
Contributing Towards More Sustainable Cities—Learning Through Collaboration

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Abstract

Purpose: In the year 2012 the Faculty of Architecture, University of Belgrade, initiated a new study program “Integrated Urbanism” at the master’s degree level. The program was established in order to develop a new educational profile of urban professionals, integrating economic, social and environmental issues and creating a network of relevant stakeholders as a platform for collaborative learning. The aim of this paper is to present the methodological approach developed for the collaborative learning process that will occur while students participating in this program prepare their master’s theses. *Methodology/ Approach:* The collaborative learning process is developed through the cooperation of students and mentors, the committee members, as well as with an external team of consultants from the most relevant institutions in spatial and urban planning and development in Serbia. The process was based on the platform of the “Integrated Urban Development Strategy for the Inner City of Kragujevac”, a new instrument of sustainable urban development. *Results:* Based on that experience, students formulated thirteen master’s theses, containing solutions for the implementation of selected individual measures that were defined in the Strategy,

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combining theoretical and practical knowledge gained within the program and the collaborative learning process. *Originality/value*: The orientation of the study program towards the establishment of a broad network of relevant stakeholders in the learning process, as a platform for student research and practical insights, provided a methodological approach of cooperation which can be applied in the future, by this and the other courses and faculties.

Keywords

Sustainable cities • Students • Collaborative learning • Integrated urban planning

1 Introduction

An increasing number of academic initiatives and scientific analysis reflect a response from universities around the world to global developments and goals for the future, oriented towards sustainability. Having in mind the ongoing processes of participatory development and discussions of the “Post 2015 Agenda”, we may expect that global demands on universities will continue to grow, particularly in terms of their responsibility to nurture and enhance innovation and collaboration in the education process and build the capacities of students as agents of change.

Ensuring the quality and collaborative approaches in higher education, as promoted by relevant instruments such as Bologna (1999) and Gratz Declaration (2005) may be seen as naturally compatible principles to those embedded in the sustainability concept. These approaches may help all involved universities to open doors to sustainability, even if they exist in not quite favorable environments.

Recognizing these positive trends, we also observe a number of common as well as country specific obstacles today. As it was pointed out at the beginning of this millennia, “...sustainable development is the biggest challenge to universities in the twenty—first century.” (Weenen 2000, p. 20). A recent analysis of the evolution of universities toward sustainability shows the best results in achievement from those academic institutions in which these principles are embedded into all the segments of their lives and, in particular, “...if a common vision is shared across the institution.” (Leal Filho 2009, p. 319). At the same time, evidence shows that the best performing institutions operate in the developed countries of Western Europe, North America and Australia/Oceania (Ibid., p. 314).

In spite of the commitment to the concept and values of sustainability, as well as to modern requirements for teaching in higher education, the integration of sustainability into University of Belgrade is sharing challenges with other institutions in a country that has experienced recent turbulent political and social changes and longstanding economic transition. In such a complex environment, it is not surprising that, instead of a systematic integration of sustainability, there are rather sporadic initiatives by certain faculties, departments or individual teachers. As a result, there are positive examples of introducing new academic subjects into study

programs at faculties within all faculty profiles at the University of Belgrade, although they are rarely accompanied by other aspects of university sustainability (Orlovic-Lovren 2015).

The reform of higher education in Serbia in accordance with Bologna principles encouraged the diversification of study programs on different levels of study (undergraduate, master's, doctoral). It established a formal basis for the development and creation of new programs of study in accordance with the requirements of the development of the discipline and labor market needs (Law on Higher Education 2005; Rules on the Standards and Procedure of Accreditation of Higher Education Institutions and Study Programmes 2006; University of Belgrade 2006 2007a, 2007b; Faculty of Architecture 2006, 2008). Thus, the reform of the structure of higher education in accordance with Bologna principles formally imposed commitment of faculties to developing and improving curricula, thus slowly but substantially changing their traditional institutional framework and tendency to retain the status quo.

The faculty of Architecture within University of Belgrade is among the first institutions of higher education in Serbia that adopted a new model for studying at the bachelor and master's levels¹. However, even though the new model has opened the possibility to introduce specialized profiles in the first round of accreditation under the new standards, primarily in the master's studies of architecture, the general profile of the architect's profession was retained with few hints of an interdisciplinary approach. The traditional form of educating architects prevailed, a universal profile characterized by practical experience and directed toward specific disciplines (planning, urban planning, design, construction) (Inženjerska komora Srbije 2012).² This approach introduced only a "mild" orientation within the general study of architecture at the master's level towards the realities of designers, urban planners and the technologies of architecture.

However, the political changes in Serbia in 2000, the transition to a democratic system and market economy as well an orientation towards the inclusion of the society within European and world trends are fundamentally changing the framework for action within planning. The newly created socio-economic context has led to changes within the concept of spatial interventions and influenced changes in the professional approach to spatial and urban planning. That has opened space to develop new knowledge and professional profiles that will be able to respond to the complex challenges of new practices in a country in transition and in accordance

¹The reform of teaching was carried out within the EU TEMPUS programme managed by professors from European universities, with the support of their colleagues from the Faculty of Architecture. The TEMPUS programme is the EU programme that supports reform and modernisation of higher education in partner countries and one of the oldest and most successful programmes of cooperation with the EU.

²The connection to practical experience is firmly established through the process of obtaining the professional licenses issued by the national body of the Serbian Chamber of Engineers (Serbian Chamber of Engineers, 2012).

with contemporary trends in the education of urban planners that promotes interdisciplinary and integrated approaches from a sustainable development perspective.

The study program “Integrated Urbanism” at the master’s level at the Faculty of Architecture of University of Belgrade, was initiated by the Faculty Urban Planning Department to develop a new educational profile of urban professionals. Founded on the sustainability concept, this initiative reflects the requirements and opportunities brought by the Bologna Declaration, as well as the needs of society for practitioners able to face the challenges and bring solutions to the complex issues of modern urban planning. In the light of the previously mentioned country obstacles and University challenges, this initiative represents much more than “sporadic change” or the introduction of a new subject. Building bridges across disciplines and between theory and practice, this new study program aims to overcome the previous traditional, “engineering” approach, break the barriers between the technical and social sciences and open the space for innovation, critical thinking and collaboration—all organic dimensions of modern learning and the sustainability concept.

The whole process of creating the curriculum was conducted by applying a participatory approach with the involvement and engagement of the vast majority of the members of the Department (Maruna and Milojkic 2014). After conducting the formal procedures and completing the process of accreditation, in the autumn 2012, the first generation of students enrolled. This established the first study program in the field of urban planning in Serbia.

In this paper, the applied methodological approach and the new Study program are not elaborated on in all the details and stages of its development. The central focus is on the process of collaboration. Though embedded in the Program at all stages—our particular aim is to present the process of collaborative learning of students participating in this program during the preparation of their master’s theses.

2 Theoretical Framework and Methodological Approach to Development of the Study Program

Analyzing numerous discussions on the multidimensional concept of sustainability, the authors recognize two “generations of sustainability thinking”: the first approaching sustainability as a future state or desired outcome, and the second emphasizing the process by which the goal of sustainability is reached, focusing on “...decision making, public engagement, collaboration, and deliberation...and attempting to reconcile them with urban sustainability’s ecological, economic, and social components”(Robinson, in Leal Filho 2009, p. 110). By attempting to clarify terminology and better define terms often used as synonyms, others offer ways to consider sustainability as a goal, ideal and sustainable development as a process of achieving it (Scott, Gough, according to Orlovic-Lovren 2012).

Approaching urban planning from an integrated perspective, we think also in terms of a complex process, in which all steps or results might not be predefined. But isn't that so with sustainability as a whole? Uncertainty as a feature of modern times requires education at all its stages to develop the capacities of people of tomorrow to deal with visions and goals which are not predetermined and completely clear. If opening space for creative and critical thinking is among the possible answers to these requirements, then students of studies founded on the sustainability concept should have the freedom not only to choose the issues they are going to work on, but also to challenge existing approaches, traditional solutions and the usual methods used. As we can learn from the experience of integrating sustainability in higher education, it requires not only a re-evaluation of the internal institutional mission, but also a re-thinking of the teaching approach. "Teaching about sustainability presupposes that those who teach consider themselves learners as well and that students and other concerned groups of interest are considered as repositories of knowledge and feelings too." (Walls and Jickling 2002, p. 227). Expanding the network of mentors from the Faculty, to experts from other relevant institutions and to practitioners—should contribute to the enrichment of "repositories of knowledge and feelings" as well as of "real life perspectives" and opportunities to learn for all involved.

That process is, therefore, more than simply cooperation between the faculty and institutions, the local community or others. It is rather a network of interactive learning, facilitated rather than strongly directed by mentors, leaving space for freedom and responsibility for students as well as for other participants. In that sense, we understand collaborative learning as less directed, more student-centered, with stronger emphasis on the process than on the end result. Though cooperation is a necessary element of the process, in terms of teaching approaches, collaborative learning—in comparison with cooperative learning—is often seen rather as a philosophy, an approach to interaction between responsible learners, than as a classroom technique oriented towards accomplishment of a specific goal (Panitz 1997).

Another meaning of collaboration important for our approach is related to building closer connections between university and community. Embedded in different recommendations for developing sustainability at the university level, notions of practicing collaboration, community engagement and partnership are not being adequately applied, nor emphasized in the current literature (Renner and Cross in Leal Filho 2009). Opening space for local community representatives to collaborate with students as advisors creates potential for mutual contribution to sustainability, rather than for exercising the "social responsibility" of university, which might easily turn into a "one direction" process.

In that way, we may look at all the actors of this process as of a learning community, engaging students and teachers, as well as community members. In recent literature, especially in works of authors taking constructivist approach to instruction and learning, we may find different definitions, with at least few common elements characterizing community of learners: common working on projects and learning agendas, supporting and learning from one another as well as from their environment (Wilson 1996). Entire process of collaboration may be seen in

such a context as “co-construction of knowledge” not only between students and other actors, but within wider and long term partnership between university and community, which modalities largely differ nowadays, in accordance with the discourse and approach accepted by certain faculty or experts (Hall et al. 2015).

The concept of sustainable cities from its first definitions in the early 1990s, as the achievement of inhabitants’ development needs without imposing unsustainable demands on local or global natural resources and systems, has developed to a much broader concept which integrates social development, economic development, environmental management and urban governance which refers to the engagement of different levels of authorities and institutions in management and investment decision-making processes. Its capacities to adapt—as an important aspect of the sustainability of cities is emphasized within the context of its particular history, policy priorities and the goals defined by each pillar (UN 2013).

In summary, we may underline the following principles established and incorporated in the process of the program development from the very beginning:

- Interdisciplinary orientation, in terms of content as well as the opportunity of students from other scientific fields to enter this master program
- Building connections between teaching and research projects undertaken within the Department for Urban Planning
- Establishing cooperation with relevant expert institutions and organizations in Serbia and abroad, including foreign universities
- Direct involvement of national and international experts in the teaching process
- Participation of students in international students’ competitions in the field, in order to evaluate the quality and competitiveness of knowledge gained by participation in this study program.

The principles listed above served as guides in the development of the curriculum, formulated in order to establish its legitimacy and to increase awareness within professional circles about the necessity to educate new generations of urban planners using an integrated approach. In fact, the newly established study program has undertaken the mission of establishing a new professional paradigm in this field in Serbia.

3 Developing the Master’s Thesis—A Process of Collaborative Learning

The great challenge for the newly established master’s program was the formulation of the final master’s work of the first generation of students. Creating the master’s work took place during the final semester and was led by a mentor and two other members of the commission, the first from the parent field and other from the wider teaching faculty of the university. At the Faculty of Architecture the defence of the final master’s thesis is open to the public and on that occasion an exhibition of works was presented over several days. This was an opportunity for colleagues and

the wider professional public to gain an insight into the results of the students' work and assess their quality. Since the study program promotes new knowledge and establishes a new framework for professional work, the process of formulating the final project required careful consideration. A strategic decision was adopted that the formulation of the master's thesis would rely on the contemporary planning paradigm that with international involvement is introduced to urban planning with the cooperation of local government and its experts.

It was decided that the students' assignments rely directly on the "Strategy of integrated urban development of the central zone of Kragujevac", as one of the successful results of the international project "Improvement of land management at the local level in Serbia" funded by the Government of the Federal Republic of Germany and implemented by the German organization GIZ-AMBERO. Through cooperation with national and local institutions in Serbia, this organization promotes the new EU instruments for sustainable urban development aiming to improve and strengthen planning capacity in Serbia. "The strategy of integral urban development of the central zone of Kragujevac" was conducted in cooperation with the local government of Kragujevac by applying an innovative methodological approach with the participation of a wider range of stakeholders. Through the process of Strategy development, existing city policies, plans and adopted proposals directed towards sustainable industrial development were reviewed, encouraging investment in accordance with the interests of the public sector, investors and citizens' needs.

As a starting point for formulating the final master's works, individual integral intervention measures were chosen as specific results—outputs defined within the Strategy. The students' task was to choose a single concrete action and through research further develop it into a project solution. The reliance of the students' works on results obtained under the sponsorship of the European organization importantly grounded the content of the task within the framework of the new planning paradigm and in that way ensured the legitimacy of the topic. Thirteen integral measures within different areas of urban development of the city of Kragujevac were chosen and then shaped into specific project tasks and elaborated into concrete spatial solutions (Table 1).

In addition to direct mentors and members of the larger mentoring teams, the consulting team for the students' work included experts in urban planning from the most relevant institutions in Serbia such as a ministry (Ministry of Construction, Transport and Infrastructure), a scientific institute of national importance (The Institute of Architecture and Urban and Spatial Planning of Serbia), a national body for the issuance of professional licenses (Serbian Chamber of Engineers) and a city planning institution (Institute of Urban Planning of Belgrade). The members of the consulting team were also participants in the development of the Strategy of GIZ-AMBERO and Kragujevac (Fig. 1).

The process of the students' collaboration with consulting team members can be described as one of professional interactions that flowed in various forms:

Table 1 Strategic measures and topics of students' master's theses

Strategic measure	Master's thesis subject
Functional linking of the content within the complex "Milosevic venac"	Promoting cultural heritage as a possible means for improving the quality of life in Kragujevac
Marketing of priority sites and potential construction land	Promotion of local economic development in the field of tourism as a function of good governance in Kragujevac
Reconstruction and improvement of the quality of public space, functionally linking urban and tourist focuses	Improving the quality of recreation within a public space through urban design
Relocation of a city market to a new space within the complex of quarters "Radomir Putnik"	The formation of a city marker in Kragujevac as a new place
Improving the territorial cohesion of focal areas—Kragujevac, an outdoor gallery	"Spread further"/Art District of Kragujevac
More intensive use of land and facilities and shaping the urban matrix	Revitalization of the coastal areas of the central city zone of Kragujevac aiming to integrate urban development
Improving pedestrian and bicycle traffic and the establishment of corridors	Green mobility as a function of the quality of life
"Art path" to the memorial park Sumarice	Collaborative artistic events as a driver to increase social interaction and community improvement
The more intensive use of land and facilities at the site of the army quarters "Milan Blagojevic" in Kragujevac	Model approach to the regeneration of brownfield for more intensive use of land and facilities—locality: army quarters "Milan Blagojevic"
Increasing capacity and improving the quality of services (public services in education, health and social protection)	Enhancing capacity in the field of higher education through public/private partnership
Organization of the events and exhibitions of the "Campus of Culture"	Regeneration of derelict land through temporary use
A program of support for small enterprises—establishment of BID/zones for the improvement of businesses	Implementation of the model for business improvement for regeneration of the Kragujevac central city zones
"Kragujevac—axis of education and innovation"—an update and improvement of educational content and the network in accordance with new technologies	Innovation district of Kragujevac

- *Professional dialogue*: new knowledge, adopted by downloading themes from the Strategy, and then discussed, elaborated and modified during work on the students' tasks.
- *Problem solving and research*: throughout the semester, the students and their mentors, along with period consultations with mentoring committee members, successively worked on the research and design of their solutions.

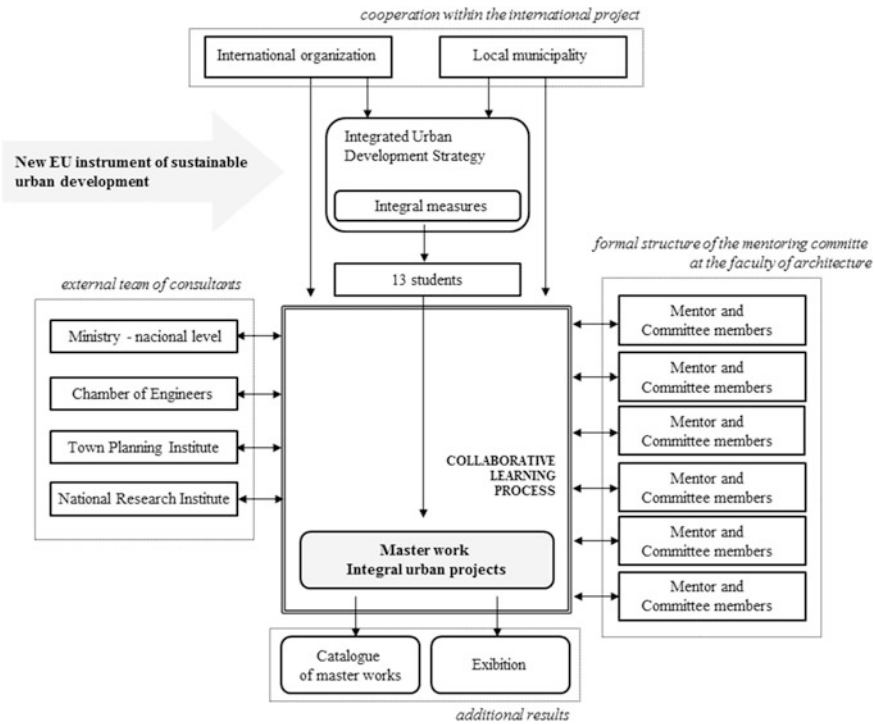


Fig. 1 Matrix of collaboration in the process of development of students’ theses

- *Workshops and professional feedback:* during the semester two workshops with the consulting team were organized at which students presented the results achieved thus far and received useful suggestions for additional work.
- *Insight into the situation on the field:* students visited the town of Kragujevac and relevant locations and spoke with local government representatives.

As a result, during this process mentors presented the theoretical knowledge of new professional paradigms in the field, which were then analyzed and “passed through the filter” of the practical experience of prominent members of the consultant team and then elaborated and confirmed in the real context of the experts from the local government of Kragujevac. The process of creating the final master work, in that way, represented a “polygon” for collaborative learning, not only for the students themselves, but also for the experts within the field of theory and practice.

The final master works, after public defense and exhibition at the Faculty, were presented and awarded second prize in the category of students work at the 23rd International urban planner’s exhibition in Belgrade. A bilingual catalog was also created and published as a material for the general promotion of these works, along with a manual for this innovative methodological approach to final master works (Maruna and Colic 2014).

4 Conclusion

The first master's study program at the Department of Urban Planning at the Faculty of Architecture, University of Belgrade developed on the principles of an integrated approach and based on the concept of sustainability not only initiated internal dialogue among faculty, but also discussion within a wider professional public regarding the professional development of a new generation of urban planners. The development of this program by using a bottom-up participatory approach provides a basis for further cooperation within and without the Faculty and a new opportunity for a wider range of stakeholders to take responsibility for the success of these goals.

In addition, involving a consulting team to work with students grounded student work in the framework of actual practices and the conditions in which the profession operates. The experience of working with the consulting team members had a significant role in establishing the final results of student work within a real context. This process-based concept of creating the final master work with the participation of the mentoring committee, members of the consulting team and participants in the development of the Strategy, essentially created space for a high-quality professional dialogue and, again, distributed responsibility for the learning process and its results.

The public success of the students' work was an indicator of both the quality of this process and of the motivation of the students involved, as well as that of their mentors and consultants. It represented a sort of public exam not only for the creators of the study program, but also for this new concept of master's studies. The experience proved that the collaborative learning process is a valid methodological approach for the development of high quality knowledge and that during its various stages it can be further improved. The Department for Urban Planning has now accepted the concept of collaborative learning as a successful approach for the development of a master thesis, and is continuing work on its improvement and further application in the next academic year.

Taking into account that, "planning besides sustainability should provide an adequate response to the increasingly visible effects of climate change, what is to some extent the task of sustainability planning, and also to provide conditions for adjustments" (Crncevic 2013:82), in the academic 2014/2015 year, the second generation of students in this master's study program "Integrated Urbanism" took the theme *Resilient Cities: Disaster Risk Management in Municipalities of Serbia* as a framework for developing the master's thesis, based on the methodological guidelines issued by UNSIDR—*How To Make Cities More Resilient: A Handbook For Local Government Leaders*.

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