

An innovative model of education in architectural history

Jana Pohaničová, Veronika Vaňová & Patrik Baxa

Slovak University of Technology in Bratislava
Bratislava, Slovakia

ABSTRACT: Education in architectural history has a long tradition in the Faculty of Architecture and Design at Slovak University of Technology in Bratislava (FAD-STU), Bratislava, Slovakia, and forms an integral part of the professional profile of the future architect. It is characterised by close connection between science, research, and innovative methods of education. In this article, the authors present the history of education in architectural history that provides impulses for a modern pedagogical approach. In addition to traditional teaching, innovation and interdisciplinarity also feature in the range of methods. The method of thematic education, which maps the work of important architects through modelling and digitalisation of their iconic works provides a new perspective on architectural history. The projection of research into education, the dialogue between teacher and student, and the modelling of buildings through digital methods represent innovative approaches to Slovak architectural heritage in the broader European context. A pilot project mapping the supraregional significance of the work of Milan Michal Harminc, the founder of Slovak architecture, discussed here is an example of this innovative approach.

Keywords: Education, history of architecture, tradition, innovation, thematic education, cultural sustainability

INTRODUCTION

Slovak University of Technology in Bratislava, Bratislava, Slovakia (STU), formerly the Slovak Polytechnic (SVŠT), is the oldest technical university in Slovakia. The teaching of the history of architecture at the STU has a tradition of more than 70 years [1]. It functions as an inseparable part of the education of future architects up to the present. The interdisciplinary nature of the teaching reflects architecture as the conjunction of science, technology and art. This conjunction of subjects influences the teaching of art and architectural history at academies, universities and polytechnics in Europe, including the oldest of these institutions, e.g. Eidgenössische Technische Hochschule Zürich (ETH Zürich); Humboldt-Universität zu Berlin (Humboldt University of Berlin) and Technische Universität Wien (Vienna University of Technology or TU Vienna) [2][3].

History has long featured in architectural education in Slovakia. The first publication on teaching in the Faculty of Architecture and Design at the STU (FAD-STU) places the history of architecture among the most stable elements of the educational system in the institution's history: *The main topics, such as history, visual art disciplines, construction engineering, typology, architectural design, etc. have been present from the time of [the] first written accounts of the educational process* [4]. The academic time spent on history at the FAD-STU is shown in Figure 1.

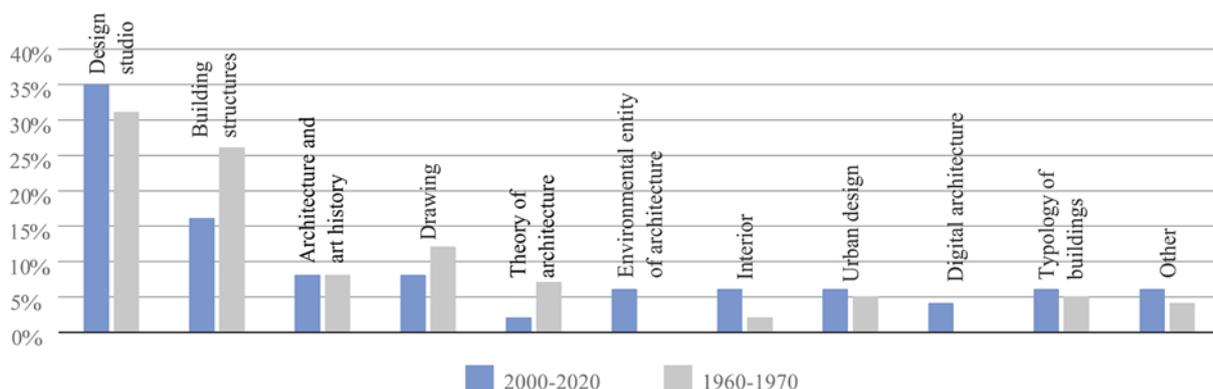


Figure 1: Didactic time spent on history (percentage) in the Faculty of Architecture and Design at the STU.

In terms of teaching time by subject, the history of architecture has long maintained a share of eight percent. This reflects its importance in the education of architects and places it at the forefront of all subjects taught, not only in the past but also today. This fact is also illustrated by statistics, in which history follows only studio work, building structures and drawing [5]. The present model of teaching the history of architecture is based on a long tradition and brings innovative elements to a thematic education.

HISTORY OF TEACHING *THE HISTORY OF ARCHITECTURE*

Teaching the history of architecture as part of Slovak technological education began in 1946 at the newly established Department of Architecture and Structural Engineering (within the Structural Engineering Branch of the SVŠT). It then later continued at the Faculty of Architecture and Construction Engineering, SVŠT (1950-1960); the Faculty of Civil Engineering, SVŠT (1960-1976); the Faculty of Architecture, SVŠT/STU (1976-2020); and, since September 2020, the Faculty of Architecture and Design, STU [6].

The beginnings of teaching the history of architecture and art are linked with important artists, theorists and historians of architecture. These include A. Güntherová-Mayerová, V. Wagner, and J. Dubnický. Later, important Czech architects, theorists and historians of architecture: J.E. Koula, V. Karfík and A. Piffl played a key role in strengthening the interdisciplinary approach to architectural education. The traditions established by these important personalities have remained to this day [7].

An important milestone in the teaching of the history of architecture was the establishment in 1947-1948 of a specialised workplace: the Department of the History of Architecture, today the Institute of History and Theory of Architecture and Monument Restoration. Professor Alfred Piffl, CSc (1907-1972), the founder of teaching the history of architecture in the Faculty of Architecture and Construction Engineering (SVŠT), played an integral role in this process. He intertwined architectural, scholarly research, pedagogical and artistic dimensions to form the basic pillars of an interdisciplinary approach to the history of architecture and the restoration of architectural heritage in the former Czechoslovakia.

From 1950 to 1952, he was the first dean of the Faculty of Architecture and Construction Engineering, SVŠT, and became the first professor of the history of architecture at the SVŠT. At the same time, he was the first head of the Department of the History of Architecture, which taught the history of architecture and art. Professor Piffl left behind the work of an architect, architectural historian, archaeologist, pedagogue, scientist and preservationist. His comprehensive approach was most evident in the rescue and restoration of Bratislava Castle (1953-1957). It was characteristic of Professor Piffl's pedagogical work that he also involved his students in research and perceived the history of architecture as an integral part of monument restoration. He thus became the protagonist of the interdisciplinary teaching of the history of architecture at the time of the formation of architectural education in Slovakia [8]. His work was creatively developed by other architectural historians and specialists in monument restoration.

At present, the Institute of History and Theory of Architecture and Monument Restoration employs a team of architects and fine arts scholars who are developing an interdisciplinary model of study in close connection with scholarly research and grants projects. Subjects focused on the history of architecture and art are represented at all three levels of study and provide students not only with general knowledge, but, along with other subjects, also form a basis for teaching studios on monument restoration and new architectural creation in an historical environment. Studio work has been in place in the FAD-STU since 2019. This is structured as a vertical pedagogical model, which enables, in addition to specialisation, the integration of interdisciplinary connections and innovative forms of teaching, including the history of architecture [9].

BETWEEN TRADITION AND INNOVATION: THE PRESENT MODEL OF TEACHING

According to valid accreditation, the teaching of the history of architecture in the four-year Bachelor's degree is divided into six compulsory subjects, which provide a set of basic knowledge about the development of architecture and art, from ancient times to the present. Teaching takes the form of a lecture series and follow-up seminars. Educators provide students with the latest knowledge gained through their own scholarly research activities, which allow the recipients to understand the basic styles and stylistic characteristics of individual periods, as well as the essence of the creative process of the authors of architectural works in a wider context. Emphasis is placed on knowledge of typology, compositional and morphological principles, theoretical contexts, the philosophical aspect of authors' intentions and the dispositional, constructional and urban solutions employed. Special emphasis is directed at Slovak historiography of architecture and art, its specifics and original contributions, while seeking common roots with contemporary European trends.

At the seminars, students work on individual assigned topics through presentations, text and graphic works, and physical or virtual models of historic buildings. With these assignments they acquire basic facts about important works and their creators in the context of individual styles and stylistic periods. The added value is the research dimension, which is awakened and developed in students with visits to public or private archives, libraries, field research and the like. Through individual assignments, they not only acquire knowledge of the history of architecture and art, but they also learn of the development of the care of monuments and other aspects of history, archaeology and other disciplines.

At the same time, students improve in searching for and systematising knowledge, excerpts, abstracts, comparisons, and the synthesis and interpretation of the acquired information, as well as in other specific skills. As a result, they develop critical creative thinking and acquire methods of scholarly work, which they then use in studio assignments on the issue of monument restoration or new work in an historical environment.

In study for a Master's degree, the emphasis is on the present trends in architecture and theory. The teaching is dominated by the historiography of contemporary architectural work, becoming familiar with current personalities of the domestic and foreign scenes, analysis of the continuity and complementarity of modern trends against the background of a broader context, the analysis of individual concepts, as well as the theory and philosophy of architecture. This process creates the potential for understanding historical architecture and its values, but also for the realisation of new work in an historical environment. The history of architecture is also interdisciplinary in the context of doctoral studies, and many handle these topics in more detail in their dissertations.

THEMATIC EDUCATION: AN ALTERNATIVE FOR THE HISTORY OF ARCHITECTURE

In the context of requirements for a modern and innovative education, since 2012, thematic education has been implemented at the FAD-STU as part of the teaching of the history of architecture. It develops a creative dialogue between teacher and student, and closely links science and research with the educational process. It focuses on a deeper knowledge of the iconic works of the most important personalities of the Slovak architectural scene, with an emphasis on the past two centuries of architecture and the discovery of the overlapping of their works in a Central European context. Attention is focused on the method of learning about historical architecture and its creators through the digitisation and modelling of iconic objects.

The main goal of the project, *Modelling the Works of the Founders of Slovak Architecture* (supervisor J. Pohaničová), was the application of innovative methods in the educational process. Spatial 3D modelling was combined with traditional methods of creating physical models for the study of historical architecture. This method has the ambition of integrating and supporting scholarly research, and the educational and presentation-interpretational aspects of education.

The fulfilment of the goal was motivated by the scholarly-research potential and the acquisition of long-term grant support. The period of the *long* 19th Century, which represents a little-researched topic even in the European context, was selected as the subject of research in connection with the research grants.

HARMINC PILOT PROJECT: HOW MODELS OF HISTORICAL ARCHITECTURE ARE BORN

Between 2012 and 2020, students at the FAD-STU researched the life and work of Milan Michal Harminc (1869-1964), the founder of Slovak architecture. His key works were modelled as part of thematic education in the history of architecture. Modelling a selected building - from obtaining archival data through focusing on the object in the field, the digitisation of materials, up to the creation of a physical or digital model - contributed to the development of students' creative abilities (Figure 2).

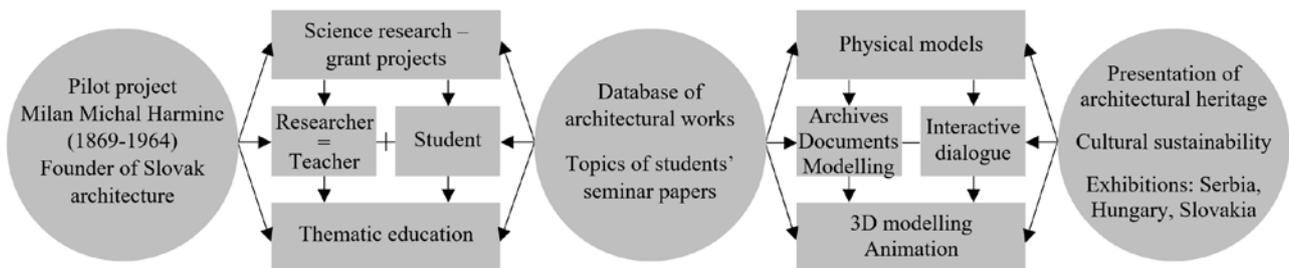


Figure 2: Project scheme *Modelling the Works of the Founders of Slovak Architecture*, pilot project *Harminc* (Author: J. Pohaničová, project head).

Model creation is a lengthy and complicated process undertaken by students during the semester. To make a model of a building, plans and photographic documentation of the building are required. Archival documentation is important for historic buildings. Therefore, students visited archives and conducted field research. In cases where archival documents and plans were missing, they also had to focus on constructions. This was followed by consultations regarding the scale of the model, the construction materials used and the method of creating the model.

The phase of preparation and acquisition of documents was completed by digitalisation and creation of a 3D model or a physical model of the building. All of this required a degree of spatial imagination; co-ordination skills; patience, and dexterous hands from the students; the accurate architectural vision of future architects, as well as mutual co-operation. The result was more than 100 physical and 40 digital models of iconic buildings, which creatively and permanently map the work of a prominent Slovak architect in a wider European context (see Figure 3 for an example).



Figure 3: Sanatorium of Dr Szontágh, Nový Smokovec, Slovakia; physical and digital model (Photo by J. Pohaničová).

The *Harminc* pilot project enabled students to perceive the laws of historical architecture, its basic dispositional and material-spatial connections and compositional and tectonic principles; to understand structural laws, and to master the concept of architectural creation, from the whole to its historical detail. Students were given the opportunity to become acquainted with the creative methods, stylistic diversity, and peculiarities of the architectural manuscript of one of the exceptional personalities from the Slovak and European history of architecture. They also used this knowledge in studio work related to the restoration of monuments and creation in an historical environment.

The new teaching methods met with great interest and enthusiasm among the students and fostered a professional approach to the work. Models were featured for popular and promotional purposes. They have become part of several renowned exhibitions, thematic expositions and catalogues [10] presented nationally and internationally, e.g. exhibitions in Kulpin, Belgrade and Novi Sad in Serbia, in Budapest, Hungary and in Bratislava, Slovakia (Figure 4).



Figure 4: The *Harminc* pilot project: exhibitions in Bratislava, Slovakia, 2019; Novi Sad and Belgrade, Serbia, 2014; Budapest, Hungary, 2020 (Photo by J. Pohaničová).

The *Harminc* pilot project combined science, research and education with the popularisation of Slovak architecture in Central Europe. Hence, this contributed to the knowledge of Slovak cultural richness, the architectural heritage of Slovakia and associated exceptional personalities. A broad platform was created for dialogue between professionals and the lay public.

The educational project, *Modelling the Works of the Founders of Slovak Architecture*, and its supervisor won the prestigious national BriliantTT award in 2015, which is awarded for interdisciplinary research and innovation in education [11].

HISTORY OF ARCHITECTURE AND CULTURAL SUSTAINABILITY

The sustainability of cultural heritage lies, among other things, in the preservation and transmission of its wealth for future generations. In this context, the sustainability of the history of architecture also lies in recognising the works of other exceptional personalities of Slovak architecture using innovative methods of education. These include thematic education, and the method of modelling individual buildings with the vision of creating an expanded database and the use of these outputs for the protection of monuments or the restoration of architectural works. Therefore, as part of the continuation of the pilot project, modelling and visualisation of selected works by other important creators has begun, i.e. the Bratislava architects and builders, the Feiglery; D. Jurkovič, a doyen of Slovak architecture; and L. Hudec, a Slovak native and world-renowned architect. The teaching method based on the creation of physical and 3D models is applied to other areas of architectural education [12].

Between 2020 and 2022, the FAD-STU will also implement the European Union's international project, Interreg Danube Transnational Programme ART NOUVEAU 2, which will support the strengthening of the cultural identity of the Danube region and the common cultural heritage of Art Nouveau. Thematic education focused on the Art Nouveau period in Bratislava is being directly integrated into the education at the FAD-STU as part of the project. Innovative tools, such as digitisation and 3D modelling help highlight the work of others involved in the international architectural scene. Thus, a unique collection of physical and digital models of buildings by important architectural creators in

Slovakia is being completed as a tool for disseminating scholarly research findings and the products of the educational process for the needs of architectural practice. Key goals of the project are its orientation to cultural sustainability and spreading awareness of historical architecture as an integral part of Slovak and European cultural heritage [13].

CONCLUSIONS

Teaching the history of architecture is an inseparable and irreplaceable part of student education at all levels in the Faculty of Architecture and Design at Slovak University of Technology in Bratislava. It has undergone more than 70 years of development since its beginnings and today - thanks to an innovative approach and methods - it meets the high requirements for modern education. The future of it lies mainly in the development of an interdisciplinary approach, in close connection with the tasks of scholarly research and in the development of an interactive teacher-student dialogue.

Thanks to innovative teaching, students not only learn about historical architecture and gain information about its creators and monuments, but they also acquire the specialised knowledge and skills needed for architectural practice. These include the protection and restoration of architectural heritage and creation in a historical environment. The teaching is interdisciplinary and stresses cultural sustainability.

ACKNOWLEDGEMENTS

This article was written within the grant projects:

VEGA no. 1/0286/21 Innovations in architecture of the 20th Century in Slovakia. Project head: Henrieta Moravčíková; co-researchers: Jana Pohaničová, Patrik Baxa and Veronika Vaňová of the FAD-STU, Bratislava, Slovakia.

KEGA no. 022STU-4/2021 Discourse on modernity in the shadow of an era: architects A. Piffel, V. Karfík and J.E. Koula and their founding work. Project head: Jana Pohaničová; co-researchers: Patrik Baxa and Veronika Vaňová of the FAD-STU, Bratislava, Slovakia.

REFERENCES

1. Vitková, E., *Príhovor Dekanky Fakulty Architektúry STU v Bratislave*. In: Špaček, R. and Šíp, L. (Eds), *Vzdelávanie Architekta na Fakulte Architektúry STU v Bratislave: Publikácia o História, Obsahu, Formách a Metódach Výučby*. Bratislava: Slovenská Technická Univerzita v Bratislave, Fakulta Architektúry, 6 (2016) (in Slovak).
2. Stalla, R. (Ed), *Kunstgeschichte an Polytechnischen Instituten, Technischen Hochschulen, Technischen Universitäten: Geschichte - Positionen - Perspektiven*. Wien: Böhlau Verlag Ges. m. b. H & Co. KG, 640 (2021).
3. Szczepeński, J., Valuation of architectural heritage by multicultural student groups. *Global J. of Engng. Educ.*, 21, 3, 196-201 (2019).
4. Špaček, R. and Šíp, L., *Editoriál/Editorial*. In: Špaček, R. and Šíp, L. (Eds), *Vzdelávanie Architekta na Fakulte Architektúry STU v Bratislave: Publikácia o História, Obsahu, Formách a Metódach Výučby*. Bratislava: Slovenská Technická Univerzita v Bratislave, Fakulta Architektúry, 9 (2016) (in Slovak).
5. Špaček, R., Vitková, E. and Šíp, L., Architectural education at Slovak University of Technology in Bratislava. *Global J. of Engng. Educ.*, 18, 1, 6-15 (2016).
6. Bencová, J., *Architektonické školstvo na Slovensku*. In: Špaček, R. and Šíp, L. (Eds), *Vzdelávanie Architekta na Fakulte Architektúry STU v Bratislave: Publikácia o História, Obsahu, Formách a Metódach Výučby*. Bratislava: Slovenská Technická Univerzita v Bratislave, Fakulta Architektúry, 16-37 (2016) (in Slovak).
7. Pohaničová, J. and Ondrušová, K., *The History of Architecture at the Slovak University of Technology. Between Tradition and Innovation*. In: Stalla, R. (Ed), *Kunstgeschichte an Polytechnischen Instituten, Technischen Hochschulen, Technischen Universitäten: Geschichte - Positionen - Perspektiven*. Wien: Böhlau Verlag Ges. m. b. H & Co. KG, 261-262 (2021).
8. Pohaničová, J., *Alfred Piffel - Nielen Pamiatkar*. In: Dulla, M., Mrňa, E., Haberlandová, K., Ščepánová, S., Pavel, M., Bartošová, N., Pohaničová, J., and Šoltésová, D. (Eds), *Zapomenutá Generace: Čeští Architekti na Slovensku*. Praha: České Vysoké Učení Technické v Praze, 258-281 (2019) (in Czech and Slovak).
9. Smatanová, K., Gregor, P. and Šeligová, A., Pros and cons of the vertical and horizontal design studios in architects' education. *Global J. of Engng. Educ.*, 22, 3, 155-161 (2020).
10. Machajdík, E., Mareta, R.G. and Pohaničová, J., *Michal Milan Harminc, Museum Builder*. Exhibition Catalogue. Bratislava: Slovenské Národné Múzeum, 222-295 (2020).
11. Wagnerová, S., Dostali sme BriliantTT 2015! *Informačné Listy Fakulty Architektúry STU v Bratislave*, 22, 9, 3 (2014/2015) (in Slovak).
12. Ilkovič, J., Ilkovičová, E. and Špaček, R., To think in architecture, to feel in structure: *Teaching Structural Design in the Faculty of Architecture*. *Global J. of Engng. Educ.*, 16, 2, 59-65 (2014).
13. Legény, J. and Gregor, P., Role of research in architectural education at FA-STU. *World Trans. on Engng. and Technol. Educ.*, 17, 2, 140-145 (2019).

BIOGRAPHIES



Jana Pohaničová is a professor at the Institute of History and Theory of Architecture and Monument Restoration, Faculty of Architecture and Design, STU in Bratislava, Slovakia. She is a well-known architectural historian specialising in the 19th Century. Her research results have been published in prestigious scholarly journals in Slovakia, as well as abroad. She is the author of the first monograph about 19th Century architecture in Slovakia, as well as of many other books, studies and exhibitions on the history of architecture in a broader European context focusing on architects. She has received several prestigious prizes and awards for her publishing, and scholarly activities and research. Her exhibitions have taken place in Serbia, Hungary, the Czech Republic and Slovakia. She was awarded the Martin Kusý Prize in 2016 and 2020 for her major contribution to knowledge of 19th Century architecture in Slovakia in a broad European context. She also makes significant contributions to the promotion of

Slovakia's cultural heritage.



Veronika Vaňová is an internal doctoral student at the Institute of History and Theory of Architecture and Monument Restoration, Faculty of Architecture and Design, STU in Bratislava, Slovakia. As part of her research activities, she focuses mainly on the 19th and 20th Centuries, especially on Baťa's architecture in Slovakia and in other countries. In research, she specialises on the research-by-design method. She collaborates on educational architectural workshops and helps to prepare educational programmes as a part of public events. She actively works in an architectural studio and participates in public architectural competitions.



Patrik Baxa is an internal doctoral student at the Institute of History and Theory of Architecture and Monument Restoration, Faculty of Architecture and Design, STU in Bratislava, Slovakia. As part of his research activities, he focuses mainly on the history of architecture and art of the 18th and 19th Centuries, as well as local specifics, and some important objects and personalities in the development of architecture and art in Bratislava, with special attention on the method of archival research. He co-operates in the realisation of field surveys (architectural-historical sounding research). In his artistic-creative activity, he is a co-author of several projects for the restoration of national cultural monuments.