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Toward the Integration of SDGs in Higher Planning Education: Insights from Integrated Urbanism Study Program in Belgrade

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Abstract: With the adoption of the UN Agenda 2030, UNESCO has put forward new recommendations to integrate Sustainable Development Goals (SDGs) into the teaching process. In particular, SDG 11—"Sustainable cities and communities"—is aimed at education in the field of urban planning. In parallel with this, the Guidelines of the European Council of Spatial Planners ECTP-CEU have set out the skills needed for the planning profession. The goal of this paper was to verify the compatibility of the curricula of the master's study program in Integrated Urbanism at the Faculty of Architecture, University of Belgrade, with the recommendations of the UN, UNESCO, and ECTP-CEU. A qualitative analysis of the structure and content of the course curricula was applied on three levels; curricula were compared to: (a) the expected skills in the planning profession, (b) the SDG 11 targets defined in UN Agenda 2030, and (c) the learning objectives, as formulated by UNESCO. The research results highlight several key aspects to improve the curricula, and include the concept of sustainability: (a) the structure of the course curricula, (b) interdisciplinarity, (c) partnerships with institutions and communities, (d) links with scientific research work, (e) practice orientation, (f) improving teachers' competence levels, and (g) improving the accreditation process. These results can be used as guidelines to improve the curricula of the Integrated Urbanism study program in the next accreditation cycle, and also as a methodological approach to verify the compatibility and dimensions of higher planning education (HPE) in relation to the expected skills and global requirements of education for sustainable development (ESD).

Keywords: curriculum development; skills; learning objectives; post-socialist country; Serbia

1. Introduction

Although sustainable development has been applied continuously for decades [1–7], with the adoption of the global Agenda 2030 [8] and its sustainable development goals, the importance of higher education and the role of academia in reaching them is once again at the forefront [9]. One of the main principles of Agenda 2030 is to equip individuals to deal with the complex challenges that are anticipated in the future. Therefore, universities are expected to develop students' abilities to act as agents of change throughout the world. New generations of professionals should epitomize a new energy in society that will implement SDGs [10].

Considering the specific features of national contexts and the diversity of planning practices [11,12], from the viewpoint of spatial development, higher planning education for sustainable development (HPESD) comprises a special topic of discussion [13,14] that includes a political, environmental, and legal framework [15,16], as well as language, culture, and the culture of planning [17].

The goal of this paper was to set down guidelines to improve HPESD, as viewed through the prism of the Integrated Urbanism master's study program in the Faculty of Architecture, University

of Belgrade. The research focuses on a qualitative analyses of the curricula of the two-year study program that has been offered continuously since 2012–2013. Particular attention was paid to analyzing goals and learning outcomes as central components prescribed by the Bologna process for higher education [18].

The study program structure was established in answer to the needs of spatial development practices in post-socialist transition, and was first viewed through the prism of the latest conclusions of the European Council of Spatial Planners/Conseil Européen des Urbanistes (ECTP-CEU) [19], i.e., the most relevant European professional association with whom to define the needed skills. The set of principles that is recommended goes beyond the specific planning culture of individual national practices. Then, the involvement of the targets defined by SDG 11 Sustainable cities and communities was examined [8] in the structure of individual curricula. Finally, an analysis of the curricula in relation to the expected learning objectives for SDG 11 recommended by UNESCO [9] was carried out.

The research largely results from the author's membership and participation in the activities of the University of Belgrade Board of the Inter-University Sustainable Development Research Program (IUSDRP) and the European School of Sustainability, Science and Research (ESSSR).

1.1. Higher Planning Education Requirements for Sustainable Development

As an interdisciplinary activity focused on spatial development, for decades, planning has fostered the principles of sustainability promoted as early as the Brundtland Report [20] and following Agenda 21 [21]. Since 1995, sustainable development has been at the core of the planning profession within the Core requirements of high-quality European planning education put forward by the Association of European Schools of Planning [22]. Current demands to improve HPE sharpen sustainability issues within the context of complex global challenges and rising issues toward land use and natural resources, such as growing populations and climate change [15–17,23–25]. Viewed from another perspective, the field of planning is considered today as a key profession in coming to grips with the demand to develop sustainable communities, cities, and regions [26,27], owing to the fact that the "multidisciplinary nature of planning might be just what is needed in the contemporary world" [26] (p. 489).

Even though universal common core curricula for HPE have not been set and the academic community do not agree on the skills required for the planning profession [15,16], based on the views of the most reputable European professional associations, it is possible to single out key skills for planners. Together with UNESCO's latest recommendations for the development of the key skills needed for sustainable development, the list includes inter- and trans- disciplinarity, collaboration and participation, problem-solving, critical thinking, ethics, strategic thinking, anticipatory thinking, communication and conflict resolution, creative visioning, project management, leadership, stakeholder management, and the linking of formal and informal learning [9,19,22,28]. Developing curricula in line with key skills gives rise to a framework for the evaluation of both students' learning and teachers' effectiveness [29,30]. In addition, Madsen [31] stressed the importance of changes in didactic thinking and practice for sustainable development that places the teacher at the centre of the education process. ESD requires the teacher to have suitable skills, knowledge, and experience in sustainability issues, so that they are able "to work with their own values and preferences" [31] (p. 3779).

In addition to the recommendations regarding skills, the latest ECTP-CEU [32] document emphasized the importance of including in study program curricula skills from the following fields: local economic development, landscape planning, mobility, maritime/marine planning, geographic knowledge, and European-scale policy and practice. On the other hand, noting the challenges faced by cities from a global perspective as summarized in the New Urban Agenda [14], the N-AERUS network singled out priority topics for academic institutions: informality, governance, and housing and planning (in which regulations, finance and economics are considered) [33]. Planning education recommendations lead to a universal set of skills that are the result of globalization and massification, going beyond the traditional nation- and context-specific study programs, especially among developing and transitioning countries [27].

This completes the set of requirements that will be used as a framework for the research in this paper.

1.2. Context and Concept of the Study Program

The introduction of Bologna principles in higher education in Serbia [34] created room for the diversification of study programs and the development of specialized knowledge at different education levels. This possibility spurred the Department of Urbanism of the Faculty of Architecture, University of Belgrade, to develop a master's study program entitled "Integrated Urbanism", in order to train generations of new professionals to grapple with the country's new spatial development challenges in post-socialist transition [35,36]. The need for this type of specialized education became clear with changes in the country's socio-economic system leading to a market economy and democratic principles being applied to public policy decisions. These changes considerably modified the framework for managing spatial development, and consequently, planning itself [23,37–39].

The study program was developed based on an understanding of the need to include diverse support elements in the construction of knowledge, establishing a broad front of participants in acquiring and placing this knowledge. In accordance with this, the study program's mission was formulated as the basis for its structure: (a) an interdisciplinary orientation inclined toward related fields, (b) knowledge based in scientific work, (c) developing partnerships with relevant professional institutions and organizations, (d) cooperation with foreign faculties, (e) including experts in the teaching process, and (f) presenting results on the national and international levels. These principles directly impacted the development of pedagogical approaches and the attainment of numerous successful and important results [40–43].

The structure of the two-year study program is such that it gradually builds the knowledge needed for planning work, both thematically and methodologically. The first semester provides an overview of contemporary know-how and considers the concept of planning activities. The second semester focuses on urban design, and the third on urban or strategic planning. The fourth semester is completely devoted to the elaboration of the master's thesis, with mandatory practice in the profession. Every semester includes practical teaching in the form of a project studio that promotes an integral approach to finding solutions.

Although the curriculum was created before the adoption of Agenda 2030 and the new SDGs, the knowledge built into the study program is the result of previously-acquired scientific, professional, and instructional skills of the teaching staff and associates of the Department of Urbanism over several decades of work in these fields. Department members' considerable international activity had a significant impact on their competence, and therefore, on the modern development of the study program concept. In this regard, the Department of Urbanism has taken a leadership position in embedding sustainability in the teaching process and indirectly in the academic institution [44].

The Integrated Urbanism master's study program in the Faculty of Architecture was predominantly developed according to the needs of society in the post-socialist transition; therefore, the latest requirements for the development of higher education in the field of planning and in accordance with the concept of sustainability mentioned in the previous chapter create an opportunity for its further improvement.

2. Materials and Methods

Research was conducted using a qualitative content analysis of the curricula of the Integrated Urbanism master's program. Documentation from the study program's official accreditation [45] was used as primary literature for the analysis. This documentation includes the curricula of individual courses with data on their status: obligatory courses (OC); study unit (SU); elective courses (EC), ECTS number, teaching structure; lectures, exercises, other forms of teaching and independent research, as well as a description of course content; goals, teaching unit content, teaching method, learning outcomes, basic literature, and the system of evaluation.

Curricula were analysed on three levels:

1. Analysis of study program course profiles compared to expected skills in the planning profession. Eight planning principles recommended by ECTP-CEU—an umbrella association that advocates professional recognition of planners at the European level [19]—were used to validate skills. The principles this association recommends covering the following aspects of planning practice: Theory of Planning, Socio-Economic Environment, Built Environment, Natural Environment, Techniques, Instruments, Planning Products, and Independent Research. The analysis units included (a) course title, (b) course status, (c) course teaching structure, and (d) a short description of course content.

2. Analysis of course structure compared to the targets for SDG 11: Sustainable cities and communities as defined in UN Agenda 2030 [8]. SDG 11 contains 10 targets: 11.1 Adequate, safe and affordable housing; 11.2 Safe, affordable, accessible and sustainable transport systems for all; 11.3 Inclusive and sustainable urbanization; 11.4 Safeguard the word's cultural and natural heritage; 11.5 Reduce the number of people affected by disasters; 11.6 Reduce the environmental impact of cities; 11.7 Provide universal access to safe public spaces; 11.A Support links between urban, peri-urban and rural areas; 11.B Increase integrated policies and plans toward mitigation and adaptation to climate change; 11.C Building sustainable and resilient buildings utilizing local materials. Analysis units included (a) course title, (b) course status, (c) a short description of course content, focusing on an analysis of teaching unit goals, content, and course learning outcomes.

3. Analysis of course structure compared to the learning objectives as formulated under the UNESCO framework [9]. In their publication "Learning Objectives for Sustainable Development Goals" for each SDG, the learning objectives are described in the cognitive, socio-emotional, and behavioural domains: "(a) the cognitive domain comprises knowledge and thinking skills necessary to better understand the SDG and the challenges in achieving it; (b) the socio-emotional domain includes social skills that enable learners to collaborate, negotiate and communicate to promote the SDGs as well as self-reflection skills, values, attitudes and motivations that enable learners to develop themselves, and (c) the behavioural domain describes action competences" [9] (p. 11). Analysis units include (a) course title, (b) course status, and (c) a short description of course content, focusing on an analysis of learning outcomes.

The overall analysis provides insight into the study program's compatibility with the expected skills for higher planning education (HPE), and with the expected learning objectives and skills for SDG 11: Sustainable cities and communities.

3. Results

Twenty autonomous study program courses were analyzed: six for each in the first three semesters and two from the fourth, final semester. Elective courses were left out, two in each of the first three semesters, since they are from other study programs, and therefore, cover a broad spectrum of topics that are out of the scope of this research. The analysed courses were divided by semester and status (OC, SU, and EC). Group OC mostly covers theoretical and methodology courses; group SU covers courses dealing with a common theme; and group EC includes courses in the final semester in which students have practical work and work independently on their final thesis and project.

3.1. First Research Level

As explained in the previous section, the first research level analysis study program course profiles were compared to the expected skills in the planning profession. The eligibility assessment was conducted according to the following criteria:

- For the planning principles of Theory of Planning, Socio-Economic Environment, and Natural Environment, a comparison was undertaken in terms of the planning principles from the

ECTP-CEU publication with the formulation of the course title and the description of the course content, especially the teaching unit content;

- For the planning principle of Built Environment, direct formulations, as well as the synonyms used in the domain of Architecture and Planning were compared in terms of the formulation of the course title and the description of the course content, especially the teaching unit content;

- For the planning principles of Techniques, Instruments, Planning products, particular attention was paid to the analysis of courses that include exercises and other forms of teaching in the teaching structure, as well as analysis of the course content, especially the teaching unit content, teaching method and learning outcomes;

- For the planning principle of Independent Research, a search was carried out for the course teaching structure in which the type of teaching—i.e., independent research work—was specified.

The incidence of the planning principles recommended by ECTP-CEU in the courses of Integrated Urbanism is shown in Table 1. The principles, in some cases courses with the same name, are clearly contained in various courses, indicating an integral approach to teaching.

"Built Environment" was represented the most, in as many as 14 courses. This is understandable, considering that the study program is based in the field of architecture. "Build Environment" was not present in courses that focused on specific fields of science (for example, Economy and Sociology) and those where specific techniques and tools were studied (for example, GIS and Participatory planning). The principle "Techniques" was also well represented, i.e., in 12 courses, where most of the learning was acquired through exercises. This principle was also present in courses oriented toward planning products, but with other forms of teaching. Likewise, it was found in some theoretical subjects as part of interactive teaching. "Socio Economic Environment" and "Theory of Planning" were both found in 10 courses. The former was found above all in the courses with the same name and in those that targeted integrated planning products where specific estimation techniques were taught. In addition, the "Theory of Planning" principle was found primarily in courses of a theoretical nature taught solely through lectures, as well as in the course with the same name. It was also present in certain courses oriented toward tools or methodologies where theoretical instruction is needed as an introduction to exercises.

The next group of principles in terms of representation in the courses includes "Instruments", found in eight courses, followed by "Natural Environment" and "Planning Products" in six courses each. Both principles were present in courses oriented toward planning products. In addition, "Natural Environment" was also found in courses in the field of urban design, while "Planning Products" was present in methodology courses. The principle "Independent Research" was found solely in the courses "Professional Internship" and "Master's Thesis and Project".

Table 1. Master course profile according to the eight ECTP-CEU [19] planning principles.

		Course Title	Theory of Planning	Socio-Economic Environment	Built Environment	Natural Environment	Techniques	Instruments	Planning Products	Independent Research
I	OC	Urban regulations (2 + 0 + 0 + 0) *	+		+			+		
		Contemporary urban phenomenon (2 + 0 + 0 + 0)	+	+	+					
		Contemporary urban concepts (2 + 2 + 0 + 0)	+		+		+		+	
	SU	Integrated analysis of the territory–studio (0 + 0 + 8 + 0)		+	+	+	+	+	+	
		Urban research through GIS (1 + 2 + 0 + 0)			+		+			
		Research methods and techniques (1 + 1 + 0 + 0)					+			
II	OC	Urban economics (2 + 0 + 0 + 0)		+			+	+		
		Theory of urban design (2 + 0 + 0 + 0)	+		+	+				
		Methodology of urban design (2 + 2 + 0 + 0)		+	+	+	+		+	
	SU	Integrated urban design – studio (0 + 0 + 8 + 0)		+	+	+	+		+	
		Techniques for participatory planning (1 + 2 + 0 + 0)	+				+	+		
		Seminar 1 (2 + 0 + 1 + 0)	+		+					
III	OC	Urban space as public good (2 + 0 + 0 + 0)	+	+						
		Planning theory (2 + 0 + 0 + 0)	+	+	+		+	+		
		Methodology of planning (2 + 2 + 0 + 0)	+		+		+	+	+	
	SU	Integrated urban strategies – studio (0 + 0 + 8 + 0)		+	+	+	+	+	+	
		Urban management (1 + 2 + 0 + 0)		+	+		+	+		
		Seminar 2 (2 + 0 + 0 + 0)	+	+	+	+				
IV	EC	Professional internship (0 + 0 + 0 + 60)								+
	EC	Master thesis and project (0 + 0 + 8 + 16)								+

* (teaching structure: lectures + exercises + other forms of teaching + independent research work).

3.2. Second Research Level

The second research level comprised an analysis of course structure regarding learning objectives for ESD compared to the ten targets of SDG 11: Sustainable cities and communities [8]. The eligibility assessment was generally conducted by comparing the formulation of the targets with the formulation of selected units of analysis. A comparison was performed in several steps:

- SDG target formulations were reduced to topics focusing on "housing", "transportation", "inclusion", "heritage", "disaster management", "environment", "public spaces", "peri-urban and rural areas", "climate change", and "construction materials"

- In relation to the identified topics, the content analysis of the mentioned units of analysis (goals, content, and outcomes) was carried out in two ways: (a) finding the same terms within the content and then their synonyms, (b) content analysis according to the similarity of terms. For example, the topic "inclusion" included the terms "access for all", "vulnerability", etc., whereas the topic "climate change" included terms such as "resilience", "adaptation", "mitigation", "energy efficiency", etc.

- After identifying a term, the context in which it appeared was analyzed. The extent to which the terms were used in the context of sustainability, that is, whether they covered most of its components (society, economy, environment, etc.), was assessed. Thus, for example, the prefix "green" before the term "public spaces" was considered to fulfill the sustainability criteria because it encompassed aspects of society and the environment.

The representation of these targets in Integrated Urbanism study program courses is presented in Table 2.

Table 2. Representation of targets for SDG 11 [8] in the study program courses.

		Course Title	Targets for Goal 11									
			11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.a	11.b	11.c
I	OC	Urban regulations	+	+	+			+	+	+	+	
		Contemporary urban phenomenon	+		+	+		+	+			+
		Contemporary urban concepts	+		+	+		+	+	+		+
	SU	Integrated analysis of the territory-studio	+	+	+	+	+	+	+	+	+	+
		Urban research through GIS										
		Research methods and techniques										
II	OC	Urban economics	+		+		+		+	+		
		Theory of urban design	+	+	+	+		+	+			+
		Methodology of urban design										
	SU	Integrated urban design-studio	+	+	+	+	+	+	+	+	+	+
		Techniques for participatory planning										
		Seminar 1			+	+			+	+		
III	OC	Urban space as public good	+		+		+		+	+		
		Planning theory			+	+		+	+	+		
		Methodology of planning										
	SU	Integrated urban strategies - studio	+	+	+	+	+	+	+	+	+	+
		Urban management			+	+		+	+	+		
		Seminar 2	+	+	+	+	+	+	+	+	+	+
IV	EC	Professional internship										
	EC	Master thesis and project	+	+	+	+	+	+	+	+	+	+

Legend: ▨ Tools and techniques courses, ▨ Methodological courses, ▨ Practice-oriented courses, □ Other courses.

This type of analysis could not be applied to three groups of courses since their nature and content did not deal with sustainable topics. These were courses that focused on mastering concrete tools and techniques for spatial planning development, such as "Urban Research through GIS" and "Techniques for Participatory Planning", methodology courses where various approaches to practice are learned, such as "Research Methods and Techniques", "Methodology of Urban Design",

"Methodology of Planning", and "Professional Internship" as a practice-oriented course directly linked to spatial development.

It can also be seen that some of the courses included all the targets. This group includes "Seminar 2", a teaching polygon for guest lecturers to introduce current research from various related fields and topics, the studio courses "Integrated Analysis of the Territory—Studio", "Integrated Urban Design—Studio" and "Integrated Urban Strategies—Studio", which focus on an integrated approach to spatial development planning at various levels of complexity depending on the semester in which the class is taught, with varying themes by generation. The same applies to the course "Master's Thesis and Project", which is the students' final paper.

Some of the targets were quite poorly represented in the courses Target 11.2, which focuses on sustainable transport systems, Target 11.5, which deals with the reduction of the number of people affected by disasters, and 11.B, which promotes an increase in integrated policies and plans toward mitigation and adaptation to climate change. This was the case, on the one hand, for general theoretical courses where concepts, as opposed to concrete topics, are learned, and for other courses from related disciplines such as sociology, economics, and management, in which lectures cover the basics of these disciplines. The next poorly-represented target is ll.C, dealing with building sustainable and resilient buildings utilizing local materials, which was omitted for the same reasons as above. Target 11.4, dealing with preserving the world's cultural and natural heritage, was left out of courses from closely-related disciplines (such as Law, Economics, Sociology); Target 11.1, which focused on sustainable housing, was left out of some general theoretical courses; and Target 11.6, dealing with the reduction of the environmental impacts of cities, was covered in two other components of sustainable development (sociology and economics). Target 11.A, linking urban, peri-urban and rural areas, was left out of courses with a general theoretical orientation.

Target 11.3, dealing with inclusive and sustainable urbanization, and Target 11.7, focusing on providing universal access to safe public spaces, were present in the content of all the courses.

3.3. Third Research Level

The eligibility assessment on the third research level was conducted by comparing the formulation of the learning objectives from the UNESCO framework [9] with the formulation of the course learning outcomes in the course curriculum. Within the formulation of the learning objectives, the key terms on which comparisons were made were identified, namely:

- Cognitive learning objective: (1) human needs; (2) settlements' systems (food, energy, transport, water, safety, waste treatment, inclusion and accessibility, education, green spaces, disaster risk reduction); (3) cultural heritage; (4) sustainable planning, sustainable building; (5) local governance;
- Socio-emotional learning objectives: (1) public speaking; (2) community engagement; (3) cultural identity; (4) relation to context; (5) individual lifestyle impact;
- Behavioural learning objectives: (1) project management; (2) decision processes management; (3) community advocacy; (4) community creation; (5) low carbon promotion.

In addition to the terms identified, their synonyms were used in the comparison as well as in the related terms. The extent to which the identified terms are used in the context of sustainability, inclusivity, security, and resilience was evaluated.

Table 3 presents the representation of the learning objectives for SDG 11—Sustainable cities and communities [9] (p. 32)—in study program courses.

Table 3. Representation of the learning objectives in the study program courses (source: author, according to [46]).

			Learning Objectives for SDG 11 "Sustainable Cities and Communities" [9] (p. 32)		
		Course Title	Cognitive LO (5)	Socio-emotional LO (5)	Behavioural LO (5)
I	OC	Urban regulations	1/2/3/4/5	1/2/3/4/5	1/2/3/4/-
		Contemporary urban phenomenon	1/2/3/4/-	-/-/3/4/5	-/-/-/-/5
		Contemporary urban concepts	1/2/3/4/5	1/2/3/4/5	1/-/3/4/-
	SU	Integrated analysis of the territory-studio	1/2/3/4/5	1/2/3/4/5	1/2/3/4/5
		Urban research through GIS	1/-/-/4/5	-/2/-/-/-	1/2/-/-/-
		Research methods and techniques	1/-/-/-/-	1/-/-/-/5	-/2/3/-/-
II	OC	Urban economics	1/-/3/-/5	-/-/3/4/-	1/2/-/4/-
		Theory of urban design	1/2/3/4/-	-/-/3/4/5	1/-/-/4/-
		Methodology of urban design	1/-/3/4/-	-/-/3/4/-	1/-/-/4/-
	SU	Integrated urban design-studio	1/2/3/4/5	1/2/3/4/5	1/2/3/4/5
		Techniques for participatory planning	1/-/3/4/5	1/2/3/4/5	-/2/3/-/-
		Seminar 1	1/2/3/4/-	-/-/3/4/5	-/-/-/-/-
III	OC	Urban space as public good	1/-/3/4/5	1/2/3/4/5	-/2/3/4/-
		Planning theory	1/2/3/4/5	1/2/3/4/5	-/2/3/-/-
		Methodology of planning	1/2/3/4/5	1/2/3/4/5	1/2/3/4/-
	SU	Integrated urban strategies-studio	1/2/3/4/5	1/2/3/4/5	1/2/3/4/5
		Urban management	1/-/3/4/5	1/2/3/4/5	1/2/3/-/5
		Seminar 2			
IV	EC	Professional internship			
	EC	Master thesis and project	1/2/3/4/5	1/2/3/4/5	1/2/3/4/5

Legend: ■ Courses directed toward a wide range of learning outcomes.

This type of analysis could not be applied to courses "Seminar 2" and "Professional Internship", since they are directed toward a wide range of learning outcomes. The course entitled "Seminar 2" was designed for guest lectures by experts from various fields, depending on how current the topic was in practice, whereas the course entitled "Professional Internship" comprised specific work in practice.

Studio courses as the focal point of teaching have an integral approach to projects and include all the aforementioned learning objectives for SDG 11. The same conclusion applies to the final research work, "Master's Thesis and Project".

Regarding the cognitive learning objectives, the great majority of courses satisfy them. The greatest deficiency was with Learning Objective 2: "The learner is able to evaluate and compare the sustainability of their and other settlements' systems in meeting their needs, particularly in the areas of food, energy, transport, water, safety, waste treatment, inclusion and accessibility, education, integration of green spaces and disaster risk reduction" [9] (p. 32) in courses that focused on the development of specific professional techniques, and in courses from related disciplines. For courses that were part of a Study Unit (SU), cognitive learning objectives were achieved through joint work on a topic that applied to all the courses from this group. The only discrepancy was with the course "Methodology of Urban Design", which belonged to the group of Obligatory Courses (OC), and was not thematically-dependent on other courses.

From the aspect of socio-emotional learning objectives, the greatest deficiency was noted in Learning Objective 1: "The learner is able to use their voice, to identify and use entry points for the public in the local planning systems, to call for investment in sustainable infrastructure, buildings and parks in their area and to debate the merits of long-term planning" [9] (p. 32). This primarily involves courses of a theoretical nature that focus on understanding concepts, and courses of a methodological nature that focus on mastering specific professional skills. There was also a deficiency of Learning Objective 2: "The learner is able to connect with and help community groups locally and online in developing a sustainable future vision of their community" [9] (p. 32) in similar groups and types of courses.

The greatest lack was noted within the group of behavioural learning objectives. Learning Objective 5, i.e., "The learner is able to promote low carbon approaches at the local level" [9] (p. 32), was lacking in as many as 12 courses. A similar deficiency of other learning objectives in various courses indicates that the capabilities involved were developing in accordance with the nature and type of course.

4. Discussion

The research conducted on the study program's curricula highlights several key aspects in order to improve planning education on the master level at the Faculty of Architecture, University of Belgrade, by including the concept of sustainability:

(a) **Improve the study program's structure.** Focus on strengthening certain aspects of planning practice in accordance with the recommendations of ECTP-CEU. This includes problems with courses that are primarily oriented toward mastering techniques, methodologies, and instruments in which the applicable parts of teaching take place independently of the other curricula. The study program's structure can be improved in several directions:

- Link courses according to learning outcome similarities. This suggestion can first be applied to courses that are oriented towards mastering techniques, planning products, and planning instruments. More specifically, learning about the techniques in the courses Contemporary Urban Concepts and Urban Management should be aligned with the courses Methodology of Urban Design and Methodology of Planning. Regarding learning about planning products, the courses Contemporary Urban Concepts and Methodology of Planning should check for overlaps. Learning about planning instruments should be distributed and improved

between courses Urban Regulations, Urban Economics, Techniques for Participatory Planning, Methodology of Planning and Urban Management.

- Focus all obligatory courses in a semester to a sustainability related theme. These are the courses: (a) First semester—Urban Regulations, Contemporary Urban Phenomenon and Contemporary Urban Concepts; (b) Second semester—Urban Economics, Theory of Urban Design and Methodology of Urban Design; (c) Third semester—Urban Space as Public Good, Planning Theory and Methodology of Planning. Thematic orientation may be conditioned by annual work within Study Unit, or from a range of topics proposed by UNESCO [9] such as the Right to shelter, Natural resource management, Urban ecology, Resilience, Waste management, Urban governance, etc.
- More clear-cut links between the courses classified as "Techniques" and "Planning Products". Courses that are predominantly oriented towards learning techniques inside the group of study unit courses should be geared towards linking them to specific planning products. These are courses Urban Research through GIS, Research Methods and Techniques, and Techniques for Participatory Planning.
- More clear-cut links between the courses classified as "Instruments" and "Planning Products". It is especially important to include learning about instruments within the course Integrated Urban Design studio. On the other hand, the courses Techniques for Participatory Planning and Urban Management should include learning about planning products.
- Incorporate the principle "Natural Environment" into theoretical courses such as Urban Regulations, Contemporary Urban Phenomena, Contemporary Urban concepts, Urban Economics, Urban Space as Public Good, Planning Theory, and Methodology of Planning.
- Incorporate the principle "Instruments" into theoretical courses such as Contemporary Urban Phenomenon, Contemporary Urban Concepts, Theory of Urban Design, Methodology of Urban Design and Urban Space as Public Good.

(b) **Improve the study program's interdisciplinarity.** As a study program based in the field of architecture, Integrated Urbanism covers topics that are important for SDG 11, such as housing, urbanization, public spaces, urban studies, and planning. Owing to the profession's interdisciplinary nature, it traditionally includes other related fields, as clearly shown in the curricula, such as law, economics, sociology and management. Although shown in the curricula, the following specific fields should be more clearly based in the study program: the environment, heritage, mobility, safety, landscape planning, geographic knowledge, political science, and information science. An effective way to accomplish this would be by establishing interdisciplinary cooperation with faculties that concentrate on these subjects through teacher exchanges, and through joint participation in scientific projects. There are several options to implement this. The first would be to take certain courses in related fields at other faculties that are in accordance with the standards of the accreditation of study programs. A prerequisite for this kind of solution is that these courses integrate both scientific fields, that is, they are interdisciplinary in nature. Secondly, it is possible to engage teachers from related faculties as guest lecturers, as is now the case with the courses Urban Economics and Urban Space as Public Good; these must be teachers who have references in a given interdisciplinary field.

(c) **Establish partnerships with institutions and communities.** This is particularly important, owing to the need to develop students' social skills, which is currently a missing component in the study program's curricula. Although partnerships exist and are practiced in the pedagogical models, they are not formalized and depend on the teaching staff's readiness to get involved. Teaching through partnerships should be encouraged and the work properly evaluated. Existing partnerships with institutions and communities should be further developed into a network of participants in the teaching process where learning takes place in several directions. For implementation, establishing these types of partnerships requires adopting the strategic orientation of the faculty

towards this type of engagement and, accordingly, budgeting for its implementation. On the other hand, the products of the course work may be more oriented towards, and funded by, institutions and communities. In a sense, the implementation of the principle of sustainability should be on the agenda of the whole faculty/university embedded in all aspects of the institution (governance of the institution, curriculum development, inter-institutional networks, research, community relationships, capacity building, students engagement, technical and financial support, etc.) in accordance with the whole institution approach concept [9,47–50].

(d) **Strengthen connections with scientific research work.** At the Faculty of Architecture, there are scientific projects that rely on the concept of sustainability, such as "Managing urban renewal and the regeneration of Serbian regions", "Research into climate change and its impact on the environment: Impact monitoring, adaptation, and mitigation", and "Spatial, environmental, energy-related, and social aspects of the development of settlements and climate change: Mutual impact". Since the evident diversity of topics covers most of the targets envisaged under SDG 11, such as "sustainable urbanization", "environmental protection", and "climate change", knowledge acquired from research should be more directly included in the teaching process. Improvement should be made by adapting the teaching content and pedagogical approaches, and by including the students in research. Implementation can be carried out in two ways: by introducing a specific course directly related to ongoing research work in which students work on specific research assignments, or by introducing teaching units that present the results of ongoing scientific research within individual courses. Generally speaking, research findings should be geared toward further developing sustainable products, processes, or services, which may be parallel to the subject of work within the teaching process [6]. In order to preserve the continuity of the research work, as well as to ensure the quality of the research capacities, it is essential that the research projects be financed from public funds [51].

(e) **Practice-oriented curricula.** This is particularly important to improve the behavioural domain of learning, in which professional skills are stressed in the learning outcomes. Closer cooperation should be established with experts from the field of urbanism and the interdisciplinary spectrum, and should orient teaching toward mastering various planning instruments. Practice can be inserted into the study program curricula through the participation of individuals in the teaching process (in a form of professional consultation), and through cooperation with expert institutions in various sectors and on various levels of administration. This requirement is aimed at intensifying learning models such as problem or project-based learning and service learning, and internships in professional organizations [7,52,53]. This applies primarily to project-based courses within the framework within the Study Unit, in which learning is focused on specific professional products. The presence of experts should be formalized as the standard of the teaching model and financially supported.

(f) **Improve teachers' skills.** Teacher training programs should be mandatory and cover two areas: (a) pedagogical skills and (b) sustainable development skills. The lack of pedagogical skills is particularly visible in the formulation of the curricula of some courses in which there is a notable deficiency in the teachers' understanding and needed skills. Special attention should be given to the formulation of learning outcomes as the focus of curricula promoted by modern teaching concepts. In addition, cooperation should be encouraged and formulated between teaching staff of the same or related faculties on both the national and international levels. Forms of cooperation should vary by structure, type, and scope. The development of basic pedagogical competencies should include thematic units such as the Roles and skills of teachers, Design of curriculum, Concept of learning outcomes, Teaching unit planning, Teaching and learning methodology, Monitoring student work and assessment, Communication skills, Presentation techniques, University books, Self-evaluation of university teachers, and more. Furthermore, teachers should be trained in the implementation of key pedagogical approaches in ESD, which includes a learner-centered approach, as well as action-oriented and transformative learning [9].

Teachers must also be trained to develop partnerships with different societal actors from the public, private, and civil sectors in order to create a cross-boundary learning environment for EDS. Increasing the capacity of teachers requires systematic support from faculties and universities, which would be related to the introduction of appropriate standards for teacher competency assessments, organized training at the university level, support for initiation and participation in ESD-related scientific projects, and financial support for the development of teacher skills [5,48].

(g) **Improving the accreditation process.** Binding the accreditation process of higher education study programs conducted every seven years by the national regulatory authority, it should, within its standards for assessing the quality of higher education institutions and their study programs, introduce requirements for the promotion of a general education culture in accordance with ESD principles. This implies that, in addition to instructions for enhancing individual curricula and the study programs to which they belong, requirements for harmonizing the structure of the higher education institution as an environment supporting activities aimed at implementing SDGs should be introduced. Universities and faculties should become cocreators of a sustainable society and, to this end, they must agree on their mission, establish partnerships with external partners, conduct research projects, and engage key stakeholders from society [6]. In accordance with applicable national accreditation standards, the improvements would be as follows:

- Standards for higher education: tasks and objectives of higher education institution, methods of planning and control, organization and management, types of studies, scientific research work, teaching staff, non-teaching staff, standards for students, space and equipment, library and IT support, internal quality assurance mechanisms, funding sources, publicity of work;
- Study program standards: structure, purpose, objectives of the study program, student skills, curricula, international compliance of the study program, student enrollment policy, student assessment methods, teacher qualifications, spatial and technical resources, and quality control standards.

There are two ways to use the results from this research. First, the conclusions drawn from a detailed analysis of the Integrated Urbanism study program's curricula provide concrete guidelines for its improvement in the next accreditation cycle in accordance with the newly-adopted goals of sustainable development, and recommendations to improve the scope of education. Secondly, the methodological approach used to analyze the study program's structure might be useful for academic institutions in their efforts to verify the compatibility of higher planning education and its dimensions with the expected skills and the new globally-established requirements for the development of sustainable cities and communities, as set down in Agenda 2030.

5. Conclusions

Today, aligning education with sustainability principles is a global requirement that is no longer in question. This requirement is aimed at developing individuals' ability to actively participate in the challenges of the 21st century. In addition to a set of skills which should guide curricula at all levels of education, ESD requires a change in the overall culture of education and an enhancement of the capacity to implement sustainability principles that includes teachers, educational institutions, the community, and governance structures.

For decades, orientation towards sustainable development has been an integral part of the planning profession, as well as in recommendations for higher education in this field. The specificity of planning activity as a domain which is closely related to the context in which it is implemented requires constant review of these recommendations and alignment with the new challenges of the profession, both globally and locally. In recent years, efforts have been made to specify these recommendations on two sides: from the domain of education for sustainable development defined by UNESCO [9], and from the domain of the planning profession by the ECTP-CEU [19].

The Master Program Integral Urbanism, as a study program designed to educate professionals for work in the field of spatial development, especially in the circumstances of a post-socialist transitional society, has been developed in accordance with the concept of sustainability and with respectable international study programs in the field. Since the study program was created prior to the adoption of the above recommendations, conditions were created to establish a new framework within which to assess it and, according to the findings, to improve it.

This paper presents the results of research into the compatibility of the curriculum of the Integrated Urbanism master's study program in the Faculty of Architecture, University of Belgrade, in relation to the above recommendations. The conducted qualitative analysis of the structure and content of the curriculum highlighted key aspects relevant to the advancement of the curriculum in order to include the concept of sustainability. These aspects can be used as a framework to advance the study program in the next accreditation cycle, as a useful guide for teachers in structuring the curriculum, and as instruction for higher education institutions to introduce new quality assurance standards.

More concrete recommendations for improving the study program can be obtained by conducting further research, including reflections of graduates and teachers involved in the implementation of the study program in relation to the expected skills for sustainable development. Moreover, a comparison with the experience of other master's degree programs in this field would certainly contribute to a more detailed elaboration and, at the same time, a correction of the results obtained from this research. The eventual results of such research would also be useful as feedback to the creators of these recommendations, in both the educational and professional domains.

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