

Educational approaches to the analytical part of urban design

Lubica Vitková, Katarína Smatanová, Andrea Lacková & Ján Urban

Slovak University of Technology in Bratislava
Bratislava, Slovakia

ABSTRACT: Analysis is an important stage in the quality education of urban design. This is research aimed at gaining an in-depth knowledge of a designed territory. Analyses create a basis for understanding the problems and potential of a city or location. They are also the cornerstone for quality, site-specific solutions. In the Faculty of Architecture at Slovak University of Technology in Bratislava (FA-STU), Slovakia, in the academic year 2016/17, the authors focused on innovations of the content and methodology for teaching the analytical phase of urban design. The aim was to create conditions in which students can learn contemporary methods and techniques of urban research in all their complexity. This innovative teaching took into account the students' level of knowledge and the year in which the design studio was carried out. At the same time, the authors emphasised the special nature of every assignment and the specific problems of the location. Described in this article are several implemented innovative approaches applied in teaching Design Studio V - the first urban design studio in the Bachelor level of study.

INTRODUCTION

The analytical part of urban design is a form of urban research and is an integral part of the creative process required to ensure the quality of a final proposal. From the beginning, it is necessary to define the problems, evaluate the area, and determine alternative conceptions. The relationship between urban research and design in the educational process is aptly characterised by Groat and Wang, when they point to the *complementary nature of research and design* [1]. Their diagram (adapted in Figure 1) presents the share of these activities in the context of the education of architects, as well as architectural practice and research institutions.

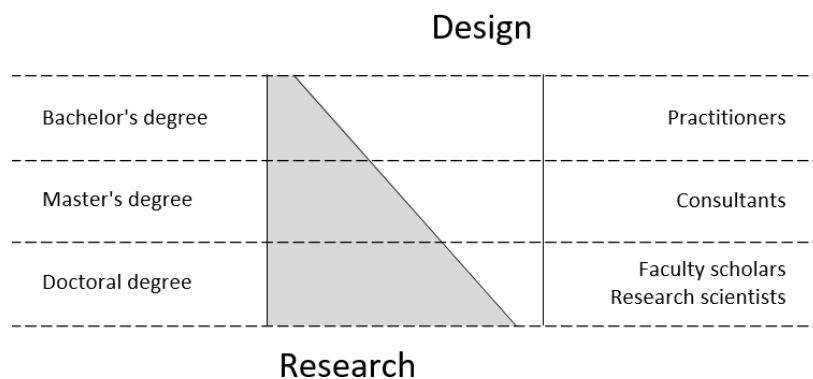


Figure 1: The complementary nature of research and design [1].

The share of research in the creative process increases from the first year of the Bachelor's degree up to the final stages of doctoral studies. It is significant that in the Master's degree, research and design are relatively balanced. The importance of research in the various areas of architectural practice grows in relation to different professional positions, from a practising architect through to a specialist, to academia/scientific researcher [1]. Awareness of this correlation is important to ensure the appropriateness of profiles of graduates from architectural schools in order to ensure their applicability in practice.

The role of universities is essential in this respect. *The competencies are in the hands of the university (and those of the teachers); they are defined by gradually increased levels of difficulty in a specific programme and in the subject.* The competency pyramid known from various areas of science and research also can be used in this respect [2]. The authors apply these principles in general, as well specifically in teaching urban design.

The process of urban design and the relationship to its creative and research (analysis - synthesis) component is central in publications of a variety of authors, e.g. Groat and Wang [1], Moughtin et al [3], Lang [4], LaGro Jr [5] and Roberts and Greed [6]. These authors describe the methods, system of research and assessment for a given area in detail.

LaGro Jr highlights the importance of the research stage in the process of architectural and urban design, by saying:

...a thorough site- and contextual- analysis must, therefore, be at the heart of any development, redevelopment, or restoration proposal. Justifying a project's design rationale - including its design determinants and mitigated impacts - is an essential step in creating more liveable and sustainable built environments [5].

For the education of architects and urban planners, it is important to promote and develop analysis - synthesis thinking in synergy with the development of their creativity. Therefore, since the first courses in the Faculty of Architecture at Slovak University of Technology in Bratislava, Slovakia (FA-STU), the authors have emphasised acquiring the methodology of architectural and urban research as an integral part of the creative process. Development of these skills supports project-oriented teaching and project-based learning. These approaches are fully applied in teaching urban design studios at the Faculty, with contributions by Kristiánová and Joklová [7], Smatanová and Dubovcová [8], Bašová and Štefancová [9].

TEACHING THE ANALYTICAL PART OF URBAN DESIGN AT FA-STU

Educational approaches that the Faculty applies to teaching urban design at the Bachelor's and Master's degree levels have undergone intense development. The aim of these changes in content and teaching methodology of the research-analytical phase of the urban design studio assignments is to achieve a more effective educational impact. In the research part of the creative process, the authors expected the students to understand and embrace contemporary methods and techniques of urban research in all their complexity. These skills have the potential to better prepare the students for a design proposal and, importantly, for active professional life. The goal was to include all the required aspects of the area into the content of the analytical part of each design studio, while methodically highlighting those factors that are key to understanding the specific area and assignment.

From the first contact within the design studio, the authors focused on a variety of aspects involving different perspectives for evaluation of an area. *These include the broader relationship and context of the area, mass-spatial (morphological) analysis, functional analysis, operational analysis, socio-economic characteristics of the territory, cultural and natural potential.* At the same time, the authors emphasised the balance of qualitative and quantitative aspects of the research, rational and emotional perspectives. In the process of teaching urban design, the authors applied standard procedures and methods necessary for the research part of the process of design. Research phase, analysis phase and evaluation of the area are divided into four basic methods: *studying available materials; visit the territory; evaluation of gathered data and presentation* (see Table 1 in Appendix 1).

INNOVATIVE APPROACHES TO TEACHING THE ANALYTICAL PART OF DESIGN STUDIO

The urban design studio is carried out at the Faculty in the third year of the Bachelor's degree. This is the first studio focusing on the urban dimension, with three lessons per week. In the 2016/2017 academic year, the main topic was an identity of the city/place, which was applied to the selected sites in the city of Štúrovo and was based on the objectives of the project DANUrB, which is part of the Interreg Danube Transnational Programme. The Danube Transnational Programme is one of the programmes of the European Territorial Co-operation objective, better known as Interreg. Student projects were carried out in relation to this project, in close co-operation with the Faculty of Architecture, BME (Budapest University of Technology and Economics) and other educational institutions. The research project, thus, allowed direct linking of research, practice and education. Closer collaboration with universities enabled the opportunity to compare different methods and approaches to the assessment of the area.

The Design Studio V - also called a *small urban design studio* - due to restricted teaching time has limited opportunities for realisation, particularly of the research stage of the creative process. However, the aim was that students already in their first practical urban assignment would master the basics of practical urban research in its breadth and richness. For this reason, the authors came up with the innovations presented in this article. Teaching the analytical stage in the studio was experimentally carried out in two ways. The authors focused on the analysis of the city as a whole, and on the analysis of its key features and areas. Students were divided into two groups, each of them focusing on the examination of a different dimension - or the city as a whole, or the distinctive route that crosses the area in specific directions (see Figure 2).

A group of students who analysed the city of Štúrovo as a whole, studied the following aspects: broader relations, historical development, morphological structure, functional structure and usage, operational relations, socio-economic characteristics of the area, cultural and natural aspects and elements of the territory. At the same time, this group studied the land-use planning documentation of the city and the region, similar available documents and information about the city. Students were supposed to simultaneously identify the specificities of the city (and its parts), as well as its potential.



Figure 2: Examples of the outputs of two groups: At left - standard analysis of the city (by student Brachnáková). At right - analysis of the city routes (by students Čapíčíková and Uková).

The second group of students analysed the selected city routes, focusing on the quantitative and qualitative aspects. The students studied the morphological, functional and operational nature of the public space and its surrounding structures. These involved also the parameters defining public spaces and urban structures, their functional content with an emphasis especially on the street level, operational parameters. At the same time, students evaluated the quality of public spaces, i.e. their uniqueness, distinctive image (imageability), legibility, accessibility, continuity, clarity, comprehensiveness and complexity. An important component in the evaluation of a given area was the subjective impression of these spaces, i.e. a sense of security, comfort, vitality, identity.

Students were working in both cases in smaller teams and regularly presented and shared their analysis on Facebook or in the class in the form of posters and presentations. Therefore, each student was able to gain the information about the area from different aspects and perspectives - from the level of the whole, as well as from the level of the selected public spaces and routes.

In the evaluation, the authors looked at the gathered data and documents from the rational (in the previous practice this was prevalent), and also emotional perspectives. Predetermined by the theme of the assignment - the identity of city/place - the authors eventually emphasised the emotional view of the studied area. Students evaluated their subjective impressions, ideas received from interviews with respondents on site, from representatives of local municipality, experts and residents.

A separate part of creating the preliminary image of the area was executed by writing essays at the stage of initial familiarisation with the territory. This was supported by data from different available materials about the city and its space (mainly available for students on-line) or their previous personal experiences of the area. This preliminary image of the city was confirmed or corrected, after the on-site visit and mapping. All the data and information about the areas that students gathered through their research were consequently processed in a table or in text form. An important basis for developing the concept was the SWOT analysis. This helped students to become aware of the pros and cons, as well as the potentials and possible hazards in planning a future city/urban structure development. Into the maps, students drew various phenomena connected with the physical nature of the urban structure. The result, the drawing *Problems and Potentials Summary*, incorporated all the positive and negative phenomena of the area that students managed to identify (see Figure 3).

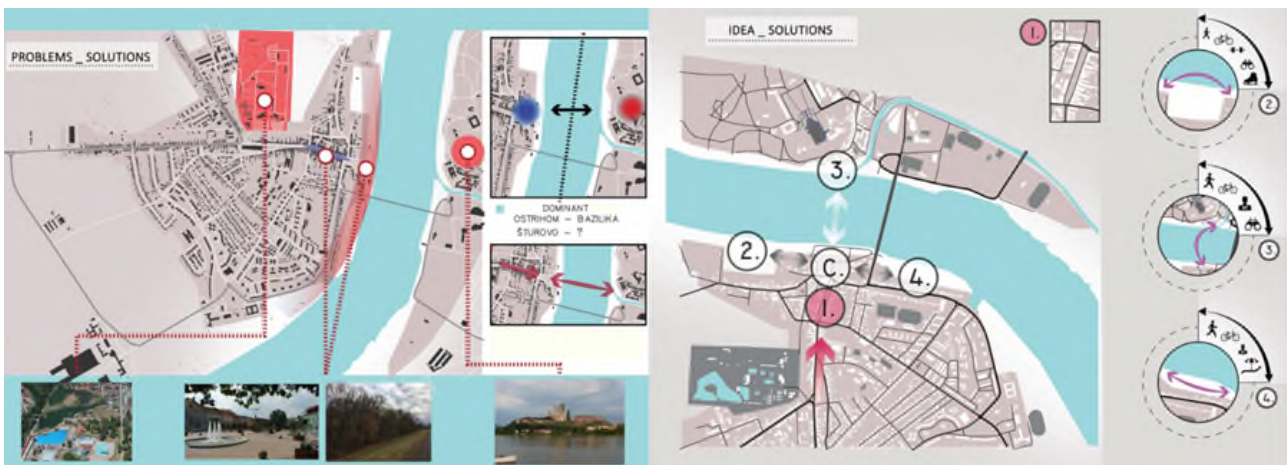


Figure 3: Routes analysis - areas for development/urban interventions and possible solutions (By student Rimár).

Analytical data create the basis for the selection of areas suitable for development; the creation of alternative concepts; and selection of the final solution. Further on, the authors asked students to select by themselves which area of the city

to address in their final proposal. This step emphasised the importance of the analytical stage, since the site selection should meet the criterion of specificness of the area. In the previous pedagogical practice, the site for students' proposals was set in advance by teachers.

From a methodological point of view, of special value was the co-operation for Design Studio V between the teachers and students from the Faculty in STU, BME in Budapest and the University of Belgrade, comparing different approaches to the analytical part of the design process. In the Faculty, the authors focused on a complex analysis of the territory. Students in Budapest placed emphasis on the emotional approach, particularly focusing on the specificities of the urban tissue of the city. Educators from Belgrade built on traditional analytical methods, i.e. the method of the American urban planner Kevin Lynch and the Space Syntax method.

In this context, it is interesting to observe the implementation of the research stage of the urban design process at other educational institutions. In terms of teaching methodology, in addition to the standard approach for assessing urban structure, it is appropriate to apply innovative approaches, which are described by Lee [10]. To assess the identity of a place an inspirational approach was suggested by Menik and Hadjisoteriou [11]. The authors present creative ways to map the area by highlighting its character through the involvement of its specific features.

In this context, they emphasised the importance of essays, photographs (with an emphasis on characteristic sequences), the role of sketch (aimed at typical sections and views) or cognitive (mind) maps [11]. Furthermore, of growing importance in teaching methodology is the questionnaire survey and interviews with residents and stakeholders. This leads to a better understanding of the basic characteristics of an area. For a successful management of the analytical part of the design process, it is beneficial to link the topic of the assignment to a current urban research topic; for example, *design with nature*, *design for the people* [12] or *the revitalisation of waterfronts* [13].

Haupt [12] and Kusińska [13] highlight in their contributions the benefits of well-targeted analyses based on the assignment topic. This was confirmed in this case by linking the topic of the assignment with the theme of the project DANUrB and the project's participating researchers - authors of this article. In addition, the theme of identity and evaluation of ensembles and important objects of modern architecture [14] or the phenomenon of preservation of monuments [15] is systematically addressed by different authors in the Faculty. This creates a basis of professional literature and space for professional discussion.

CONCLUSIONS

An innovative approach to the analytical part of the urban Design Studio V was based on a combination of rational and emotional approaches to the assessment of the area. Thanks to a well-managed collaborative form of teaching (the co-operation and sharing of information among the students), the authors managed to analyse a wide range of phenomena in various urban dimensions (the region, the city, typical parts of the city and public spaces).

The authors' ambition was to guide the students toward analysing the territory through their direct, subjective experiences, to teach them to discover, analyse, valorise and to be inspired to:

- analyse the diversity of the urban tissue of a city and to evaluate social, economic, environmental systems;
- discover the particularities of the city and respond to the local context;
- observe the way of life and daily routines, to perceive the historical development of the city, its culture, social and economic potential as an inspiration and evaluate it for the future.

Teaching design studios in its complexity *is simultaneously a problem-seeking and problem-solving activity [...] relying on both the methodologies of art and of science, but unites them into a unique approach driven by lateral thinking* [11].

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Table 1: Working stages, methods and data presentations for the analytical part in the urban design studio.

Stages of the research phase	The basic material contacts/set-out	Studied phenomena	Form processing
Study available materials - of territory - of topic	<ul style="list-style-type: none"> - land use plan of regions, settlements, zones - programme of economic and social development of the settlement - Statistical Office of the Slovak Republic - historical documents, archive materials - data from maps, Google maps, historical maps, photo documentation - Web sites of the city institutions - study of thematic literature 	<ul style="list-style-type: none"> - plan of spatial and functional development - the planned socio-economic development - socio-economic characterisations of the area - cultural and historical development of the territory - the characteristics of the city and place - activities and institutions in the area 	<ul style="list-style-type: none"> - tables - graphs - texts - photo documentation - text essay in relation to the theme and the place - reference examples
Visit to the territory/field trip/site visit	Meetings and communication: <ul style="list-style-type: none"> - representatives of public administration - experts, specialists - residents - representatives of institutions - entrepreneurs Tools: <ul style="list-style-type: none"> - map of the area, camera, notebook, questionnaire - smartphone 	<ul style="list-style-type: none"> - the importance of selected site in an urban context - evaluation of urban structure - land use - traffic-operation relations in the area and their intensity - quality of natural elements in the area - quality and intensity of social links and phenomena in the area 	<ul style="list-style-type: none"> - working maps - maps of emotions and feelings/mind maps - photo documentation - notes - sketches - questionnaires - poster - presentation
Evaluation Programme definition	Prepared working documents: <ul style="list-style-type: none"> - sketched maps - photo documentation - notes, sketches, graphs - questionnaires 	<ul style="list-style-type: none"> - characteristic features of the area - positive and negative phenomena in monitored areas - area development programme definition 	<ul style="list-style-type: none"> - SWOT analysis - maps of characteristic phenomena - problems and potential summary - evaluated questionnaires
Presentation	Participation: <ul style="list-style-type: none"> - students, educators, specialists, representatives of the city 	<ul style="list-style-type: none"> - characteristic features of the area - positive and negative aspects of the studied area - potential and development programme 	<ul style="list-style-type: none"> - presentation - Power Point - oral presentation in front of the commission