

# Chapter 11

## Transdisciplinary Research in Sustainable Scientific Education in the Field of Urbanism and Architecture

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### **EXECUTIVE SUMMARY**

*The chapter presents a case study based on transdisciplinary research, which was conducted at the Faculty of Architecture in Podgorica and is an innovation in architectural and urban practice of higher education in Montenegro. The study is based on the view that autonomous action of disciplines in the case of architecture and urbanism as multidisciplinary activities is limited, and an integrated approach to solving complex problems in the urban system is required. A global approach to research and solving urban issues is an important actor of sustainable development, where universities are central in this process. Collaborative educational discourses with a high degree of cooperation can develop an adequate platform for responses to the complex issues of the urban system. Producing experts with a developed awareness of a comprehensive understanding of the problem and transdisciplinary collaborative knowledge can strongly contribute to sustainable improvement, control, and management of urban spaces.*

## **ORGANIZATION BACKGROUND**

The study was conducted in 2013 at the Faculty of Architecture in Podgorica, Montenegro, a primary montenegrin institution of higher education in the field of architecture and urbanism.

Academic architectural and urban orientation in Montenegro is based on the integral program and urban conceptual strategy and integral methodological platform (Perovic, 2013).

Architectural and urbanism education at the University of Montenegro started in 2002 and has been developing on the systematic, synergetic strategy of urban studies and architectural programs, interacting at different levels of studying, communicative relationships, and tendency towards universal knowledge transfer(Perovic, 2013).

Various authors representing the importance of transdisciplinarity at universities (Andalécio, 2009; Nicolescu, 1998; UNESCO, 1998) start from the premise that the study of the complex issues of the modern world is not possible in a disciplinary context. The globalization of knowledge is essential in the third millennium. Transdisciplinarity at the universities is a condition for sustainable development (Nicolescu, 1998).

Authors who are dealing with transdisciplinarity in architecture and urbanism (Després, Vachon, & Fortin, 2011), indicate the importance of complex understanding of the problem, its complexity, and cooperation among different actors of society and forms of knowledge.

In this regard, there is importance in the implementation of transdisciplinarity as a model to better define the complex problems and identify adaptive solutions for sustainable development. Transdisciplinary research is directed toward coherence, holistic thinking, collaborative methodology, systematic approach, action, and network activity.

The mission of contemporary higher education in the 21<sup>st</sup> century implies orientation toward a development strategy for integrated knowledge, which as such, can meet challenges of global processes: urbanization, cultural, and social transformations.

Sustainability challenges require integrated forms of knowledge with a research platform. Transdisciplinary research approach can contribute to a better identification and treatment of problems.

In a time of global changes and dramatic loss of viability from the local to the global scale, science needs to take more responsibility for the problems. In a world characterized by rapid changes, uncertainty and increasing interconnection, there is a need for science that will contribute to the solution of complex and persistent problems (Hirsch Hadorn at al.,2008).In this context, science can largely contribute to the sustainable development of the physical structure of the city and is therefore necessary to reexamine current methods of scientific research in order to improve

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