers whose interest areas include architecture, educational sciences, history, sociology and other fields. This event aims at interdisciplinary discussions that can highlight and broaden the problem of learning environment, while the educational attitudes, methods and systems change. The considerations may include different kinds of learning environment, from preschools to universities, from outdoor learning spaces, playgrounds to theme parks, libraries, museums or community centres. The main focus will be on the architecture of schools.
With a clear perception of what has already happened, we are increasingly focusing on the possible, inevitable and necessary changes of learning spaces, in order to meet the needs of contemporary learning society.

EDUCATIONAL
ARCHITECTURE
Challenges of Change

PROGRAM OF THE CONFERENCE

THURSDAY, NOVEMBER 22 / KETVIRTADIENIS, LAPKRIČIO 22 DIENA

8.30	Registration / registracija	
9.00	Opening with greetings / konferencijos atidarymas ir sveikinimai	
Theme of the day: **Experiences for Future** Dienos tema: **Patirtys ateičiai**		
Chairing/pirmininkauja: Dalia Bardauskienė, Liutauras Nekrošius		
9.10	**Dolf Broekhuizen,** Delft University of Technology, Dolf Broekhuizen Architecture historian, Netherlands	Experimental Vocational Schools in the Netherlands Eksperimentinės profesinio lavinimo mokyklos Nyderlanduose
9.40	**Kerstin Renz,** University of Kassel, Germany	Cold War Politics in School. German School Architecture in the 1950-ies Šaltojo karo politika mokykloje – Vokietijos mokyklų architektūra 1950-aisiais
10.10	**Ana Kreč,** **Jo Van Den Berghe,** KU Leuven, Belgium	THE LOADED NOOK: Social Change through Re-thinking in-between Spaces of Slovenia Educational Buildings „PAKRAUTAS UŽKAMPIS“: Socialiniai pokyčiai permąstant Slovėnijos švietimo įstaigų tarpines erdves
10.40	**Sun Young Rieh**, University of Seoul, Korea	Issues of Compact Urban School: Focused on Elementary School without Playground Kompaktiškos miesto mokyklos problemos: pradinė mokykla be žaidimų aikštelės
11.10	**Coffee**	
Chairing/pirmininkauja: Barbara Pampe, Albertas Lakštauskas		
11.30	**Dorte Kristensen,** Atelier PRO architects, Netherlands	New Spaces in Educational Landscape Naujos erdvės edukaciniame kraštovaizdyje

12.00	**Auksė Petruškevičiūtė,** Vytautas Magnus University, Lithuania	Reconstruction of Non-formal Education System of Children: from Project to Reality Neformaliojo vaikų švietimo sistemos rekonstrukcija: nuo projekto iki realybės
12.30	**Nikolaus von Kaisenberg,** Alanus University of Arts and Social Sciences, Germany	Unfolding as the Source of Education; Process Architecture as the Starting Point of Object Design Plėtra ir sklaida kaip švietimo šaltinis: proceso architektūra skirta objekto kūrimo pradžiai
13.00	**Lunch / pietūs**	

Chairing/pirmininkauja: Dolf Broekhuizen, Sun Young Rieh

14.00	**Petras Grecevičius, Vaida Vaitkutė Eidimtienė, Rasa Sloveckaitė,** Klaipeda University, Lithuania	Aspects of Formation of Sustainable Environment for a Modern Educational Institution Tvarios aplinkos formavimo aspektai šiuolaikinėje švietimo institucijoje
14.30	**Paula Lacomba Montes,** University of Valencia, Spain	The Architectural Experience of Hertfordshire (1940-49), Great Britain Architektūros patirtis Hertfordshire 1940-1949 metais Didžiojoje Britanijoje
15.00	**Vladimir Frolov,** Architectural magazine *Project Baltia,* Russia	Space.edu. The Educational Extension of Built Environment Space.edu. Dirbtinės aplinkos edukacinė plėtra
15.30	**Gintaras Čaikauskas,** Vilnius Gediminas Technical University, Lithuania	Design Practice of Contemporary Educational and Training Buildings Šiuolaikinių mokslo ir mokymo pastatų projektavimo praktika
16.00	Opening of the exhibition **"Lithuania goes to school"** Parodos "**Lietuva eina į mokyklą"** atidarymas	
16.30-17.30	**Round table** in the *College Hall,* discussion of the theme of the day; **Apskrito stalo diskusija** *Kolegijos salėje,* moderator/moderuoja **Marco Di Nallo**	

FRIDAY, NOVEMBER 23 / PENKTADIENIS, LAPKRIČIO 23 DIENA

11.00–11.20	**Coffee**	
Theme of the day: **Participation and inclusive design** Dienos tema: **Dalyvavimas ir įtraukusis projektavimas**		
Chairing/pirmininkauja: Rolandas Palekas, Indrė Ruseckaitė		
11.20	**Barbara Pampe,** *Montag Stiftung Jugend und Gesellschaft*, Germany	Participation in School Design. A Preplanning Phase as a Tool to Improve School Design Dalyvavimas mokyklos projektavime. Išankstinio planavimo etapas kaip mokyklos projekto tobulinimo priemonė
11.50	**Jovita Starkutė,** Siauliai University, Lithuania	System of Collaboration Between Parents and Pedagogues: Context of the Relations Between the Consumers and Suppliers of Educational Services Tėvų ir pedagogų bendradarbiavimo sistema. Švietimo paslaugų teikėjų ir vartotojų santykių kontekstas
12.20	**Siarhei Liubimau**, European Humanities University, Lithuania	'Knowledge Infrastructure' as a Guiding Notion in Applied Urbanist Research "Žinių infrastruktūra" kaip pagrindinė taikomųjų urbanistikos tyrimų sąvoka
12.50	**Zoltan Schrammel,** Budapest University of Technology and Economics, Hungary	Edu_Tec_Tour
13.20	**Lunch / pietūs**	
Chairing/pirmininkauja: Siarhei Liubimau, Edita Riaubienė		
14.20	**Massimo Santanicchia,** University of Iceland, Iceland **Harriet Harriss**, Royal College of Art, United Kingdom	Citizenship Pedagogy: Building Collaboration and Activism into Architectural Curricula Pilietiškumo pedagogika: bendradarbiavimas ir aktyvizmas architektūros programose

14.50	**Cristian Stefanescu**, Bergen School of Architecture, Norway	The story of the Bergen School of Architecture. The Ongoing Transformation of a Grain Silo into a Living Learning Laboratory Bergeno architektūros mokyklos istorija. Besitęsianti grūdų elevatorių transformacija į gyvenimo mokymosi laboratoriją
15.20	**Rolandas Palekas,** Vilnius Gediminas Technical University, Lithuania	School as a Community. A Few Architectural Tools to Promote this Direction Mokykla kaip bendruomenė. Kelios šią kryptį skatinančios architektūrinės priemonės
15.50	**Round table** in the *Room of Ideas***,** discussion of the theme of the day; **Apskrito stalo diskusija** Idėjų kambaryje, moderator/ moderuoja **Marco Di Nallo**	
16.50	**Closing of the conference / Konferencijos uždarymas**	

EDUCATIONAL
ARCHITECTURE
Challenges of Change

ABSTRACTS

Dolf Broekhuizen, Architecture Historian, PhD, Faculty of Architecture, Delft University of Technology, Netherlands

Experimental Vocational Schools in the Netherlands

In many European countries schools for vocational education and training are struggling hard to strengthen their position in relation to other schools. The digitalisation and robotisation of labour is not an attractive point to start a study on vocational schools. Also the image and identity of such schools are not as strong as they were in the past. This is also the case with the large regional vocational schools in the Netherlands. These new buildings are the result of fusion and grouping of the institutions in this country taking place since 1995. This has led to reorganisation of school buildings on the national scale. Their large scale makes it possible to function with more flexibility. And the buildings are often located on sites near train stations. But most of these buildings look like offices rather than schools. Some have become real-estate projects.
At the conference, the author of the paper will present his vision on buildings for vocational education by showing five experimental scenarios in historical and international context. The central focus of this design research is on the new buildings for vocational education in the Netherlands, which the author carried out with other designers.

The presentation will show both the research approach – based on current interviews, international cases, historical references, and the design research completed with five models for vocational education buildings. The presentation will explain how it is possible for Dutch vocational schools to be connected more with the neighbourhood, the city and society at large, with cultures of making and with knowledge centres. This cross-historical and cross-cultural research has been carried out by Dolf Broekhuizen in cooperation with architects Susanne Pietsch, Eireen Schreurs and Sereh Mandias.
These five scenarios are informative for other countries and can inspire teachers or staff of vocational schools to take into consideration their school buildings and the way these buildings function in connection with the society and labour.

Keywords: vocational school buildings, architecture, design research, architecture history

Kerstin Renz, Architect, Historian, PhD habil., Professor, Department of Architectural Theory and Design, University of Kassel, Germany

Cold War Politics in School: German School Architecture in the 1950-ies

After 1945, hardly any other building task in Western Germany was as much in the focus of attention as school. After the WWII break of civilization, the expectation of a new beginning was closely connected with school and its architecture. Attention to a school building was paid by educators, local politicians and, not least, by architects. At that time, a central theme of modernism of the 1920-ies, the "New School for the New Society", seemed to repeat itself, but still with the opposite sign: before the impulses came from Germany and Switzerland, the Allied Forces had their own and specific ideas for the future "Democratic School" in Post-Nazi-Germany.
The lecture opens an exciting chapter of German Post-War history. The planning and building of schools was an urgent necessity, but also a political issue. The architecture of the New School was based on international discourse and knowledge transfer, especially organized systematically by the USA. It doesn´t surprise that during the Cold War the school signalled its affiliation with a political system, and for some time one could differentiate if a school was a part of westernisation or easternisation.

While the Democratic Republic of Germany followed its national tradition, the recipes for the New School in West Germany were quite unusual, but not unknown: lightweight pavilions in the countryside or urban park, flexible teaching options for inside and outside, new community spaces. The new quality of existence had to demonstrate the denial of the Prussian militarist school system.
My current research has shown that the discourse on school architecture both in East and West Germany was a central part of the architectural history by the end of the 20th century and an experimental case for special understanding of modernism as a political structure. In the debate about the ideal school, experience and experiment, architectural practice and willingness for reform, the arguments were often irreconcilable. Based on various school buildings from the 1950-ies and impressive imagery, the lecture for Vilnius conference shows the explosiveness of building projects of the time, and how different the term “school building reform” was interpreted in post-war Germany.

Keywords: post-war reconstruction, school architecture, New School, information transfer, debate on reform, inner German competition

Ana Kreč, Architect, PhD Candidate, KU Leuven, Department of Architecture, Campus Sint-Lucas, Brussels, Belgium; Co-founder of SVET VMES Architectural Studio, Ljubljana, Slovenia
Jo Van Den Berghe, Architect, Associate Professor, PhD, Program Director, PhD Supervisor KU Leuven, Faculty of Architecture, Campus Sint-Lucas, Ghent, Belgium

THE LOADED NOOK: Social Change through Re-thinking in-between Spaces of Slovenian Educational Buildings

The ambiguous 'in-between realm' of Slovenian educational buildings, a mysterious 'conversational zone' of architectonic language (Meisenheimer, 2011), an area of conflicting polarities - the transition between public-private, outside-inside, light-dark, etc. (van Eyck, Ligtelijn, Strauven, 2008), the plasma of architecture, where people can meet, linger and interact, is stripped down to the utmost minimum. Outdated, hierarchy-driven legislation for designing school buildings with its 'ABC formulas' provided by the Slovenian Ministry of Education, Science and Sport, in which school buildings are understood as a sum of primary 'A spaces' for teaching (53%), secondary 'B spaces' for supporting activities (25%) and tertiary, in-between, 'C spaces' for merely connecting purposes (22%) (MIZŠ, 2007), suffocates design experimentation and promotes educational architecture built according to the *existenzminimum* principles interpreting schools as the cost-efficient, durable and sustainable machines.

In my practice-based doctoral research, I investigate the production of SVET VMES architectural practice that re-thinks the often neglected learning, social and spatial potential of left-over spaces ('in-between') in educational buildings by transforming them into places of events, comfort, interaction, negotiation, solitude, seclusion and *delight*[1] - what we call *'the loaded nooks'.*

Through spatial interventions, this re-thinking transforms the left-over spaces into the 'loaded nooks' that create the encouraging environment for unknown programs, spontaneous behaviours and emotions among pupils, yet raise primal questions among pedagogues and officials of the Ministry of Education: *What is normal? What is standard? What is allowed?*[2] in the 21st century school, challenging the deeply rooted hidden curricula that seem to ignore the impact of the physical built environment on its users and development of pupil's spatial literacy. 'The loaded nooks' appear to become a stimulus for the new insights: pupils, pedagogues and headmasters become aware of the shortcomings of the Slovene educational system and can criticize it. Hence architecture can instigate a debate on the improvement of the outdated, merely quantitative 'ABC normative' system for designing school buildings.

---

[1] **Delight** with its contemporary synonyms like pleasure, happiness, joy thrill, captivation, excitement, etc. first occurs as an intriguing translation of Vitruvius' *Venustas*, used by Sir Henry Wotton, in his *Elements of Architecture* from 1624, where he wrote: *"Well building hath three conditions: Commoditie, Firmenes, and Delight".*

[2] **Questions** posed during fieldwork interviews of the ongoing PhD research, namely with pupils and headmaster of Ledina Grammar School in Ljubljana, Slovenia, July 2017, and with the Slovenian Ministry of Education, Science and Sport officials in December 2017 and pedagogues of Ledina Grammar School in August 2018).

This paper gives an insight into a series of built case studies linked to research interviews, in which I, as an architect-researcher, establish connections between different approaches of various stakeholders: our clients (headmasters), users (pupils and pedagogical staff) and policy makers (the Ministry of Education), transgressing the boundaries of the discipline and looking for overlaps between stakeholders.

Keywords: educational architecture, in-between space, 'loaded nook', delight, spatial literacy.

References:

Eyck, A., van Ligtelijn, V. and Strauven, F. (ed.): 2008, *Collected Articles and Other Writings 1947-1998*, SUN Publishers, Amsterdam.

Meisenheimer, W.: 2011, *Of the Hollow Spaces in the Skin of the Architectural Body*, Toward a New Interior: An Anthology of Interior Design Theory, Princeton Architectural Press, New York, pp. 625-631.

MIZŠ.: 2007, "Navodila za graditev osnovnih šol v Republiki Sloveniji". Available at: (http://www.mss.gov.si/fileadmin/mss.gov.si/pageuploads/razpisi/investicije/prijava_investicij_navodila_OS_8_6_07.pdf (Aug 2018).

Wotton, H.: 1624, "Of the Elements of Architecture". Available at: https://archive.org/details/architectureelem00wott (Aug, 2018)

Sun Young Rieh, Architect, Professor, PhD, Department of Architecture, University of Seoul, Korea

Issues of Compact Urban School: Focused on Elementary School without Playground

In elementary school, child development goes beyond simple learning. These days, children tend to spend more of their time in school settings than in the past – a fact highlighting the critical importance of school environment in child's development. The time spent by these six to eight year-old children in these everyday settings can influence a lot their social, emotional, and physical development.
The rapid pace of global urbanization and increasing price of land in contemporary society make it increasingly difficult to secure the sufficient amount of land for schools – the essential public infrastructure in communities. Schools with little outdoor space and minimal playgrounds have become more and more common as having vertically-oriented settings in densely populated urban areas.
Children are known to form attachments to outdoor spaces. The lack of outdoor spaces in school environments and vertical school settings makes it more difficult for school-children to acquire the sense of place, which has, as studies have shown, an important influence on child development, and especially their cognitive development.
This research addresses the issues stemming from the lack of outdoor spaces in compact urban schools focusing on the identification of design-related issues in educational environments to support children's social,

emotional and physical development, in the context of the current trend of school design toward smaller, tighter and vertical spaces.
The way schools control and manipulate the distribution of their limited physical resources inevitably affects the social and emotional dimensions of children's behaviour in school environments. This research uses questionnaires, drawings and interviews with school-children to analyse the various dimensions of children behaviour in restricted school settings. This analysis shows that the compact spatial layouts of urban schools tend to put them at a disadvantage in terms of general environmental quality, as well as pupils' behaviour. The stress such restricted settings generate in children is reflected in their behaviour thus indirectly revealing the consequences of carelessly designed schools.
Compact urban schools also tend to restrict children from fulfilling their desires to run around and access their favourite places thus making their stress levels higher than in regular schools. The absence of playgrounds and green spaces also influences the social development of children, amounts to the loss of retrospective spaces that function as settings to recover from stress, which studies report to be essential for children development. The feeling of deprivation in these school environments could also influence the self-esteem of school children. In these cases, the overall quality of outdoor spaces in schools has been shown to be more important than the quantity of such spaces. More prudent designs will improve relatively negative school environments and help to resolve the critical issues identified in this research.

Keywords: elementary school, child development, compact urban school, outdoor, playground, sense of place, school environment.

References

Altman & Wohlwill, Place Attachment, Plenum Press, 1992

Korpela, Kalevi, Kytta, Marketta and Hartig, Terry, "Restorative Experience, Self-Regulation, and Children's Place of Preference", *Journal of Environmental Psychology* 22(2002): 387-398

Malinowski & Thurber, "Developmental Shifts in the Place Preferences of Boys Aged 8-16 Years", *Journal of Environmental Psychology* 16(1996):45-54

Sun-Young Rieh, "Creating Sense of Place in School Environments: The Lived Experience of Elementary School Children in Hawaii", Arch. D Thesis, 2007

Nancy M. Wells, "At Home with Nature: Effects of " Greenness" on Children's Cognitive Functioning", *Environment and Behaviour* 32;775 Nov. 2000

Dorte Kristensen, Architect, Director *Atelier PRO Architects,* Hague, Netherlands

New Spaces in Educational Landscape

Changes in education is an ongoing process. Not surprisingly, the society is changing quickly and education follows along. The revolution in communication and data technology accelerates that process and poses the question: will school buildings or classrooms even be needed in the future? Young people gather information all day long on the iPad, smartphone or laptop, and knowledge is available at any moment, regardless of time and place. In addition, there is an increasing awareness that school is not the only place where one acquires knowledge. *Lifelong learning* means that many people outside school need spaces to acquire knowledge and skills. Therefore, a brand new kind of space is needed where knowledge and skills can be exchanged the most efficiently. Knowledge acquiring is considered a dynamic activity in a social context. After all, it is about interaction. This is the basis of the educational landscape.

Contemporary thinking about buildings for education is the consistent choice of activities within a school, as the starting point for the spatial planning of the school. These activities also include social processes, which partially take place via the new media, at certain spots where students meet. Besides, it's not just about the knowledge itself but about the skill of acquiring it. Learning to learn is thereby fundamental.

We especially see the social processes and diverse activities of students and teachers, and at times it seems that these activities are in conflict. Yet it is the diversity of school landscape where these activities belong that literally provide ‘space’. This is what spatial planning and interiors need to be focused on. This marks the new generation of schools.
The presentation demonstrates the relationship between new educational concepts and architectural solutions being developed in the cultural vanguard of the Netherlands. It discloses the radically new solutions from the author’s own architecture studio on the basis of a targeted selection of relevant projects. It elaborates on the model of Letovo School Moscow, because this model shows the relevant expertise applicable for the situation in Lithuania, as a private client takes the initiative for innovative education, also for groups of children from lower income groups in this Russian city. These architectural solutions will increase the knowledge of educational experts and international community of architects and architecture students.

Keywords: innovation, changing educational concepts, advanced school architecture

Auksė Petruškevičiūtė, Education Scientist, PhD, Educology Academy, Vytautas Magnus University, Lithuania

Reconstruction of Non-formal Education System for Children: from Project to Reality

The concept of non-formal education has been widely discussed and subjected to changes for many years since non-formal education emerged in the global education discourse during the "world education crisis" in the late 1960s and early 1970s (Commbs, 1968), because formal education on its own could not properly respond to accelerating personal needs and challenges of the modern society (UNESCO, 1972, Rogers, 2004; Hoppers, 2006, 2007; Rose, 2009; UNESCO, 2012; UNESCO, UNICEF, 2013, Mari Yasunaga, 2014).

Initiated by the end of the 20th c. with regained Lithuanian independence, the construction process of non-formal education system for school-children, based on the foundations of the General Education Concept of Lithuania (1992) and Complementary Education Concept (1996), still is not over in our country. However, the essential reconstruction of the non-formal education system for children was launched with adoption of a new version of the Law of the Republic of Lithuania on Education (2011), approval of the revised Concept of Non-formal Education of Children (2012), adoption of the State Education Strategy (2013-2022), the Concept of the Good School (2015), taking into consideration the conclusions of the public audit report the *Organisation of Non-formal Education for School-children* (2015), approval of the Specification of the

Procedure for Allocation and Use of Funds for Non-formal Education of Children (2016) and introduction of the targeted funding for non-formal education of children with a view to ensure a diverse supply, better access and improved quality of non-formal education. In search for additional alternatives to non-formal education, the implementation of the Concept of Full-day School (2018) and Cultural Passport Concept (2018) have started, new non-formal education service providers for children emerged and changes take place in the non-formal (self-)education environment oriented towards the process of education based on educational interaction (Petruškevičiūtė, 2015).

In order to evaluate the given situation of non-formal education in Lithuania, the following question can be raised: What changes are taking place in the formation process of educational environments for non-formal (self)education for school-children in line with the goals of the reconstruction of non-formal education system for school-children in Lithuania?

The aim of research is to explore the ongoing changes in the non-formal education system for school-children in the context of changing educational environments with a view of better access and higher quality of non-formal (self-) education.

With applied methodology of a case study, which enables to use a variety of data compiling methods and to get deeper into different attributes of the selected object and its correlations with the conditions of the case context, a conclusion has been made that non-formal (self)education environments change alongside the increasing number of stakeholders in the process of non-formal (self-)education for children in Lithuania.

However, up to the present moment, the basic indicator for evaluation of non-formal (self-)education has been quantitative parameters, namely, the number of participants and programmes. The parameter of quality of a (self)educational environment has been assessed only in the aspect of its safety, i.e. correspondence to the hygiene norms, rather than its attractiveness, suitability for implemented activities and accessibility to participants, especially those with special educational needs. The research has identified the evaluation criteria for non-formal (self)education environments for children, the needs and possibilities for changes. Based on the research results, the discussion aspects have been formulated concerning the improvement of non-formal (self)education environments, better supply for the needs of the participants and cooperation possibilities with architects designing formal and non-formal education environments and community spaces.

Keywords: educational environment, educational interaction, non-formal (self)education, non-formal education for school-children.

Nikolaus Lenz von Kaisenberg, Architect, Professor, Chairman of Architecture and Social Sciences, Alanus University of Arts and Social Sciences, Germany

Unfolding as the Source of Education. Process Architecture as a Starting Point for Object Design

Nobody asks us, if we, as humans, have become a new Ghandi, second Einstein or Maria Montessori. It only matters, whether we become completely Franz, Lena or Louise. The same applies to entire organizations. It does not matter, whether a school becomes a second laboratory school or another model school, but if it gradually develops its own identity, which is unique from the outset. The same path of development as is followed by the school itself is also passed on to its students, when the school gives them space to develop their individual potential. As Albert Steffen points out in his work: "Every work of art has laws that apply only to this one work of art." The laws for the artwork to be created only arise through the creation of the work of art. (*Travel diary*, page 38)

Thesis 1: Allow to come: development instead of teaching children. Every child is, as Janusz Korczak says, is a whole person from the beginning (Janusz Korczak, *How to Love a Child*). Everything that children need for themselves is laid out in them, also as a message to us. Our job is to open each child's own space for growth and lifelong development.

Thesis 2: Allow to change: transformation for further development of adults.
In education of adults, transformation is the beginning of access to personal development. Everything has to be different so that the identity can be maintained and developed further. Model of development is workshop.

Thesis 3: Process architecture: object design is replaced by process competence.
Since the Renaissance, architecture has been considered a visual art. Quality development is ensured by object design. Today, the time has come to understand architecture as a performing art and as an art of choreography and participation.

Keywords: development instead of teaching children, transformation for further development of adults, object design replaced by process competence.

Petras Grecevičius, Architect, PhD, Professor, Department of Philosophy and Cultural Studies, Klaipėda University, Lithuania
Vaida Vaitkutė Eidimtienė, Landscape Architect, PhD Candidate, Klaipėda University, Lithuania
Rasa Sloveckaitė, Landscape Architect, Klaipeda University, Lithuania

Aspects of Formation of Sustainable Environment for a Modern Educational Institution

The paper deals with the issues of formation of harmonious environment for contemporary educational institutions. After the reestablishment of Lithuanian independence, work on the optimization of educational institutions established in the Soviet era was launched. Discussions on the concept of the national school started. Unfortunately, at first, some of the pre-school educational institutions were closed down due to the increased social problems. Later, schools in remote settlements also had to be closed because of insufficient number of pupils. On the other hand, new private kindergartens and schools were established. The long-term study of kindergartens and schools has made it possible to identify the most important issues that influence the decisions on educational institution projects. The main focus of this presentation is on the environmental issues of pre-school and general education schools in the context of the problems of education quality. The selection of the survey objects has been performed to obtain a reliable representative result. Such issues as the location of a kindergarten or school in the urban structure of the city, exclusivity of architecture of the

institution's buildings, semantic expression and educational element of the environmental have been taken into consideration. The aim of the study has been to identify the most important environmental assessment criteria for an educational institution that would help a designer to choose the best environmental design solutions. School environment has been studied in five aspects: functional, aesthetic, ecological, socio-cultural and recreational. The authors of the study have not been limited to assessing the environmental design of educational institutions, but looked at them more extensively by analysing their interior green spaces, influence of the remote environment and even the possibilities of using the adjacent territories.

Keywords: educational institution, landscape architecture, green interior, environmental design, recreation.

Paula Lacomba Montes, Architect, Researcher, Department of Architecture, University of Valencia, Spain

The Architectural Experience of Hertfordshire (1940-49), Great Britain

This paper analyses the educational and, more specifically, the architectural experience in the county of Hertfordshire (1940-49), Great Britain, recognized for designing a methodology that systematized the rapid and necessary (re)construction of schools during and after the Second World War. Its impact and results achieved in the design of primary schools were so satisfactory that the method was transferred, together with Stirrat Johnson Marshall and other professionals, to the Ministry of Education in 1949.

The report known as the *Education Act 1944*, which emerged as a response to the growing social and educational demands imposed by the war, served as a basis for rethinking the educational models and methodologies employed by school teachers. The methodologies used until then promoted teaching typical for the 19th century, and were authoritarian and rigid in their functioning. However, in the county of Hertfordshire, the methodologies reinforcing creativity, individuality and sociability of individuals were proposed and developed. Their approach to learning obliged, undoubtedly, to ask about the environments where this process was carried out. Then, the first and necessary collaboration started between the educational personnel and architecture professionals.

What was really new and remarkable in Hertfordshire was the collaborative work that arose between all the parties involved in the process of design and execution of works. These links, which existed partly due to the particular circumstances of the economic and social context, managed by professionals like John Newsom (Education), C.H. Aslin (Architecture), Stirrat Johnson Marshall (Architecture), among others, had built a network that allowed to develop a new language for designing new schools. It was necessary also to establish dialogues and collaborative processes that enriched this new language.

This paper proposes to make a selection of schools built in the county of Hertfordshire to analyse how changes began in architectural design of educational places. The typologies that emerged there began to question the traditional form of the classroom, the school relationship with the outside world, layout and appearance of the common areas, the use of circulation spaces, as well as technical and health issues. At the same time, the scarcity of resources and skilled labour, prompted several technicians, David Medd among others, to design flexible construction systems based on steel (material from surplus weapons of war), which would be another factor to consider in the design.

Besides, the rich exchange process also involved advances and studies on everything related to the construction of schools. Among other things, with Hertfordshire studies on the use of colour in elementary schools, furniture design and use of works of art and murals to promote the importance of art in education of children started.

In short, architects, teachers, administrators, manufacturers and builders worked together for a long period of time to make buildings influencing positively the educational processes, as well as to make them economical and quick to execute.

Keywords: Hertfordshire, learning spaces, methodologies, multidisciplinary team, Primary Schools.

References

Aslin, C. H. (1948) 'Primary Schools: The Contemporary Planning Approach', *The Architects Journal*. Institute of Education, UCL.

Aslin, C. H. (1949) 'The Post-War Schools of the Hertfordshire County Council', R.I.B.A Journal, September, pp. 471–480. Institute of Education, UCL.

Gibbon, L.F. (1964) 'What Happened in Herts', Education, pp. 977–978. Institute of Education, UCL.

Maclure, S. (1984) *Educational Development and School Building: Aspects of Public Policy 1945-73*. Longman Group Limited.

Saint, A. (1987) *Towards a Social Architecture the Role of School-building in Post-war England*. United States: Yale University Press.

Vladimir Frolov, Architecture Historian, Editor-in-chief of the Architectural magazine *Project Baltia,* Russia

Space.edu. The Educational Extension of Built Environment

The presentation deals with the development of special solutions in educational buildings of the last decade, influence of such solutions on pupils and teachers, and also addresses the philosophical background of the recent change in educational paradigm, which finds its shape in certain design of schools and universities. In addition, educational extension into other building and space typologies, such as theatres, offices and even urban parks is discussed. The presentation is based on the cases of multifunctional complexes in the Baltic countries, Finland and Russia, as were covered in 2 issues of *Project Baltia* magazine *Space.edu* (2009) and *School* (2018).

In recent years, we have faced the spread of new type of educational space that is positioned as more relevant to the contemporary methods of learning. In short, these methods presume the growth of the use of internet and change in the function of the teacher, who becomes a sort of personal guide in the net. Besides the internet as a universal source of knowledge, one can notice the increasing importance of communication among pupils themselves, which corresponds to the team-based typologies of learning: workshops and seminars. All this leads to changes in the spatial structure of educational architecture, which can be shown on new typical school plans, as well as the rise of typology of campus as a main building for students. The philosophical interpretation for this

new format can be found in the so-called ‘communicativism’ (for which ‘everything is information’), as described by Moscow-based architectural theoretician Sergei Sitar. This paradigm leads to the shift of value from the real world to virtual, and through that the educational building starts to function as a certain collective-singular communicational hub, where most of communication is being proceeded indirectly trough the digital medium, or at least has a documentational trace in it.
In addition, Frolov will talk about the architectural educational institutions in Russia, such as Strelka, MARCH, Academy of Arts in St Petersburg, and the educational initiatives organized by *Project Baltia* magazine (i.e. the so-called Clausuras of Diogenes, international student workshops, etc.).

Keywords: educational buildings, change in educational paradigm, multifunctional complexes, school, university

Gintaras Čaikauskas, Architect, Professor, Faculty of Architecture,
Vilnius Gediminas Technical University, Lithuania

Design Practice of Contemporary Educational and Training Buildings

Practical experience of educational and training buildings designed recently in Lithuania represents the development and conceptual changes. The country has rather deep historical tradition of designing objects of this typology. Keeping up the pace of pan-European progress, higher educational institutions were developed intensely not only during the interwar period, but even in the Soviet era. After the restoration of Lithuania's independence, these trends have not lost their relevance, and the field of science and innovation continues to be one of the top priorities of the state policy. The support of the European Union-funded programmes has been of major significance to this development. Challenges of radical changes in economic life, rapid development of modern technologies, emergence of broader opportunities for information dissemination lead to the onset of new concepts for business and build synergic relations between science and teaching methodologies. This has been imminently reflected in the projects and implementation of new science and educational buildings.

The construction of the University campus began in the 1960-ies at Saulėtekio Avenue, in the green suburbs of Vilnius. It was consistent with the global practice, as the development of universities in the old towns of historical cities had become extremely complex and restricted. Vilnius Old Town also lacked free space and complexity of architectural requirements of cultural heritage began to limit the possibilities for the new

construction. The first blocks of Vilnius Gediminas Technical University (the then Vilnius Civil Engineering Institute) and the complex of Vilnius University were built in the newly developed area near the picturesque pine forests, along with dormitories for students and apartments for lecturers. Single-family residential buildings soon appeared in the vicinity. This urban structure is still functioning quite successfully, and now is being further developed consistently in accordance with the newly prepared detailed plan of the territory.
Reflecting the new realities of life, substantial changes have recently occurred in the design of science and education buildings. Goals of the curricula, theoretical studies and methodology of specialist training have become inseparable from the real needs of economy and business becoming one of the main vectors of activity in this field. Students' auditoria and all other training facilities are accommodated next to the latest research laboratories, creating special open and closed communication spaces. This solution ensures an immediate link between science and teaching processes, shortening knowledge and communication paths, building special creative atmosphere that guarantees the opportunities for highest possible achievements. Planning and zoning of room groups, forming the possibilities for their joint and separate functioning provide an even wider range of options for the use of science and teaching complexes by adapting them to organisation of external conferences, etc. Big range of tools used in the design process creates a modern, multi-purpose environment that provides unlimited performance opportunities and inspiration for the highest academic endeavours.

Keywords: science, educational, training buildings, theoretical studies, research.

Barbara Pampe, Architect, PhD, Program Director of Educational Architecture, *Montag Sti ft ung Jugend und Gesellschaft,* Germany

Participation in School Design. Preplanning Phase as a Tool to Improve School Design

Rehabilitation and new construction of school buildings is one of the most important public building tasks. The large rehabilitation backlog, restructuring measures of educational policy, school merging and high demand for new schools currently are major challenges. But it is also a great chance to adapt the spatial structure of schools to current pedagogical requirements such as individualisation, experiential learning, digitalisation, all-day school and inclusion. Today's learning environments have to meet different user requirements. They must allow for various learning formats, which are not possible due to the currently existing principle of the classroom corridor system.
The *Montag Foundations* have been active in the field of educational architecture for over ten years already and are concerned with how efficient school buildings can look today. Beside the need of other typologies for school building, the planning processes have to be adapted to match the pedagogical requirements and architecture of schools.
With the first edition in 2011 of the handbook *Schulen planen und bauen* (*Planning and Building of Schools*), the *Montag Foundations* presented a new concept for school design process: an integrated planning process joining the administration, pedagogy and architecture and enabling the construction of contemporary and sustainable schools.

The nationwide competition in September 2012 made this concept available to public school authorities throughout Germany: towns, municipalities, counties and school owners were able to apply for the professional implementation of such pre-planning phase.
The five competition prize winners were advised by the *Foundation* and a consulting team. In workshops, steering group meetings and excursions, a resilient basis for the school design project was developed together with all stakeholders involved in the school design process from pedagogy, architecture, politics and administration, including the users.
As the first competition was a huge success, a new call was launched in 2015 with the focus on inclusive planning and building of schools. Local authorities willing to find out the impact of inclusion on school architecture applied. The five prize winners were supported from autumn 2016 to autumn 2017 by the *Foundation* and a consulting team in the joint development of a needs-oriented space programme for different school types focusing on the inclusive educational concept.
As soon as the contribution of these activities will be analysed, the results of the processes and specific challenges of this pre-planning phase will be revealed. Beside the description of the necessary requirements on the process, it will focus on the challenges that have to be overcome.

Keywords: participation, school buildings, planning process, inclusion.

Jovita Starkutė, Education Scientist, PhD student, Šiauliai University, Lithuania

System of Collaboration between Parents and Pedagogues: Context of Relations between Consumers and Suppliers of Educational Services

The problematics of the topic have been revealed by the changed role of parents as consumers preconditioned by the transformation of demands of society and market that encourages to focus on the development of a different kind of relationship with a school, by the school's traditional perception of parents' role in it and narrow perception of the importance of collaboration. *The aim of the topic* is to analyse the system of collaboration between parents and pedagogues in order to implement the school's mission, while discussing the entire context of the relations between the suppliers and consumers of services. *The object* is the system of collaboration between parents and pedagogues. While analysing the discourse related to parents' roles in contemporary school as presented in scientific literature, *the methods* of logical and comparative analysis and generalization of the sources and documents in regulation of mainstream school functions have been applied. The theoretical analysis performed has shown that striving for effective collaboration between pedagogues and parents it is recommended to employ the involvement model that encourages mutual sharing not between particular parents, but rather a mutual sharing between parents-partners and making value together with

the school, not only personal and interpersonal, but also organizational and other levels of participation in school activities. In order to implement its mission, it is very important for the school to present its expectations and demands in the initial stage of the relationship - what the school expects from parents as consumers. Effective collaboration depends on three factors: **role clarity, ability and motivation**. Thus in educational organizations people must know what it is expected from them and how they should behave in a particular situation. Particular ways of parents' participation, contribution and limits should be clear and consistent. School can present everything it refers to and everything that is important to it. This should be the basis for the relationship based on trust and openness.

Keywords: collaboration, parents, pedagogues, consumers and suppliers of education services.

Siarhei Liubimau, Sociologist, PhD, Associate Professor, European Humanities University, Lithuania

Knowledge Infrastructure as a Guiding Notion in Applied Urbanist Research

Empirically this talk reflects the author's four-year engagement in the Laboratory of Critical Urbanism (European Humanities University, Vilnius) ongoing participatory research, educational and soft planning projects in Visaginas, a town built from scratch in Soviet Lithuania in the 1970-ies and 1980-ies to serve the Ignalina Nuclear Power Plant. In 2009, the INPP was decommissioned due to one of the conditions for Lithuania to join the EU. Speaking in technical terms, today Visaginas is a transforming former corporate town, with the INPP in the process of being dismantled as the main employer and meaning-giving technology. It is one of the locations in the entire infrastructural network created by the Ministry of Medium Machine Building of the former USSR and defined by the Cold War institutional and technological development. In terms of social infrastructure, it is a multi-ethnic population recruited back in the Soviet times from other locations of the USSR, which were subordinate to the Ministry of Medium Machine Building. Visaginas constitutes an interesting and challenging case in the context of attempts to explain the relevance of infrastructural projects for the distinct modes of relations between city and statehood.

The EHU LCU research, which started in 2014, is focused on Visaginas transformation after the decommission of the INPP, and hence after the town's disconnection from the "nuclear" infrastructural network centrally planned from Moscow. Since 2016, this research has been guided by the notion of "knowledge infrastructure" and realized in applied fashion of research and workshops to elaborate the new concept for Visaginas public library. A starting point for the research and workshops has been an observation that the town's public library, planned in Soviet modernist fashion both as an institution and infrastructure, requires re-tooling in the new circumstances of digitalization, as well as because of increasingly multi-lateral competitive determination of the town's resources – jobs, human capital, institutions, built environment, etc. Working systematically with the notion of the *knowledge infrastructure*, one is able to observe and interpret gradual reconfiguration of relations between artefacts, formats, institutions, and spaces, through which Visaginas' community is getting knowledge about itself, as well as publicly **contesting and controlling the production of this knowledge.**

Keywords: knowledge infrastructure, action research, library, nuclear technology, critical urbanism.

Zoltan Schrammel, Architect, Associate Professor, Department of Public Building Design, Budapest University of Technology and Economics, Hungary

Edu_Tec_Tour

It is obvious that people are deeply influenced by their environment. The gap between generations instigate the positive energy of education. The elderly train the youth directly and indirectly believing in their own truth. The increasing number of crises reflects the serious problems of traditional/modern scholastic system.
What are the reasons? While our age-group is keen on the physical values of the past, the members of the Z and Z+ generation prefer the prompt virtual actions, but in vast volume. The constant available amount of information is incomprehensible therefore the way of cognition has been changed radically. Do we accept this trend? How can it be followed in architectural programming?
TOPIC one
- short history of purposeful educative elements in architecture
! (from the cave drawings to political decorations in public spaces)
- up-to-date selection of educative architectural elements in buildings
! (modern media tools, like video mapping, screens, etc.)
Education is not limited to different type of schools. Most people learn much more anywhere else, but in educational institutions. Our environment has to be formed so that it would be inspiring, exemplary, flexible and nice. It is again obvious. Private sphere is shaped mostly

by the owners themselves according to their taste, mood and financial potential, influenced by traditions and trends transferred by the media. Where architects have a chance to educate people are the public spaces - from the urban scale down to the rooms of any public building.
TOPIC two
- how any educational message can be transmitted to the youth by architecture?
(what does “school” mean for the young and future generation? Will the same happen with schools as it has happened with libraries and shops?) - benchmarks and visions about it.
- where is the gap between our practice and their expectation? What can be done against accelerated aging of educational buildings? Where is the tolerance margin in architecture? How can we achieve a “wow” reaction of youth with historic solutions in architecture?) - questions of sustainability and tolerance in responsibility of decisions - one of the main missions of education that can be transmitted by architecture easiest way.
Correct design affects fair utilization - it is my experience. Our Public Building Design Department in Budapest University of Technology and Economics consists of experts in different fields of public architecture. Beyond several educational buildings, kindergarten, cultural facilities, etc. I would like to introduce some special buildings, where design elements serve as educational issues. Humanism stands behind all effective solutions. Humanism - based on sensitive way of thinking and foresighted solidarity. Nowadays we spend more energy to save energy - even more to administrate, how much energy we might save, rather than to be just simply fair. I guess, fair play in architecture is educative, independent of the function of the building itself. My examples will verify this hypothesis.

Massimo Santanicchia, Architect, PhD Student, University of Iceland, Iceland, Associate Professor in Architecture and Program Director at the Iceland University of Arts
Harriet Harriss, Architect, PhD, Reader in Architectural Education, Royal College of Art, United Kingdom

Citizenship Pedagogy: Building Collaboration and Activism into Architectural Curricula

Today's society confronts us with complex systemic questions – wicked problems – the solutions of which can only be found in a paradigm shift and collaborative practices (Farrelly: 2008) (Klein: 2014). This paper investigates the notion of citizenship as a fundamental pedagogical tool to face the wicked problems. It posed the question of how can citizenship be used in architectural education and specifically in the design studios to foster the much needed paradigm shift to face the wicked problems? Teaching Citizenship is advocated by many educators to be a key factor in addressing the wicked problems. Citizenship is about caring for the common good, it is about social institutions, it is about engagement and participation in political communities. Citizenship gives students strength to ignite ideas and also to foster the courage to pursue it beyond the classroom (Resnick, 2016). Citizenship is about working against "systems of oppression and domination, and toward both social and environmental justice" (Schindel Dimick: 2015, 396).
Architecture's desire to engage with the wicked problems is partly what makes it such a compelling field of thought and practice (Harriss: 2015, 196). But is architecture education the right instrument to address and

engage with the crisis? Even today, a design studio remains central to every school of architecture. It is therefore important to ask how the studio can contribute in raising citizenship and preparing future architects to become agents of transformation. This question will be answered by looking into some of the seventeen schools of architecture of the north to find out whether teaching citizenship is a common practice, or not in the design studio, and if it is, what are the pedagogies put in place?
The aim of this paper is to study if and how design studios use citizenship to respond to the wicked problems. Do design studios encourage systemic thinking? activism? community participation? give a voice to suppressed people? And if so, what are the tools?

Keywords: architecture, education, citizenship, north.

References

Colomina, B. & Wigley, M. (2016). *Are We Human? Notes on an Archaeology of Design.* Zurich: Lars Muller Publishers.

Farrelly, E. (2008). *Blubberland: The danger of happiness*. Cambridge: MIT Press.

Harriss, H. and D. Froud, (ed.), *Radical Pedagogies, Architectural Education and the British Tradition,* London, RIBA Publishing, 2015

Herranen, J., Vesterinen, V.M., & Aksela, M. (2018) "From Learner-Centred to Learner-Driven Sustainability Education". *Sustainability* 2018, *10*(7), 2190; https://doi.org/10.3390/su10072190

Klein, N. (2014). *This changes everything: Capitalism vs. the climate*. London: Allen Lane

Resnick, E. (2016). *Developing Citizen Designers.* New York: Bloomsbury Academic.

Schindel Dimick, A. (2015) "Supporting youth to develop environmental citizenship with/against a neoliberal context". Environmental Education Research, 21:3, 390-402, DOI: 10.1080/13504622.2014.994164

Cristian Stefanescu, Architect, Lecturer, Bergen School of Architecture, Norway

The Story of the Bergen School of Architecture. The Ongoing Transformation of a Grain Silo into a Living Learning Laboratory

This presentation examines the laboratory-like learning environment at Bergen School of Architecture driven by its *Open Form* pedagogy and manifested in its perpetual transformation within an industrial grain silo along the waterfront of Bergen, Norway. Founded in 1986 by architect Svein Hatløy as a private and academically independent institution, the Bergen School of Architecture migrated through various locations before settling into its current space, ten years later in 1996.
The first part of the presentation examines the pedagogical framework of the Bergen School of Architecture. Firstly, it discusses its founding theory *Open Form* developed by Oskar Hansen, the Polish architect and *Team 10* member. Furthermore, it contextualizes the theory within the writings and architecture of other *Team 10* members, particularly Allison and Peter Smithson and Lucien Kroll. Lastly, it looks at the adaptation of the *Open Form* theory in the pedagogical framework of the Bergen School of Architecture by the school's founder Svein Hatløy and other figures that have taught or currently teach at the school. The integration of artistic practice, social anthropology and ecology are of special interest.
The second part of the presentation puts forth an archaeological reading of the existing building tracing back the various physical transformations undergone over the last two decades and counting. It shows how

these changes - ranging in scale from large additions to smaller interior adjustments, and in time - from permanent structures to temporary occupations - are afforded by the robustness and indifference of the industrial architecture and driven by an accumulative authorship (various architects, teachers and students contributing to its ongoing physical transformation through commissions, design-build master courses, workshops, exercises and everyday use).
The final portion of the presentation examines how the dynamic interrelationship between an existing industrial space, open pedagogy and accumulative use and authorship gives shape to a learning environment in the form of a living laboratory. Experimentation, failing, cross-disciplinary initiatives and forms of social engagement are regular occurrences. The learning methodology oscillates between thinking and doing, often informing each other along the way. Teachers and students are actively involved in constructing and adjusting their own environment as a form of teaching/learning, adaptive and progressive approach for knowledge production.

Keywords: open form, appropriation, participatory, industrial, transformation

References

Hatløy, Svein. BAS-Alternative. Bergen School of Architecture. 2001

Kedziorek, Aleksandra, and Lukasz Ronduda. Oskar Hansen - Opening Modernism: On Open Form Architecture, Art and Didactics. Museum of Modern Art in Warsaw. 2014

Kroll, Lucien. *An Architecture of Complexity*. MIT Press, 1986.

Smithson, Alison, and Peter Smithson. *Without Rhetoric: An Architectural Aesthetic, 1955-1972*. M.I.T. Press, 1974.

Rolandas Palekas, Architect, Professor, Faculty of Architecture, Vilnius Gediminas Technical University, Lithuania

School as a Community. A Few Architectural Tools to Promote this Direction

For a long time, the traditional structure of educational buildings in Lithuania has been hierarchic. A typical example of this is a long corridor with many doors leading to classes. It has reflected the dominant relationship between a teacher and pupils, or a superior and his dependants. A teacher has been considered an unrivalled authority, the only source of reliable knowledge. The education process has been held behind the closed door, in silence, from bell to bell. It has been one-way with knowledge being pumped over from a teacher to pupils' minds, similar to the blood transfusion. The value of pupils' achievements has been measured according to their correspondence to the teacher's knowledge and viewpoints. Such process of education (and buildings adapted to it) is clearly defective and corresponds to the values of Feudalism. The new possibilities generated by technologies and mobility determine that schools today (and even more so in the future) are attended by children of different format in comparison to their counterparts in recent past.
The presentation aims at answering the following questions: How school architecture has to change in relation to such changes? What shape should it gradually obtain in order correspond more to the changing

format of a pupil (student)? What layout and section of the building could conceptually and essentially replace the traditional – hierarchic – plan? In 2014, the architects' studio *Paleko architektų studija* was assigned with a task to design the Faculty of Mathematics and Computer Science of Vilnius University in Visoriai, Vilnius. The architects were faced with a question: as the possibilities and quality for individual and online studying expand, so what should be the reason for a student to travel to the faculty building? What architectural tools should we choose in attempt to motivate a student to leave his/ her home? At the same time, after performance of the student and teachers' survey, the Lithuanian Academy of Music and Theatre declared its goal for community-based education, expressed a wish to consolidate its faculties located around Vilnius into a single unit and started preparing for the architectural competition for its new campus. How the tissue of such campus has to be structured, in order to realize properly the legitimate will of this group of people to form the community?

Keywords: horizontal relations, diversity connection, master plan, layout, section.

International Conference
Educational Architecture. Challenges of Change

Tarptautinė konferencija
Švietimo architektūra. Pokyčių iššūkiai

Maketavo *Rasa Steponavičiūtė*

Tiražas pagal poreikį.
El. versija pagal leidinio identifikatorių doi:10.20334/2018-054-K
Vilniaus Gedimino technikos universiteto leidykla „Technika“,
Saulėtekio al. 11, LT-10223 Vilnius
http://leidykla.vgtu.lt
Spausdino BĮ UAB „Baltijos kopija“
Kareivių g. 13B, 09109 Vilnius

Organizers:

VILNIAUS GEDIMINO
TECHNIKOS UNIVERSITETAS
ARCHITEKTŪROS FAKULTETAS

VILNIUS