

WAY SEARCH TO RESEARCH: FROM ACADEMIC EXERCISES IN ARCHITECTURE  
TO SCIENTIFIC INVESTIGATIONS INTO ACTUAL PROBLEMSGintaras Stauskis<sup>1</sup>, Frank Eckardt<sup>2</sup><sup>1</sup>*Vilnius Gediminas Technical University*<sup>2</sup>*Bauhaus-Universität Weimar**E-mails: <sup>1</sup>gintaras.stauskis@vgtu.lt; <sup>2</sup>frank.eckardt@uni-weimar.de*

**Abstract.** An interest in doctoral studies reflects the overall status of the scientist in the country in general and the role of science in the architect profession in particular. The article analyses the basic channels of how the students of architecture search for and find the ways to transfer themselves from the study area into an academic research environment. In order to figure out general trends and to outline the differences and similarities of doctoral studies that could further facilitate cooperation, the paper presents the thematic outputs of doctoral programmes in architecture schools in Vilnius, Riga, Venice, Jelgava and Weimar. With reference to the example of the Faculty of Architecture, VGTU, the trends towards developing research activities are analysed taking into account three interconnected branches of architecture: urban design, building architecture and landscape architecture. The cooperation and coordination of academic and research activities in wider European space is taking place upon common interest based on the specificities of each school and priorities of the chosen region. The awareness of global and regional processes in architectural research is an important point for the present and coming generations of researchers in Europe as they are building their careers on the basis of investigation into the options of the local applications of global competences in a cross-professional and inter-disciplinary way.

**Keywords:** research, architecture, urban design, landscape architecture, coordination, doctorate.

## Introduction

The development and advancement of human resources for architectural research is essential for the architect's profession in the future considering dramatically changing socio-economic conditions of modern societies. Rapid technological development requires high competences integrating these achievements into the processes of construction and urban development; still, the fundamental values of a city and/or community have to be respected and maintained. An interest in the studies of architecture at all three stages of professional education, including BA, MA and PhD are reacting to dynamic market conditions. Nevertheless, professional education for architects has maintained a stable interest for several decades of stormy political and economic transformations in Lithuania. This interest to great extent has been driven by an attractive image of a liberal lifestyle of an artist.

For the period of the last four years, the journal "Science – Future of Lithuania" has been keeping the door widely opened to the community of international researchers in all thematic areas of architecture to present their investigations, to share their doubts on the analysed topics and to go into an open discussion with their junior and more

experienced colleagues from the whole Europe. The Journal is turning into a pool of wider European discussions on the multiple issues of architecture on the basis of contributions from the authors representing Lithuania and neighbouring countries such as Latvia and Estonia as well as more remote regions of Germany, Italy, Romania and Spain. This representative community of researchers gives a good occasion to draw some comparison on how the process of becoming a researcher in architecture is shaped in different schools and different countries. As to understanding the author, the future in the area of research on architecture is very much dependent on how determined and capable are the schools and regions for a better coordination and cooperation of institutions and their people. One of the most perfect occasions for following such an idea is a traditional conference of junior researchers where PhD students have an excellent opportunity to exchange their latest achievements in urbanism and architecture (see Fig. 1). Academic workshops on different regionally actual topics also promote the cooperation and development of the skills of team work and professional debates (IUAV and VGTU students working in a summer school in Venice, September 2011 – Fig. 2).



**Fig. 1.** The annual conference of junior researchers “K. Šešelgis readings” organised by the Faculty of Architecture, VGTU has become a traditional platform facilitating the communication of the students studying architecture in different European universities



**Fig. 2.** A joint summer school project on developing the areas of river delta in Italy was the first and hopefully not the last exercise of collaborative research done by the students of architecture from IUAV and VGTU

### **Research in Architecture: Reflections from Bauhaus University in Weimar**

Bauhaus University in Weimar has been renowned for its traditions in architectural education that started at the beginning of the 20<sup>th</sup> century by setting and spreading the ideas of German functionalism and rationalism worldwide. Many students of architecture have been familiar with Bauhaus school of architecture while studying the concepts and history of architecture mostly associating it with the names of Walter Gropius and his colleagues that became the architectural icons of the early 20<sup>th</sup> century. Having successfully accommodated itself in the new map of education, Bauhaus University in Weimar is currently offering a wide range of BA and MA programmes of architecture. The school has successfully launched international MA programmes within European scope as well as involved the partners from the South East Asian region. Reflections on doctoral studies presented herein are deriving from the German context but they are also common to other academic environments reviewed in this article.

Most students are eager and curious about the subjects they were working on; this is the very initial point for starting any kind of research on details, better shapes, forms, colours, etc. that is similar to any other kind of investigation. However, when we look at what is meant by *scientific or academic research*, differences become clear immediately. First, the problems that sciences want to address are mostly of a more complex sort. This has to do a lot with the problems that science is dealing with. In contrast to a precise design problem, academic problems are “general” and not local. The conducted research looks at those parts of local problems that can be identified as having a general interest and can be recognized in other local contexts.

Second, academic research demonstrates the problems that seem to be the questions of understanding rather than the issues of practice. Insofar, as some ideas of architectural practice are caused by inadequate concepts of reality, these two points are the same. Typically, academic research is aimed at “why” and design research focuses on “how” aspects of architecture. In this regard, academic research should not be pressured to deliver practical solutions as the first outcome. Without a proper understanding of the process of architecture and its context, the applications of comprehensive perspectives for architecture are left over by individual master ship, i.e. they can barely communicate beyond the local sphere of influence. Science, however, is always an attempt at the communication of personal wisdom involving the means of disciplined media.

Third, academic research on architecture does not necessarily mean to study the limited field of architectural outcomes, which is mainly the built environment or product. On the contrast, a contemporary understanding of science requires to cope with processes rather than artefacts. As a consequence, the objective of scientific research can be seen as questioning prerogatives of the existing procedures and practices of our greatly constructed world. It is obvious that the process of building houses, at the end, is a complex societal process that only functions when certain conditions are organised by society. When it finally comes to design, the whole system of preconditions is successfully set up. These preconditions are invisible for the practicing person but usually one operates certain assumptions about them.

To fulfil our roles in society, we try to anticipate the existing expectations (from land lords, the selection commission, neighbourhood, architectural colleagues and people in general) and to review our experiences so far as

to help us with this highly demanding task. This is what science does as well, but in a systematic and *inter-subjective* manner. Therefore, scientific research undertakes efforts to coherently testify our assumptions about the role of architecture in society adopting a methodological approach when using which a clear question of research is linked to the best way to get an answer to it.

There are more things important for thinking of when we talk about the particularities of research in architecture. As a coordinator of the International PhD Programme at Bauhaus-University Weimar, the author<sup>2</sup> wants to underline the three points learnt from gained experience. The main belief is that the PhD Doctorate programme is a good occasion for developing research in architecture which only works if the aim of being significant for the future life and career of the student has been perfectly set up.

### **A Way to Research at the Faculty of Architecture at VGTU**

To better understand the complexity of the way that is taking a person from an inaugural point to becoming a doctoral student, an academic program of the Faculty of Architecture is analysed. The presented narration is illustrative for Lithuanian academic environment and is probably common for many other schools the output data of which is presented and analysed hereby.

Being curious about studied and designed topics is the leading thread that takes the student with a deeper understanding of the architect profession, its tasks and its missions. Along with the main branches of urban design, landscape architecture and building architecture, professional education in architecture is assessed in theoretical and practical academic disciplines. Practical projects always contain an important part of theoretical knowledge and analysis; on the other hand, theoretical investigations always have a link to practical applications. This dualistic approach is trained from the very beginning of studies to their end meaning graduation obtaining a professional degree.

VGTU is offering the subject of architecture as a single programme for undergraduate students (Vilnius 2012) and is currently working on landscape architecture that will be open for the two last years of bachelor studies. The Faculty of Architecture provides the students with the following specialisations in MA programmes, including architecture and the history and theory of architecture: urban planning, the design of urban complexes, the architecture of buildings, the history and theory of architecture and the renovation of buildings. The doctoral programme of archi-

tecture at VGTU is offering three areas of research: urban design, architecture of buildings, the history and theory of architecture.

A traditional and logical way to any of the above presented doctoral programmes is leading through BA and MA studies in architecture. VGTU points to urban design as one of the major specialisations in architecture where the students get their knowledge and build their competences in the process of integrating several theory and practice disciplines. Based on the concept of “learning through design” topics such as the theory of sociology and urbanism, the history of town planning, the methodology of urban analysis and the basics of landscape architecture are followed by the projects on recreational architecture, town planning and urban reconstruction. The branch of building architecture is studied in several project studios where a single family house, multi-storey residential housing and a multifunctional public building are designed in addition to theoretical disciplines such as building typology and interior design. The history of arts and architecture, architectural graphics, drawing and arts and architectural composition are presented to form grounds for personal skills in architecture. In addition, several engineering disciplines provide the students with the basic knowledge of building structures, materials, infrastructure, geodesy, computing, etc.

The principle of anxiety is gradually developed as the students advance from less complicated individual problem tasks to more complex issues involving the need of deeper knowledge and a cross-professional approach. In this context, the basics of research are acquired and applied while studying and designing in an urban environment. The complexity of the task in the studio project of a *recreational complex in a natural environment* covers environmental, social, economic and aesthetical issues that need to be simultaneously estimated, conceptualised and realised. The ability to analyse and evaluate multiple environmental and socio – economic factors on one hand and to create balanced contextual aesthetical solutions minding a regional character and necessary functional typology on the other is the basic goal of the study process. By putting this task as the overall goal, the students come to the need of a deeper analysis of an environmental impact on different economical activities including recreational ones, the role of local residents and communities and the specificity of regional architecture. Finding proper planning and spatial solutions is estimated as a strong tool for achieving the overall goals of the project. The aspect of mobility and engineering infrastructure is minded in a general way as one of the topics of urban context.

A deeper knowledge of urbanism is attained by solving more complex problems of development in an urbanised area in the project of the *urban redevelopment of a small town*. Having on-site analysis as the initial stage that contributes to the whole project, the task includes creating a master plan of a town area and a detailed plan of the selected extract. Research starts with the analysis of social – economic constraints of a town as well as environmental issues turning weaknesses into strengths and opportunities and giving them an aesthetical shape. A wider analysis of similar cases and projects is compulsory as research on the basic and modern concepts of urban development. More or less successful completion of the task leaves some questions still open for the future. Basically, an appropriate urban development concept among the options of rational, functional, modern or natural solutions is found. Going into details of the task, a number of questions for conceptualising and implementing the models of sustainable mobility and recreation, the philosophy of a healthy city, the application of the ideas of green urbanism and many other topics appear. The architectural nature of detailed planning where spatial – volumetric solutions play a crucial role is strongly emphasised in the process and gets deep into the student's understanding. Still, the task leaves plenty of questions for minding an urban context in terms of morphology, a historical environment and a dense urban environment.

The capabilities of analysis and design are fully developed in the project of the *urban renovation of a city area*. The concept master plan developing the city area is followed by an urban redesigning proposal for a selected urban block. The architectural concept is presented in the context of a detailed plan by further developing the skills and knowledge attained in the previous projects. The survey of the selected site is started with figuring out the main conceptual goals of city development thus turning them into planning and design proposals. The need of modern concepts for solving and redesigning housing and public services, mobility and transport, landscape and recreation, treating the brown field areas has become the basic research task (Gehl 2010: 231–245). This urban exercise still leaves the door open for the future analysis of other similar cases and their architectural solutions.

MA studies in architecture at VGTU are developed in the areas of urban planning, the design of urban complexes, the architecture of buildings, the history and theory of architecture and housing renovation. The aim of the post-graduate studies is to provide the students with specialised knowledge and skills that could lead to specific professional competences in the chosen field. A deeper survey of the selected problems of an urban context, a

building or general theory paves a way to the most motivated students striving for a doctoral degree. Specialised studies in urban planning and urban design require a deeper examination of socio-economic processes happening in the urban environment. Any development proposals are based on the integrated cross-professional analysis of social, environmental and economic aspects. Analysing the ways of creating a modern building or renovating the existing one leads an architect to social investigations related to the present and expected users and residents, economic investigations meaning cost-effective engineering solutions, environmental investigations in a sense of an environmental impact of a designed building, and after all synthesising all these aspects into an architectural shape of design in a general sustainability context. The theory and history makes another specialised field of investigations focusing on the traditions of urban and rural life, the protection and revitalisation of architectural heritage and landscape. This attractive field in many cases serves as a powerful resource of knowledge for researchers in the other related branches of architecture, e.g. creating a more liveable city environment (Gehl 2010: 215–228).

The presented layout makes teaching and learning environment for developing professional competences that could appear on the basis of the obtained knowledge and trained personal skills. This is the space where academically developed and personally enhanced initiatives can lead to deeper involvement into the field of research in the specifically interested area. Still, the process presented herein reflects the education and training system at the Faculty of Architecture at VGTU as it is common for many schools following the European tradition of architectural education.

### **Thematic Spread of Research on Architecture**

The mission of the article, the Journal and conferences is providing people working on similar topics at distant locations with a direct clash of debates on the advocated ideas. Certainly, although distant means of communication are dramatically changing our world, there is no substitute for live communication on the basis of face-to-face dispute and argumentation. The basic information has been obtained from our partners and the corresponding websites of Latvia University of Agriculture (LLU; [www.llu.lv](http://www.llu.lv)), Kaunas University of Technology (KTU; [www.ktu.lt](http://www.ktu.lt)), Riga Technical University (RTU; [www.rtu.lv](http://www.rtu.lv)), Venice University Institute of Architecture (IUAV; <http://www.iuav.it/SCUOLA-DI-TESE/archivio-t/urbanistic/index.htm>), Bauhaus University, Weimar (BUW; [www.uni-weimar.de](http://www.uni-weimar.de)) and Vilnius Gediminas Technical University (VGTU [www.vgtu.lt](http://www.vgtu.lt)).

The thematic layout of the doctoral research developed at the analysed schools has been examined grouping the common subject topics into four thematic areas: general aspects of urban development, cultural heritage, landscape architecture and other aspects of architecture (see Table 1).

The areas of research have broad nature that reflects the very essence of the architecture itself. The analysis of historical development relates to modern concepts and the architecture of buildings extends into landscape; housing problems can cut through the layers of planning, design and

arts. In addition, purely architectural issues do not exist as they are all interrelated and dependent on the interests of the society living in its environment under certain economic conditions. Still, for required needed depth, the width of research is frequently scarified, or in other words, as a researcher goes closer and deeper to the goal, the scope becomes more and more narrow. When accepting the other aspect of this well-known truth, it is extremely important to learn how to maintain links between artificially narrowed and specialised sectors of research carried out by different

**Table 1.** Thesis subject areas at the analysed schools of architecture

Thesis subject area and a topic	School name
<b>I. General aspects of urban development</b>	
Inhabiting sustainable districts: choosing a significant place. <i>Housing</i> development in Riga. A sustainable recreation system in a modern city. The development of a suburban area in the city. The urban renovation of mass <i>housing</i> areas. A bio-political city. The myth of security. Archipelagos and enclaves. Contemporary spatial transformations. The plans of agricultural reforms in modern urbanism. The development of urban space in Riga. The informal use of urban spaces and participatory urban development - the raw area in Berlin.	IUAV RTU VGTU VGTU VGTU IUAV IUAV IUAV RTU BUW
<b>II. History, theory and architectural heritage</b>	
Value development of <i>cultural heritage</i> in the protected areas. Public open space development of Riga <i>old town</i> in the 20 <sup>th</sup> –21 <sup>st</sup> centuries. The evolution of Vilnius urban planning. Wood in contemporary Lithuanian architecture. The cultural <i>historical</i> landscape of wood parks in urban spaces. Architectural composition – 12 theses for the period of 2005–2008. The history of architecture and urban planning – 17 theses for the period of 2003–2007. The shaping of people’s space – an inquiry of human environmental experience and planning practice.	KTU RTU VGTU VGTU LLU IUAV IUAV BUW
<b>III. Landscape architecture</b>	
The development of <i>gardens and parks</i> in Lithuania in the 16 <sup>th</sup> – 20 <sup>th</sup> centuries. Historical <i>parks and gardens</i> in Latvia. The <i>visual quality</i> of landscape in Lithuania. <i>The aesthetic and ecological</i> interaction between urban and rural landscape in Latvia. <i>The landscape quality</i> of residential area courtyards in the cities of Latvia. <i>Agriculture</i> and city. Conflicts and opportunities for possible cohabitation. <i>Hedonomic landscape</i> of automotive roads	VGTU LLU KTU LLU LLU IUAV KTU
<b>IV. Other aspects of architecture</b>	
The city as an arena for developing <i>cultural functions</i> . <i>Public art</i> in urban space. Ideas of structuralism in contemporary Lithuanian architecture. Digital systems in contemporary architecture. The development of architecture in public libraries. Architectural competitions in Lithuania. The role of light in architecture. An architect in the context of community development organization of conservative tendencies of modern architecture	VGTU LLU VGTU RTU RTU VGTU VGTU BUW

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The list of thesis topics researched at the surveyed schools reflects a number of superficial contextual similarities and deeper methodical links between similar themes analysed by different people at different locations under different working and funding conditions in a similar time frame exactly striving for the same goal making our cities better liveable spaces for people (Stauskis, Bratuškis 2011).

The similarities of researched topics that are evident from the first sight also have another, deeper meaning. Those who are willing to and are capable of should not miss a chance of getting an impacting relation to another aspect of an individually researched topic, e.g. well digested historical material is useful for supporting modern urban theories where landscape can play an extremely impor-

tant role acting as a facilitator of a social dialogue in an economically viable environment. The author leaves this question open for a further discussion and debates it with the researcher’s community during the annual conference held in 2012 in Rokiškis, Lithuania.

### **Comparative Review of Academic Outputs of Study and Research**

On the basis of a personal knowledge of the education and research process taking place at several European universities and information received from the faculties, the dominating trends could be drawn up. For this reason, the data from the following schools of architecture has been analysed and presented below (Table 2): Venice University Institute of Urbanism and Architecture (IUAV), Bauhaus University in Weimar (BUW), Riga Technical University (RTU), the Department of Landscape Architecture at Latvian University of Agriculture (LLU), Kaunas University of Technology (KTU) and Vilnius Gediminas Technical University (VGTU).

The number of the students of architecture depends on the layout of the national map of the schools of architecture, on the local traditions of the region and on the chosen school. IUAV is offering nine doctorate programmes of architecture and urban planning. Although that would be an immense range in Lithuanian and Latvian context with less students, it should be considered normal and very promising having in mind a large number of more than two thousand students at the first and second study levels compared to around 500 students at VGTU in Vilnius, 300 at RTU in Riga, 200 at LLU in Jelgava and 190 - at KTU in Kaunas. IUAV as a regional architecture education node has the highest number of students, compared to the other universities of the Baltic Sea Region. An explanation might be a dense network of universities with the schools of architecture and a small number of residents in the countries of this region. In addition, a constant discussion held in the community of architects shows that the number of admissions to VGTU is too high; however, on the contrary, the results of the successful selection and admission results for the last two years indicates that more students are joining the studies of architecture at VGTU than those at the other schools. Bauhaus University in Weimar is an exclusive school considering its high number of PhD students which is even higher than that of MA students. Even though the total number of the students at BUW is comparable to that at KTU, RTU and LLU, the output, in terms of the completed thesis, is an absolute record.

**Table 2.** Quantitative output data of architectural education at several European Universities

No.	Indicator	Name of the school of architecture / Percentage of the previous line indicator**					
		VGTU	KTU	RTU	LLU*	IUAV	BUW
1	Total number of architecture students (BA, MA, PhD)	516	193	300	199	2094	436
2	BA students of architecture	382	160	180	176	1082	164
3	MA students of architecture	124 32%	30 19%	105 58%	12 7%	923 85%	106 65%
4**	PhD students of architecture (including urban design and landscape)	10 8% (1.9%)	3 10% (1.6%)	15 14% (5.0%)	11 92% (5.5%)	89 9% (4.3%)	166*** 157% (38.1%)
5	PhD thesis defended within the period of the last 5 years	9	5	5	2	29	63

\* PhD students of landscape architecture only.

\*\* Line 4 bottom indicators (%) are given as the percentage of Line 1.

\*\*\* Out of this number, 53 students are in the PhD programme of European urban studies and urban heritage

The indicator of the number of MA students compared to that of BA students shows how well the chains of the first and second stage of the education process are connected. In this regard, IUAV, BUW and RTU schools are the leading ones where from 58% to 85% of BA students follow MA programmes. Lithuanian universities VGTU and KTU have the number which is much less and makes 32% and 19% respectively and that might be seen as an issue of continuity between the basic and MA education stages. A more balanced indicator of the ratio between the total number of the students of architecture and that of PhD students shows that BUW, LLU, RTU and IUAV have a higher proportion of students joining PhD studies than those studying at KTU and VGTU.

The last indicator available is the number of the completed and successfully defended thesis within the period of the last five years. It is essential to underline that each and every PhD dissertation in architecture is a great and sounding event for the community of researchers nationwide and involves reviewers, committee members and colleagues from neighbouring cities and countries. This might be understandable for those knowing the whole complexity of architectural research under recent conditions. Therefore, the number of theses only is hardly a reliable output indicator for comparing any kind of evaluation. On the other hand, it is evident that having more PhD students allows having a more balanced flow of the whole academic process in terms of training, conferencing, publishing and finally producing thesis. The BUW and IUAV cases are a perfect proof for this idea (see Table 1), whereas having one or several theses presented for defence every month as at BUW and IUAV sets it into a common process differently from the occasional procedure of having one or two theses per year as at KTU, RTU or VGTU.

The authors would like to extend this survey to reflect the processes taking place in a dynamic flow of graduating BA and MA students in time and considering the aspect of a qualitative analysis of doctoral studies. This should be a reserve for the following presentations or a topic for an open discussion with the reader audience.

### General Conclusions

An analytic review of doctoral programmes and their outputs in the abovementioned European schools of architecture has disclosed common traits and certain regional specificity that could be important for researchers and their supervisors as well as for all academic staff in finding more balanced and integrated methods of developing high quality research in national environment. The following conclusions are particularly essential:

- Research on architecture is complicated multilayer activity for the advanced intellectual fellows of architecture having a mission of developing innovative approaches to the traditional issues of modern society. This goal has to be achieved by extending research into the depth of the selected actual topic thus keeping cross-links with neighbouring and more remote topics of architecture.
- Communication between the researchers of different schools of architecture in different European countries is essential to bring the proof of quality and proficiency to the results of research. The integration of recent actual topics such as ecology, public health, human mobility, etc. should be on a priority list of choosing modern researchers.

- Cross-sectoral collaboration is a method of achieving more actual and efficient research outcomes. The process of research is one of the valuable outcomes by itself, whereas the other includes recommendations for real life implementation.

Annual and more frequent events that give the floor for presentation, communication and debate are essential to develop the abovementioned skills of junior researchers. VGTU takes a challenge to organise an annual forum of junior researchers with the extended themes and participation from across the European Community.

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## KELIAS Į MOKSLO TYRIMŲ ERDVĘ ARCHITEKTŪROJE: NUO AKADEMINIŲ EKSPERIMENTŲ IKI AKTUALIŲ PROBLEMŲ TYRIMŲ

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Santrauka

Straipsnio autoriai nagrinėja, kaip studentai iš akademinų studijų atranda kelius į tyrimų erdvę. Remiantis kelių Europos mokyklų patirtimi ir jų pateiktais duomenimis analizuojama magistrantų ir doktorantų skaičiaus kaita, priklausomai nuo bendro urbanistikos, kraštovaizdžio ir pastatų architektūros specialybės studijuojančiųjų skaičiaus. Nors skirtingų mokyklų rodikliai ir skiriasi, aiškėja, kad mokyklos, kuriose yra didesnis studijuojančiųjų skaičius, geriau suformuoja akademinis srautus, turi daugiau studentų antrosios ir trečiosios pakopų studijose ir pasiekia geresnių doktorantūros rezultatų. Autorių nuomone, intensyvesnis architektus rengiančių Europos mokyklų ir pačių tyrėjų bendradarbiavimas yra viena iš svarbiausių priemonių, leidžiančių pasiekti geresnių rezultatų. Jaunųjų mokslininkų konferencijos, tokios kaip VGTU Architektūros fakulteto kasmet organizuojama jaunųjų mokslininkų konferencija „K. Šešelgio skaitymai“, ir ta proga išleidžiamas mokslo žurnalas „Mokslas – Lietuvos ateitis“ numeris sudaro puikias sąlygas doktorantams ir kitiems tyrėjams bendrauti ir keistis akademiniais laimėjimais.

**Reikšminiai žodžiai:** mokslo tyrimai, architektūra, urbanistika, kraštovaizdžio architektūra, koordinavimas, doktorantūra.