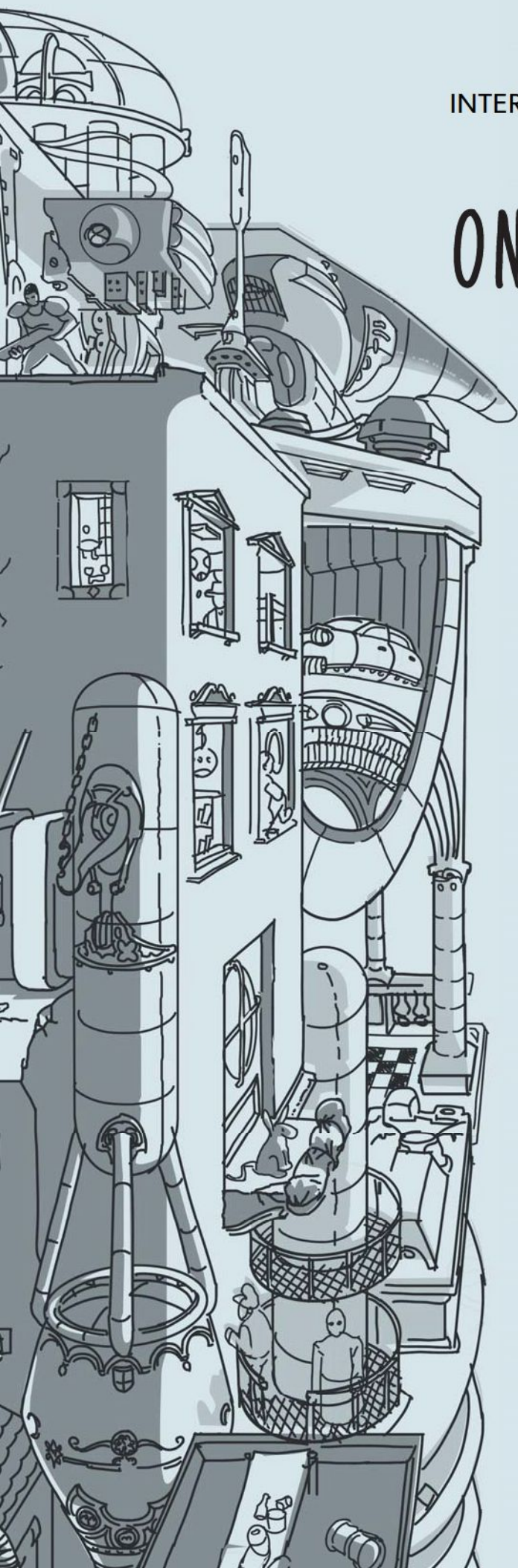


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# ON ARCHITECTURE

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## [LEARNING BY DOING AS AN ARCHITECTURAL EDUCATION TEACHING METHOD: PETNICA SUMMER SCHOOL CASE STUDY<sup>1</sup>]

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### ABSTRACT

[In the last 10 years, in order to meet the distinct needs of contemporary profession and society, architectural education is once again addressing to its roots – "*learning-by-doing*" teaching approach. The main assumption of this "*turn*" is that getting back to basics will help in bringing studio, workshop, and practical experience together in an academia process that will be more responsive to local environment and challenges of spatial development.

Starting from the widely recognized need to learn with deep understanding and increased interest in the spatial context, this paper analyzes the educational principles of "*experience-based*" and "*place-based*" learning, and their impact on the practice of architectural education. The aim of this study is to critically examine the perspective and scope of displacing architectural curriculum from the classroom into the landscape of real. Based on references of situated theories and by viewing the outcomes achieved at the workshop "*Architecture and Nature*" (Petnica Summer School of Architecture, 2012), this paper shows that "*place-based-pedagogy*" is one of the variety of learning by doing mechanisms that is helpful in overcoming the limitations of formal, class-based and context-free model in architectural education.

**Key words:** architectural education, learning by doing, place-based pedagogy, Petnica Summer School of Architecture 2012, workshop]

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## [LEARNING BY DOING AS AN ARCHITECTURAL EDUCATION TEACHING METHOD: PETNICA SUMMER SCHOOL CASE STUDY]

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### [PAPER HEADING]

#### [Introduction: Crisis of Architectural Classroom-based Education]

At the beginning of the new millennium, architectural education has reached a new stage in its development. There has been a feeling among architectural design educators that "*the discipline has reached a crisis in its development, and that change is needed immediately in the way that architectural design education articulates its epistemology and its methodology*" (Wang, 2010, 174). The main criticism of the formal architectural educational is pointed to the impossibility of quick and efficient adjustments to the rapid changes. Some of these rapid changes include unstable and recessionary economic trends, innovations in design and information technology, diminished responsibility and authority of architects in the building construction industry, and the rise of specialization.

Critics have argued that this trade-off has caused architectural design education to become generic and to be marginalized in relation to the reality and to the place. The dominant school model in many architectural schools undermines the integration of students' experience outside the classroom into their education and makes it difficult to apply what they have learned in school to their daily life. Nathaniel Coleman (2010) emphasizes that the formal model of architectural education is stiff, too professionally directed, autonomous and not tailored to the local environmental circumstances. Such a narrowly focused training contributes to the low quality of the built environment.

In the article "*What's Wrong with Architectural Education - Almost Everything*" Buchanan (1989) sharply criticizes the architectural education, arguing that it split from reality and society, is too abstract and not based on the area in which they take place. David Orr argues that "*a great deal of what passes for knowledge is little more than abstraction piled on top of abstraction, disconnected from tangible experience, real problems, and the places where we live and work*" (Orr, 1992, 126). The knowledge students acquire in architectural schools is generally unrelated to their place. Actually, it is a universal expertise of no-place. The main disadvantage of architectural education today is that all this studio design work tends to happen in one space, far away from the real place.

Numerous studies indicate that discontinuity of student's academic and non-academic experience is increasing. Knowledge, skills and abilities acquired in architectural schools and professional practice situations are becoming two separate worlds. It is becoming very hard for architecture students to establish a meaningful connection between what they are taught in colleges and professional situation they end up in. Yager (1991) indicates that even students who achieve solid academic results have difficulties in applying the acquired knowledge in dealing with real professional challenges, and rightly concludes that the manner in which architecture students acquire knowledge is not adequate to the living needs of modern society and profession.

The "*learning-by-doing*" has provided the normal method for training architects for approximately two hundred years. But, the appearance of university-based teaching radically broke down this kind of "*experience-based*" and process-focused learning. The rise of an academic culture in architectural

education has actually amplified the split between the theory and practice, classroom and real life (Coleman, 2010). In the recent years many publications have argued the need to replace traditional patterns of architectural education with the more flexible concepts. Park (2011) argues that architecture cannot and should not be taught in the abstract only, but knowledge and skills must be shaped through participation.

"*Learning-by-doing*" is not a new approach. It has been a basis of every architectural design school for centuries. But, this central method of teaching architecture has not changed substantially from its historical models, while the conditions of teaching and professional practice certainly have. "*Learning by doing*" approach is applied only on design studio level. Unfortunately students are not faced with real problems but with simulated circumstances, budgets, programs and clients.

One of the seductions of contemporary architectural faculty education is that it can be understood as context-free activity. The situation identified here is most extreme in the architectural design studio, in which the learner doesn't make any more direct contact with realities being studied (Gross, Do, 1997). Today, studying architecture becomes something gained through reading texts, listening to lectures, doing renderings, viewing videos or making scaled models, rather than learning through experiencing full-bodied encounters with landscape of the reality. New architecture graduates are unprepared for what they meet in practice; in particular that the abstract three-dimensional concept of design they are introduced to in architecture school is far removed from the reality of the building process.

Based on the case studies conducted at the Petnica Summer School of Architecture (2012), this paper examines how, to what extent and in what sense, spatial displacement of architectural education complements the deficiencies of formal architectural education. Summarizing teaching methods, studying process and students' results performed during the workshop "*Architecture and Nature*", the study examines the role and ability of "*experience-based*" and "*place-based*" pedagogical principles to individually and in total expand formal curricula, challenging its rigidity, determined logics and contextual ambivalence.

### **Experience-Based Pedagogies: Learning-by-Doing Theories**

"*Experience-based*" pedagogy is the critical response to a conventional classroom-based education. Donald Schön criticizes university-based notion of education, firstly because it denies the complexities of the problem that professionals face in the real world and secondly because it fails to address to the actual working process (Schön, 1992). This author argues that the fundamental concepts of designing could only be grasped in the context of doing through the experience of designing. This teaching approach allows individuals to learn from their own continued work and the feedback of others participants. It offers a bridge between academia and practice develops both personal and professional skills and improves quality of professional practice.

On the other hand, Kolb's (Kolb, 1984) "*experiential learning theory*" presents a cycle of four elements: (1) Concrete Experience, (2) Reflective Observation, (3) Abstract Conceptualization, and (4) Active Experimentation. The cycle begins with an experience that student has had, followed by an opportunity to reflect on that experience. Then the student may conceptualize and draw conclusions about what he/she experienced and observed, leading to future actions in which the student experiment with different behaviors. The cycle begins as students have new experiences based on their experimentation.

One of the most important places in "learning-through-labor" tradition is taken by "*situational cognition*," which assumes that knowledge is situated in space and time, meaning that it is a product of a particular context. Therefore, as an alternative to conventional educational practices, "*apprenticeship*" methodology is proposed, meaning that the improvement of skills and understanding is acknowledged through the exchange of experiences with other students and experts in authentic contexts (Rogoff, 1995).

Never the less "*learning-through-labor*" means much more than the alternative teaching method and can be identified with solving problems in their indigenous environments. In this framework, learning is seen as an authentic activity that is achieved when students participate in contextualized activities, while transforming experiences, knowledge and ability to understand and be responsible. Basic rules of the "*learning-through-labor*" are that learning depends on prior knowledge, is based on adopting principles rather than contents, is conducted through dialogue (critical discussion) and that the best results appear in applying knowledge in solving authentic place-based problems.

## **Place-Based Pedagogies: Situated Theories of Learning**

Questions of space and place are at the heart of much recent educational theory and practice. "*Place-based*" education seeks to overcome the divide marked by classroom walls through grounding learning in lived experience. Pedagogy of "*place-based*" learning is a specific learner-centred approach that is beginning to receive additional consideration as evidenced by the increased publication of books, articles and essays (Gruenewald, 2003a).

The "*place-based*" pedagogies in education are manifested in the research on how learning and school communities are conditioned by the natural environment. Gruenewald (2003b) thinks that this idea is radical because current educational discourses seek to standardize the experience of students from diverse geographical and cultural backgrounds. David Sobel (2004) thinks about "*place-based*" education as a paradigm: more as a mindset than as a specific kind of curriculum. According to this author, "*place-based*" education is „*the process of using the local environment as a starting point to teach concepts*" (Sobel, 2004, 7). "*Place-based*" education is not just motivated by a desire to overcome the division between conceptual knowledge and lived experience – it seeks to address some of the varied ways in which we are connected to the place (Edelglass, 2007).

David Orr (1992) calls for greater recognition of the role of place in education. He maintains that place has become nebulous and overlooked by education, lamenting how schools continue to maintain students and their relationship to the place as marginal, uninteresting and unimportant. Sanger (1997) maintains that the use of place in educational contexts provides students with knowledge and understanding of a particular place, emphasizing that the land and students' personal experiences outside the classroom all have value. Gruenewald and Smith maintain that in "*place-based*" education there is an expectation that learners become "*creators of knowledge as well as consumers of knowledge, and their questions and concerns play central roles in this process*" (Gruenewald, Smith, 2008, p.13). Thus, "*place-based*" education promotes learning that is rooted in what is local.

"*Place-based*" education is always related to something in the real world. "*Called real-world problem solving, this orientation to curriculum development is deeply grounded in particular place*" (Smith, 2002, 589). It differs from conventional classroom-based education in that it understands local environment as one of the primary resources for learning architecture. Because "*place-based*" education is by its nature specific to particular locales, generic curricular models are inappropriate (Smith, 2002).

## **Case Study: Petnica Summer School of Architecture 2012 (LŠA)**

By consciously blending these two powerful approaches, this paper we will review changes made by displacing architectural education from the classroom to the natural environment settings. Drawing on our teaching experience in the Petnica Summer School of Architecture 2012 (LŠA), hereinafter, we will show the practical possibilities of "*experience-based*" and "*placed-based*" pedagogies for critical reflection on significant architectural questions. By comparing the two spatial teaching models (class-based and place-based), we will examine the alternative possibilities of improving formal architectural education.

On the initiative of a group of students, after thirteen years break, from the 23th to the 30th of September 2012, LŠA, once again took place in Petnica, under the topic "*Changing Conditions*." LŠA brought together 30 students - participants and more than 20 mentors and teachers. The focus of the school was placed on the paradigm of the study and ex-cathedra model of architectural education. LŠA participants were divided into five workshops, each of which had a distinguished research character. Each workshop was attended by six participants of different study level and was led by two mentors.

Set in this way, the school intended to deal with real situations, problems and challenges, with the need to implement solutions in real space (here and now), using real materials, techniques and tools (Obradovic et al., 2013). Although the majority of the workshops were based on "*place-based*" and "*experience-based*" learning, in aiming to review the theoretical approaches presented in the first part of the article, from now on the paper will discuss matters presented through the workshop "*Architecture and Nature*".

"*Architecture and Nature*" workshop explored intertwining of nature and architecture through the leisure time program. The thematic framework was inspired by unbridled and highly layered natural environment of the Petnica station, where in addition to the vast fields and dense forest, are the so-called Petnica Lake and Petnica Cave. Such a rich natural resource gave us the opportunity to read it in many ways and experience it over and over again.

Teaching process was based on three principles, first being the designing of the place through building it, second being permanent questioning of the dialectic nature of the relation between architecture and landscape, and last being a high degree of autonomy in all phases of the work which, in our view, participants were not provided with during their studies. The actual process consisted of three phases: (1) listening, (2) juxtaposing (3) building and reflecting.

(1) The main purpose of Listening was to explore nature through observing landscape as a living system. Through experiencing basic human conditions of sitting, standing, laying down, gazing, strolling, running or walking, talking to each other, singing or just listening and nature's responses offered through its structure, rhythm, light and shadow, scent and breeze, the aim of this phase was to decide on the proper location for the chosen experience. At this stage, the architecture was not objectivised, nor conceptualized.

(2) The main purpose of Juxtaposing was to analyze different laws of landscape and architecture in terms of their structure and materiality, and to introduce diversity of their elements and principles. Participants spent a large amount of time on the warehouse examining building materials and their properties, the way they can be perceived in the landscape, through the phenomenological dimension of the noise, smell, weight, etc., looking for a connection between natural (landscape) and artificial (architecture). The result of this stage was the selection of materials and their structural potentials.

(3) The main purpose of Building and Reflecting was to confront building material and landscape. Students imagined, designed, altered and dreamed about their structures in real environment, with real material and through experiencing building as a process. Afterward they were supposed to spend a whole day with it reflecting on their own design and potential it offers.



Ana Uzelac: *„Mirror“*  
auto-reflection, emphasis on leveraging, subject to nature

Đorđe Vasić: *„Picture Frame“*  
topos, focus, seating as watching

Jelena Arandžević: *„The Swing“*  
transparency, sensory maximum, leniency



Petar Veselinović: *„Meditation Station“*  
minimal interventions into the nature, indication of human existence, unity in balance

Jovan Radisavljević: *„Hayrick“*  
temporality, artificiality, mobility

David Anakin: *„Scars of Nature“*  
naturalness of nature, complement of defects



### **Discussion: The Best of Both Worlds**

Participants have individual design concepts but at the end they all fit into three distinguished categories; one in which artificial structure challenges landscape, then the one that used nature as a main structural element and blend with it and those concepts possessing a strong critical thought toward contemporary problems concerning nature and sustainability. While the first approach allocates certain properties of nature, emphasizing them through action-reaction quality of spatial intervention (makes you think about the context in which one finds itself), the other group insists on the romantic vision of leisure time (refugee from the city). While *The Mirror* and *The Frame* trigger the relationship with nature, *The Swing* and *The Tree* mimic the nature. The third group points out the way people act in and neglect nature, using it as an object of consumption.

Through summarising results and the workshop process several conclusions have been made. It is possible to conduct concept, structure and reflect on the built during a period of one week. Regardless of the year of study students have shown a high level of independence and performance. Master students, in struggling with nature, easily and in a more relaxed manner indulged their imagery, then undergraduate students for whom it was hard to let go of the initial idea and come up with another one, adapting it and changing it according to the possibilities of performance. Students creatively and in a critically positive manner mutually helped each other in the crystallization of thoughts and in considering numerous relationships between architecture and landscape. It seems that students were not able to evaluate their craftsman's skills, reflecting the impossible and impracticable.

Self-reflection is perhaps the most important aspect of the workshop. As students had the task to perform exactly what they intend to, in the imagined way and on the site that had previously been chosen, and had to spend the whole day with it, reflecting on the potential it offers, they become aware of the mistakes they had made and had an opportunity to truly learn from them. It seemed as if rubber band and pen were replaced with stick and string and paper with the landscape where the new spirit was imbedded in.

Instead of dealing with spatial and program issues, they were keen to be involved with the landscape and its naturalness, accessing their transformation through the application of different architectural strategies and building a personal relationship to geography, topology and morphology. The work was the result of immediate and dynamic connection to the surrounding environment, developed through a process of getting to know it, explore it and make a change in it. Therefore, the main outcome of the workshop is getting experience through shaping landscape with no middlemen and no drawing. "1:1" was not treated as a scale, but as a description of the action diagram between participants and the context. One student reflected: "*To come up with a good design is one thing, but a good design that is constructible is another. Designing something that works is harder than one may think. Lots of issues must be addressed before the actual construction.*" Workshop learning was inherently dynamic, a convergence of spontaneous action and knowledge, and adaptation to changing conditions. Instead of dealing with general issues, participants face real challenges.

The environment in which the workshop took place had a powerful influence on the ultimate product – the spatial installation. Being in nature encouraged teamwork and cooperation among participants to the extent unattainable through the standard model of student work. As they were in a position to propose solutions, compare them, evaluate and choose those that support the concept, deal with available materials feasible in terms of application and their craftsman's skill, teamwork usually associated only with exchanging opinions moved to a higher level, where students were jointly working on the performance of each individual design.

When curriculum mimics education in the surrounding environment, the boundaries between schooling and life become more obscure; and therefore, more integrated. Students enjoyed being outdoors and working with mentors who acted more like partners than supervisors. Benefits for mentors were as important as for participants themselves. "Outdoor Station" workshop leaders in their own reflection noted: "*Great experience for us "paper architects"- we passed an important process of solving various practical problems and redefining solutions in accordance to site conditions*". In doing so, these mentors provided an additional model of "place-based" architectural education.

### **Conclusion: Learning Architecture by Doing It**

Today, architectural education is in a deep crisis that requires radically new solutions for overcoming problems of experiential and spatial isolation of academia teaching. On the other hand, university-based architectural education is essential for the development of future architects. But, the academy alone cannot fully prepare students for the growing demands of the present and future conditions. In this paper, we have shown that "*experience-based*" and "*place-based*" pedagogy is needed to

challenge the assumptions, practices, and outcomes taken for granted in conventional architectural education. The pedagogical approach developed in the workshop "*Architecture and Nature*" moves away from a purely academic teaching system toward "*experience-based*" and "*place-based*" models. Displacing architectural education away from the „fixed ruled theatre box“ offers students and their mentors opportunities for the emergence of a new, different experience, otherwise impossible. The main advantages of LSA Petnici 2012 were informality, improvisation, experimentation and temporality; above all integration of theory and practice. PSSA supplemented the means of formal architectural education and changed its end results. The wall between architectural education and the natural landscape became much more permeable and is crossed with frequency.

In order to develop architectural education, it is necessary for the curricula to be linked to the particular place and involved in the actual process of building, to be experienced-based and place-based. Firstly, through the workshop environment, learning becomes inseparable from the corresponding spatial context in which it takes place. Then, the place receives a profound position in the process of teaching. Lastly, the profile and character of produced results is transparent and immediately evident in both place and time. Therefore, working in nature, i.e. „*learning from the landscape*“, could become a possible additional model for the architectural studies program.

By promoting pedagogy for student engagement in environmental concerns, "*experience-based*" and "*place-based*" pedagogies embrace aims beyond preparing students for market competition. While classroom lectures primarily address the cognitive domain, experiential learning involves the whole student. In this paper we pointed that a complete architectural education is the result of both formal and in-formal teaching model. Each serves a different role and, as such, teaches future architects in different, yet equally beneficial ways.

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