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THE CASE OF EDUCATING ARCHITECTS IN BIH

Using an International Cooperation Program
as a Facilitator for Curriculum Improvement
in Higher Education

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Preface

The inspiration to write this book came at the very end of a three-year HERD project organised and executed by the teaching staff from the Faculty of Architecture and Fine Art, NTNU Trondheim, Norway, and the Faculty of Architecture, University of Sarajevo, Bosnia and Herzegovina.

We extend sincere gratitude to our fellow colleagues from both institutions who helped us finish the project successfully. Without full support from the deans, heads of departments, faculty council and teaching staff in general, none of this would have happened. Apart from them, we would also like to thank students who participated in the organised activities and proved with their results that all was worthwhile. Upon completion of the HERD project in June 2017, some questions regarding the curriculum in higher education institutions remained, and it is for this reason that we have chosen to pursue this topic a bit further. The intention of this book is to help academics and other readers in their efforts to improve their curriculums at home institutions.

In 2010, the Norwegian University of Science and Technology, introduced the HERD/Energy programme which was administered by the Office of International Relations on behalf the Norwegian Ministry of Foreign Affairs. The purpose of the Programme in Higher Education, Research and Development (HERD in short), was to *“contribute to economic growth and social development through co-operation in higher education and research in the Western Balkans.”* (Norwegian University of Science and Technology, 2016). The overall aim of this project and the results are outlined in a separate publication entitled *“Metamorphosis of Architectural Education in (Post)Transitional Context”* (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016). The overall objective of this book is, however, to assist other architectural schools in Balkan region which are also in the process of transition in shaping and improving their teaching capacities.

This book will focus on the learned lessons and strategies on how to change and improve the curriculum, starting with the question “Why to make changes in the first place”. It will also show an entire roadmap from the very beginning of the HERD project to the ERASMUS+ application outlining key stages. The need for improvements and the impact that international cooperation projects have on those improvements are at the heart of all discussions. So many learned lessons have been learned, all worth recording, dating all the way from the planning stages to the final presentation of results in terms of how to deal with the expectations, challenges, achievements and disappointments. The “Live studios” concept has been recognised as a very important part of the learning outcome and therefore it was taken into special consideration. Dissemination of results and establishing links between institutions, staff and students are at the core of all cooperation programmes. Here, the emphasis will be on the link between the seemingly (un)related projects and the aftereffects that are directly attributed to this connection: from previous HERD activities in the West Balkans (Kosovo) and Energy Efficiency Education at the Faculty of Mechanical Engineering in Sarajevo, to the GIZ project (Arnautović-Aksić, et al., 2016) and other EE initiatives. The readers will gain a full insight on the process of establishing elective studios at one institution, and will, at the same time, observe positive effects of the “Live simulated/practice-based teaching”. The end of one project is only the beginning of another, and, in that sense, our efforts to secure funding for future cooperation are presented in the form of the ERASMUS+ mobility application as a means to prepare the ERASMUS+ capacity building application.

This book covers our entire journey from the very first encounter of the authors to further collaboration plans. The book continuously shifts from discussions to reflections and the lessons learned with a single goal: to identify good practices. Our intention was also to equally expose the difficulties and show how the obstacles can be avoided.

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A

Challenges in Educating
Architects in a
Fast-changing World

A. Challenges in Educating Architects in a Fast-changing World

Humankind is confronted with a vast number of challenges: climate change, political instability, digitalisation, unemployment increase, to name only a few. All this is pushing for a society changing at an ever-faster rate. How does this change architectural education?

Architecture has throughout history transgressed several phases related to new realities, primarily those concerning technological innovations. At each stage, architecture has been reconceptualised – and changed. We are now at the dawn of a new era, where architecture will again have to change in order to contribute the global future.

This ongoing global questioning was discussed in Architectural Reviews' "big rethink" by Peter Buchanan (2011). He argued that the most discussed contemporary themes, like sustainability or new methods, are implemented as small add-ons to the education of architects the world round, instead of comprising the core of the same.

This book does not claim to present a globally valid solution, but will elaborate on one approach and discuss the way in which it was implemented.

A Historical Overview

In this chapter we are dealing with teaching processes. We discuss how we teach students of architecture. Starting with the history of formal education, and, more recently, with Bauhaus and its influence on architectural education. After presenting specific characteristics of several contemporary European schools, we seek the common ground and emphasise differences. Finally, we take a closer look at the efforts to again link practice with education by adopting the “learning by doing” model.

Introduction of Formal Education

Is formal education important for architects? Tadao Ando, a world-renowned architect, received most significant architectural awards¹ (Tadao Ando Architects & Associates, 2009), notwithstanding the fact that he lacks a university degree (The GROUND, 2012).

However, in a world where architecture is a regulated profession, Tadao’s example is rather an exception. Although rules vary from one country to another, in order to become a practicing architect, in most European countries, one has to acquire a university degree, work for several years to gain experience, and only then qualify to take examination to become a licensed architect. So, in this framework, formal education plays an important role and cannot be questioned.

1 Gold Medal of Architecture, Academie d’Architecture (French Academy of Architecture) in 1989, The Pritzker Architecture Prize in 1995, Gold Medal of the American Institute of Architects in 2002, and Gold Medal of Union Internationale des Architectes in 2005 (Tadao Ando Architects & Associates, 2009).

If we explore the history of formal architectural education, we will see it is ferly recent. From the beginning, just like with other professions, an apprenticeship model was used to school builders (Brad, 2016). Transfer of knowledge was passed from one generation to another. Architecture academies emerged in European countries at a different pace. In France, Académie Royale d’Architecture (Royal Academy of Architecture) was established in the late 17th century (Académie des Beaux Arts, 2017), and the Royal Institute of British Architects (RIBA) was founded in England at the beginning of the 19th century (The Royal Institute of British Architects, 2017). However, the formal education as we see it today came with the introduction of public university education. One of the most influential examples of formal architectural education was introduced in Germany in the early 20th century. This model affected many universities throughout the world and, indirectly, the Faculty of Architecture in Sarajevo as well.

The Influence of Bauhaus

The year 2019 (Gropius, 1955, p. 26) will mark 100 years since the establishment of the Bauhaus school. Now, it may seem obsolete in the era of contemporary architecture to discuss such an “obsolete” pedagogical model. However, from this distance, it is interesting to compare the extent to which educational processes in architecture have changed over one century. As one can realise, some educational principles have remained the same despite all social and political changes and other transitions. Undoubtedly, the Bauhaus model has affected many architectural schools throughout the world and this was the case with the Faculty of Architecture in Sarajevo. The teachers who founded the faculty in 1949, were educated abroad and were subsequently influenced by the Bauhaus movement. It is safe to assume that some of the Bauhaus ideas were incorporated into the AFS curriculum. After all,

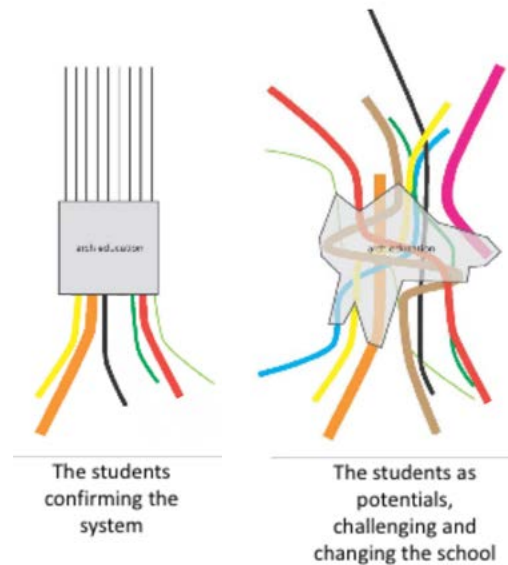


Figure 1 - Changing architecture education. ((Conditions, 2011) and adopted by authors)

one of the most prominent architects in Bosnia and Herzegovina in the 20th century, academician Juraj Neidhardt, was working in the offices of Peter Behrens, who recommended him to the Le Corbusier office (Neidhardt & Burazor, 2013). The influence of Peter Behrens on Bauhaus can be indirectly traced to the time when Walter Gropius worked at his office (AEG, 2011). His influence on the Modernist movement is most certainly present, since some of the most famous names of Modernism such as Le Corbusier and Mies van der Rohe, were his former employees (Stott, 2017) (Design is History, 2016). The influence of his former employers, through professor Neidhardt, was transferred to many generations of architects in Bosnia and Herzegovina.

The founder of the Bauhaus school, Walter G. Gropius, reflected in his later writings (Gropius, 1955, p. 104) upon the changes in the society and the importance of education. For him, the biggest change was the transformation of the family. In the patriarchal system, the family was responsible for the children's education, and that changed in the sense that the government assumed that responsibility. Previously, male children were the ones that would take over their fathers' business but now they were able to explore other possibilities. For Gropius, this change from fathers teaching sons about the craftsmanship or trade to professional educators teaching children in different fields was the most significant sociological transformation. We can only add to the discussion the obvious benefits of this government-influenced, systematic approach to education. First, there were certain limits within the knowledge of particular family members (mathematics, biology, chemistry, physics, social sciences, etc.) who were responsible for the transfer of knowledge, and, second, not all children could have been exposed to the same knowledge base. This changed with public schools, enabling equal possibilities for students within the same group. Their interests, coupled with their intellectual abilities, could be pursued much further within the established system. From that point onward, we benefit as a society, since we have educated individuals who are the best in

their work, rather than average in the imposed family business. Bauhaus adopted this approach linking art, craftsmanship and architecture.

The dangers of ample and widespread contradictory opinions² can be overcome with the simplicity within the curriculum and a firm direction in order to keep students on course until they are mature enough to form their own opinions (Gropius, 1955, p. 56). This approach is still present at the AFS, where, in the first years of study, students are learning the rules and applying them. Gradually, as they progress and design more, they are encouraged to challenge what they have learned in their own way. Students change over the time and are partially profiled by exposure to their home institutions. Some architectural schools are best known for the theoretical and others for a more technical approach and this affects future architects. So, the question remains: is there a need for a school to change or even drift from tradition? Should students, as potentials, be allowed to challenge and change the school?

Today, when it comes down to the school profile and curriculum, these themes, which can be linked to the Bauhaus principles (Gropius, 1955, pp. 54-64), are reoccurring: art and aesthetics, history of arts and architecture, teaching methods, importance of the practical experience, experimental workshops, and creative teachers (Figure 1). Overall quality will result depending on the efforts and means to achieve excellence in those fields. For a number of years, schools such as the Massachusetts Institute of Technology (MIT), the Delft University of Technology and the ETH Zurich – Swiss Federal Institute of Technology, remain the top ranking educational institutions for architecture students (TOPUNIVERSITIES, 2017) and it would be interesting to find out the reasons for this.

2 “...about the world at large as they are offered by institutions of higher learning – student is in danger of becoming apathetic or cynical...” (Gropius, 1955, p. 55)

21st Century Architectural Schools in Europe

How we teach architecture students varies from one country to another. Expectedly, it varies from one institution to another within the same country. But, the essence of teaching remains the same. A simple cross referencing of curriculums between schools is hardly going to show competitive advantages; instead, a personal insight and previous experience of people attending these institutions is more elucidatory. For this reason, we interviewed a number of colleagues who were also enrolled in architecture schools outside their home institution. Based on their experience as academic staff, they were able to make a comparative analysis and point out advantages between two schools.

A superficial comparison of different architecture schools in the European area shows a considerable difference in approach, which leads to different types of architects. What they have in common is their ability to master the handicraft part of architecture, but they are quite diverse regarding other qualifications and abilities. This overview was gained through a series of interviews with persons who have experienced different schools and systems, as students and tutors (Markus Schwai: Graz & NTNU, Steffen Wellinger: Stuttgart & NTNU, Nermina Zagora: ETSAB & AFS, Senka Ibrišimbegović: University of Siena & AFS; Amra Salihbegović: Politecnico di Milano, Stuttgart & AFS).

In 2006, a comprehensive listing of European architecture schools was published. It contains data on individual characteristics, available courses, facilities and other relevant information for each institution that lean on "...architectures on a Romanic, Germanic and Slavic template" (EAAE, 2006). Out of 314 listed schools from Europe, Germany is the leading country with the largest number of HE institutions (61) for educating architects (EAAE, 2006, pp. 160-171). On the second place is the United Kingdom (32), followed by

France (23) and Turkey (23). In Italy, there is just one institution less (22) and Switzerland (18) ranks fifth on this European list. This list is not complete, and, in the case of BiH, there were two public Faculties for architecture instead of the one listed at the time of publishing. Nevertheless, the guide gives us a sufficient insight in the HE education processes in Europe. Also, it is safe to assume that numbers have increased in the meantime, hence there are now two private universities in Bosnia and Herzegovina offering courses in architecture, apart from the two public³. But what do these numbers mean? The population of Germany is bigger than in France and in the United Kingdom, but not in the amount as to justify the double number of architectural schools. Furthermore, Switzerland has one tenth of Germany's population, and if the number of inhabitants was the criteria, it would have only 6 HE institutions instead of 18 (The World Bank, 2016).

In the case of BiH, it is difficult to justify the increase of architectural schools since there is a notable, 19.32% decrease of population, when comparing data from the 1991 and the 2013 censuses respectively (BHAS, 2016, p. 17). Thus, there have to be other criteria, such as the Gross Domestic Product (GDP) and industrial and economic propositions. Also, one should not rule out raising awareness in the field of protection and preservation of the cultural heritage throughout Europe and the need to educate more professionals. Sustainability and EE issues are related to the built environment, so it is fair to assume that this has also influenced the demand for architects. Another example of why it is difficult to find correlation between the country's population and the number of professional architects is in the case of Italy. It is estimated that Italy only, there are 157.000 architects, which is 26.16% of the total estimated number of architects in Europe – 32 (Architects' Council of Europe, 2017, pp. 1-9) (Figure 2).

3 Public: The University of Sarajevo (UNSA) and The University of Banja Luka (UNIBL); private: International University of Sarajevo (IUS) and International Burch University.

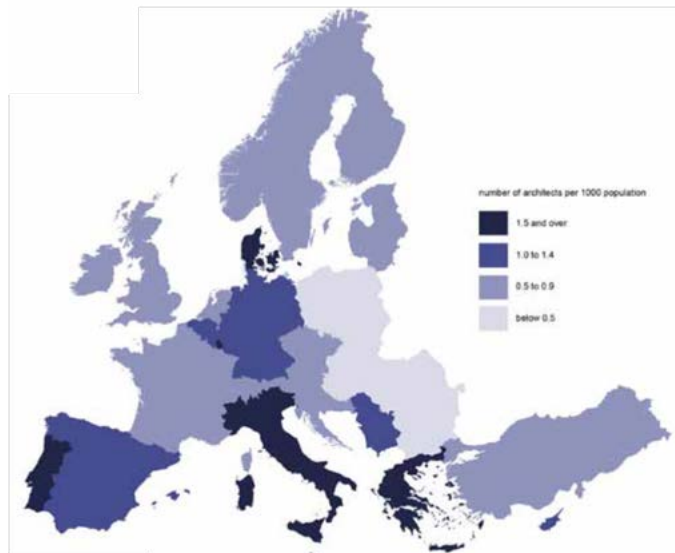
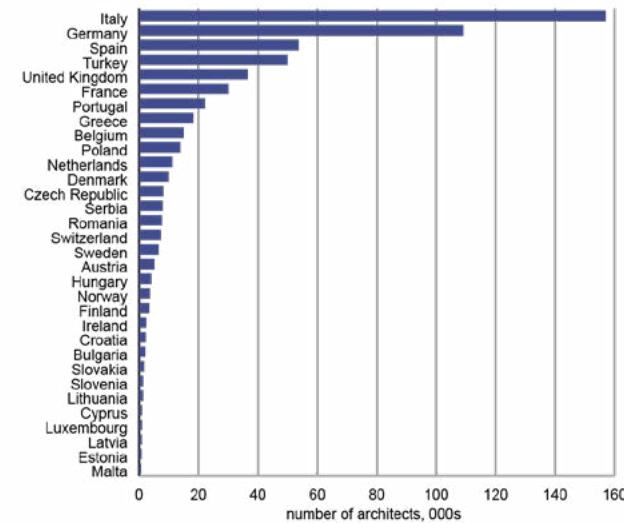


Figure 2- Estimated number of architects 2016 (Architects' Council of Europe, 2017, pp. 1-9)

Such a high percentage cannot be attributed only to the population or even to the number of HE institutions. After Italy, the second highest density of architects is in Portugal (2.1 per 1.000 population), which is two times the overall density across Europe (at 1.0 per 1.000 population) (Architects' Council of Europe, 2017, pp. 1-9). A broad interpretation of such a tendency is that some of these countries facilitate the education of architects more than others, and, therefore, encourage more students to enrol their faculties. This tendency, combined with the unique cultural and architectural heritage, serves as a powerful magnet for foreign students too.

Introduction of the Bologna study principles in 1999 (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016, p. 13) has led to the creation of the European Higher Education Area (EHEA), and with subsequent exchange programmes (TEMPUS, ERASMUS, etc.) students have been given more opportunities to study abroad. Within the European Union, some countries have become more attractive and accessible for other EU citizens, but also for foreign students. Just in Bosnia and Herzegovina, in the 2016-17 academic year, there were 2121 foreign students and vast majority of them, around 60%, came from Turkey. This rise in demand, therefore, can be associated with the increase in the number of HE institutions in BiH (Ministry of Security of Bosnia and Herzegovina, 2017).

The data indicate that younger generations opt for studying abroad, alongside the young, already educated personnel. This trend could be positive, provided that they returned to Bosnia and Herzegovina upon completion of the study, having acquired new knowledge and skills. However, considering the high unemployment rate in BiH, it is very likely that a number of them will stay in the countries where they studied, since the new EU migration policy enables persons who studied and successfully completed the study to more easily obtain residency and work permits. (BiH Ministry of Safety, 2016, p. 17)

Since private universities in BiH contribute to the low percentage in education of the entire student population (for instance, in the Sarajevo Canton 94,91% students attend public universities, we did not examine international cooperation programmes at those institutions. Covering cooperation between the AFS and the AGGFBL, which are most influential institutions for educating architects at the national level, provides a sufficient insight into the teaching process in BiH, and exemplifies how international programmes can be facilitators for the curriculum improvement in the case of educating architects in BiH.

Changing Context, Content and Learning

Following this historical introduction to the implementation of architecture education, some questions remain for the authors of this text. We will attempt at answering them in this book at your hands, but we deem even more important to pose the questions than finding a possible answer.

To what extent does the context, be it the historical, economical, societal or other, influences the above-mentioned actions? Does the presentation of how individual countries try to respond to the challenges only solve the local challenges?

It would be strange to believe that the economic welfare, for example, does not have a direct influence to what and how things are done; here architecture and urbanism is no exception.

Nevertheless, there is not direct correlation between funding and the practical implementation. The most crucial factor is the engagement and capabilities of the teachers, linked to a flexible school system. This means that it is obvious to the authors that there will be some variations in architecture education based on all of these differences. The authors are aware of these parts and try to include some of these influences in their assumptions.

Architectural Education and Sustainable Development

What is the role of architectural education and how does it respond to the UNESCO 2030 Sustainable Development Goals (DSD, 2017)? This is the question of how we perceive the future of architectural education and what the direction of curriculum improvements might be.

Built environment is continuously expanding. The increase in world population causes an expansion of the related infrastructure which supports the living conditions of those inhabitants and this, in turn, affects our natural habitat. Out of 17 sustainable development goals, we can make at least 7 direct references to architecture and its role in sustainability (Figure 3).



Figure 3 - UNESCO 2030 sustainable development goals (DSD, 2017).

Good health and well-being are related to the living conditions and in the recent years more attention has been drawn to the “sick buildings” syndrome. The built environment is responsible for changing of the landscape and resources depletion, and is linked to clean water and sanitation issues, affordable and clean energy, climate changes, life on land and, above all, to industry, innovation, infrastructure. With an increase in population living in cities, health issues, sanitary conditions and safety is greatly affected, and the goal number 11 on the UN sustainability agenda is therefore dealing with sustainable cities and communities. It is important to point out the most urgent issues, and when it comes to education, incorporate them in formal education as part of the curriculum:

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

15. *In recent decades, the world has experienced unprecedented urban growth. In 2015, close to 4 billion people — 54 per cent of the world’s population — lived in cities and that number is projected to increase to about 5 billion people by 2030. Rapid urbanization has brought enormous challenges, including growing numbers of slum dwellers, increased air pollution, inadequate basic services and infrastructure, and unplanned urban sprawl, which also make cities more vulnerable to disasters. Better urban planning and management are needed to make the world’s urban spaces more inclusive, safe, resilient and sustainable. As of May 2017, 149 countries were developing national-level urban policies.*
- *The proportion of the urban population that lives in developing country slums fell from 39 per cent in 2000 to 30 per cent in 2014. Despite some gains, the absolute number of urban residents who live in slums continued to grow, owing in part to accelerating urbanization, population growth and lack of appropriate land and housing policies. In 2014, an estimated 880 million urban residents lived in slum conditions,*

compared to 792 million urban residents in 2000.

- *As more and more people move to urban areas, cities typically expand their geographic boundaries to accommodate new inhabitants. From 2000 to 2015, in all regions of the world, the expansion of urban land outpaced the growth of urban populations. As a result, cities are becoming less dense as they grow, with unplanned urban sprawl challenging more sustainable patterns of urban development.*
- *The safe removal and management of solid waste represents one of the most vital urban environmental services. Uncollected solid waste blocks drains, causes flooding and may lead to the spread of water-borne diseases. On the basis of data from cities in 101 countries from 2009 to 2013, 65 per cent of the urban population was served by municipal waste collection.*
- *Air pollution is a major environmental health risk. In 2014, 9 of 10 people who live in cities were breathing air that did not comply with the safety standard set by WHO. (UN, 2017)*

General Context

A clear overview of a HE system in Bosnia and Herzegovina is given in the report provided by Finish National Agency for Education. It shows the complexity of national HE policy its fragmentation and distribution of responsibilities. “Higher education in Bosnia and Herzegovina is regulated by the Framework Law on Higher Education in Bosnia and Herzegovina (hereinafter referred to as the Law), which was adopted in July 2007. The Law sets the basic standards and principles for the area of higher education. In addition to the state level law, the Republika Srpska (RS) entity and the ten cantons in the Federation of Bosnia and Herzegovina (FBiH) entity, as well as Brčko District (BD), have their own laws

and regulations in the area of higher education. However, these laws have to be harmonized with the state Law. **The harmonization process is currently underway.** All other issues in the area of higher education that are not regulated by the Law are governed by entity law in RS and cantonal laws in FBiH.” (Finish National Agency for Education, p. 1).

The aforementioned harmonisation is still an ongoing process even though 11 years have passed. The reasons for this are very clear and have to do with the (un) necessary complexity due to the constitutional setting. “There are 14 governments in the country: 1 national, 2 entity-level, 10 cantonal and Brčko District. This means that there are 14 different ministries/departments dealing with education in the country, including: the state-level Ministry of Civil Affairs of BiH, two entity level ministries of education (Federal Ministry of Education and Science and Ministry of Education and Culture RS), 10 cantonal ministries of education, and an education department within the Government of Brčko District. At national level, education policies are coordinated by the Ministry of Civil Affairs of Bosnia and Herzegovina in consultation with other relevant ministries.” (Finish National Agency for Education, p. 1).

With so many institutions, it is difficult to synchronise all important dependencies and despite all the efforts to establish cooperation between relevant institutions, this “cooperation is not sufficient to respond effectively to the challenges posed by the Bologna process and Lisbon agenda” (Finish National Agency for Education, p. 2).

The Academic Context

The total number of students enrolled in the higher education first cycle of studies in the winter semester of 2016/2017 was 99.977 (BHAS, 2017, p. 1). We can notice a decrease in numbers if we compare it to the academic year 2012/2013, when there were 116.567

enrolled students (BHAS, 2013, p. 1). If we compare this number with the number of unemployed individuals with HE qualifications in year 2012, which was 41.968, we come to a conclusion that 36% of students will be unemployed upon completion of studies (FEDERAL EMPLOYMENT INSTITUTE, 2013, p. 10). Reasons for such a high unemployment rate could be attributed to either low education quality (meaning that the level of competency and skills is not sufficient for employers), or non-efficient companies which do not generate demands for new workers (Halilbašić, Domljan, Oruč, & Balavac, 2015). The responsibility for the quality of education rests on the Ministry of Education, HE institutions and finally, academic staff. This why it is so important to perform an evaluation of the curriculum and detect its obsolete parts and make it relevant to solving the current challenges of BiH.

“The Senates of HE institutions are responsible for curricula development. They decide on important academic issues, including curricula development for undergraduate, postgraduate and doctoral studies. Universities may organize their curricula according to their needs.” (European Commission, 2012, p. 6)

Why is the study programme so important in an architect’s education? Is the curriculum quality the one separating one institution from another or its teaching staff? Could two institutions with the same curriculum produce the same learning outcomes regardless of their teaching staff capacities? The further question that one can pose is what are the limitations for reaching the targeted learning outcome? If one sets the content apart, there is the additional question of the importance of the modes of teaching and techniques as well as tools and equipment. Perhaps this could be the case with the less privileged institutions, struggling to reach a higher rating on the international scale, since they lack the basic equipment and access to research results. In the end, there is also the question of the extent to which curriculum should be modified?

Principally, there are two main disciplines in architecture: design and construction. The purpose

of architectural education is to teach students how to build in an environment and fulfil the needs of users. The design process can be further divided into themes concerning urban planning and design and those concerning the historical setting. The construction section can be divided into themes concerning the structural system and the choice of materials. The choice of materials is not only limited to load bearing capabilities but also to the everyday use-and-wear, lasting functionality and aesthetics.

Hence, if we discuss the content section of the curriculum, the first question is how much can one deviate from those primer disciplines? One would argue that structural components should not be examined as much, because the Faculty for Civil Engineering deals with those issues, so emphases should be on design. These questions are very important because they, in turn, define the profile of the architectural school (Possible Changes in the Curriculum, p. 25).

The curriculum is only a structural tool to ensure the general competence in the field of architecture and urbanism, which all students should have to acquire to be able to fulfil their work as a professional. To tackle the millennium goals, it needs thematic approaches, which can structurally and methodically ensure new or alternative modes of learning and combining/shuffling the existing knowledge in a new way (which will respond to contemporary challenges at any given time, even in the future.)

Once we pass beyond the question of the school profile, we can discuss the content section or the syllabus within the specific subject. Whether the syllabus is flexible to accommodate new findings or not depends on the responsible teachers who are in charge of the syllabus creation and course conduction.

The essence of the need to transform the curriculum in line with the Bologna principles is captured in the following thought: *“Curriculum development is at the heart of the Bologna educational reforms, which have to be implemented bottom-up as well as top-down. The*

essence of many of the Bologna related initiatives is to improve outdated European qualifications. Real change has to happen at the level of the higher education institutions. This is true for BiH current and future citizens who need high quality qualifications that are internationally recognised and facilitate democratic values, employability and mobility.” (Adam, 2011, p. 42).

What attracts students in the first place to enrol at a certain university? It should be the learning outcome which means how well they will be prepared for their future career. Second, it could be the quality of life, especially if we talk about students coming from other towns and cities. Third, it could be an opportunity for meeting and collaborating between peers and being close to those that are outstanding in their fields. This means that institutions that have creative individuals as their students, attract others which want to be in their company and also become successful.

One of the major transitions yet to come for the Faculty of Architecture in Sarajevo is to make its study programme attractive to foreigners. If the AFS wants to become internationally attractive, it is imperative to have lectures and exercises conducted in the English language. Out of several thousand students that come to BiH, only a handful are enrolled at AFS. There are some plans to increase the number of foreign students, and there is an urgent need for top-down planning on how to attract possible candidates and persuade them to come and study in Sarajevo. Some of the aforementioned points have to be simultaneously tackled and here the keyword is “improvement”. The argument behind the need for improvement is that if all things had worked well, then we would have had more students in the first place, and we would not have to seek for new ones.

What are benefits for one country in attracting foreign students? The logic behind it is that every country needs educated, smart, capable individuals that will facilitate the economic growth. But first, existing courses should be revised according to the Article 3 of European Council directive.

Article 3

Education and training leading to diplomas, certificates and other evidence of formal qualifications referred to in Article 2 shall be provided through courses of studies at university level concerned principally with architecture. Such studies shall be balanced between the theoretical and practical aspects of architectural training and shall ensure the acquisition of:

1. *an ability to create architectural designs that satisfy both aesthetic and technical requirements,*
2. *an adequate knowledge of the history and theories of architecture and the related arts, technologies and human sciences,*
3. *a knowledge of the fine arts as an influence on the quality of architectural design,*
4. *an adequate knowledge of urban design, planning and the skills involved in the planning process,*
5. *an understanding of the relationship between people and buildings, and between buildings and their environment, and of the need to relate buildings and the spaces between them to human needs and scale,*
6. *an understanding of the profession of architecture and the role of the architect in society, in particular in preparing briefs that take account of social factors,*
7. *an understanding of the methods of investigation and preparation of the brief for a design project,*
8. *an understanding of the structural design, constructional and engineering problems associated with building design,*
9. *an adequate knowledge of physical problems and technologies and of the function of buildings so as to provide them with internal conditions of comfort and protection against the climate,*
10. *the necessary design skills to meet building users' requirements within the constraints imposed by cost factors and building regulations,*
11. *an adequate knowledge of the industries, organizations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning. (EUR-Lex, 1985)*

In conclusion, there is the WHAT section of the curriculum, or rather what is being taught, and there is the HOW section, or the teaching methods. With regards to the content section, we see many similarities judging by the experience of students from different schools: history of architecture, history of art, structural engineering, architectural physics (building envelope, materials, energy efficiency). Also, teaching methods such as ex-cathedra lectures, thematic exercises, group work are present at all institutions. So why do we see such a difference in institutions' ranking? One of the answers is the balancing between the WHAT and the HOW. In the HOW section, funding makes a big difference. The ability to undertake academic excursions, to bring renowned guest lecturers, to facilitate the hands-on practical work, to be a desirable work destination for teaching staff, is linked to the financial means. One way to influence this issue is to apply for cooperation programmes and use those programmes to facilitate the needs of students and teaching staff, and, in turn, to improve teaching.

The Influence of Government on HE in BiH

In Bosnia and Herzegovina, in the Sarajevo Canton where the majority of architecture schools are located, every 3-4 years⁴ the HE law is amended, or a new one is passed. With this law, students' rights and obligations are defined, as well as those of the academic staff. Is there a real need for such frequent changes, especially if one takes into account that the education period for architects usually lasts five years (3+2), is debatable. The influence of government on HE is significant, since the majority of student population is educated at the public HE institutions. Funding is related to the admission quotas which are set by the Ministry of Education. In that sense, the government steers the education based on the needed workforce. So, there is a top down approach to HE (the government to HE institutions) and bottom up (from HE institutions to the government) and the curriculum profile is somewhere in the middle i.e. a call for change can be initiated by either side. A call for improvements, in general, is expected to come from the academic staff, since they are most involved and should have the best insight in the current state of their profession. In Bosnia and Herzegovina, there were examples⁵ of good practices in the creation of curriculums, where academic staff closely collaborated with the representatives of industry to create syllabuses which would endorse competence and the needed skills. At the same time, education agencies have to be able to accommodate for the necessary changes, and good example of how

to achieve this is through the Education Enterprise Architecture (EEA) (U.S. Department of Education, 2014, p. 4).

“Like other complex organizations, education agencies must establish efficient and cost-effective structures to collect, retain and share information in pursuit of their mission and goals. Yet even as education agencies rely increasingly on information and information systems to implement reforms, they face more frequent and fundamental policy and program reforms that require coordinating investments in people, processes and technology across the agency and guaranteeing relevance to educational goals and stakeholders. The concept of enterprise architecture, borrowed from the business sector, offers structures and processes for doing so. EEA offers a blueprint to map and align educational objectives, strategies, roles and responsibilities, data and technology. Planning for sustainability especially benefits from the documentation of processes and clarification of ownership and responsibilities that are elements of EEA.” (U.S. Department of Education, 2014)

The most important part of education is the learning outcome. And in order to generate a good one, it is important to decide which part of the curriculum should be mandatory and which should be left to institutions/educators and students.

⁴ 2007, 2010, 2013, 2017.

⁵ In the late 80's, the “Energoinvest” public company, employing over 40.000 people at the time, was involved in the creation of the curriculum at the Faculty of Electrical Engineering. Also, the Faculty of Economy in Sarajevo, has representatives from the industry as advisors in the process of curriculum development.

Learning by Doing

In this chapter we emphasise the need to expose students to practical work at the faculty level. One way to teach architecture students is to engage them into practical activities where they can gain knowledge when faced with real tasks. These tasks can vary from conducting surveys and interviews to first-hand building experience. Many HE institutions incorporate the student apprentice⁶ into their study programmes, from one month up to one year at the industry. The reason for doing so is because students are faced with a task to apply the theoretical knowledge they obtain at the faculty and identify gaps in knowledge that need to be addressed. Also, students gain perspectives into essential tasks within the industry and, if allowed, take a much bigger responsibility for their actions while doing actual work at the firm. In the cases where students work for longer period of time, they receive a salary, meaning that while learning they are earning. The ultimate benefit for students is the fact that they develop skills and competences that will increase the employability chances once they finish their studies.

The learning-by-doing⁷ is related to experiential learning methods (based on the Kolb's Experiential Learning Theory, as described by professor Graham Gibbs⁸) and the reflective cycle is recognised as the key component (Figure 4) (Graham, 2013, p. 15).

6 With the recently passed 2017 Law on Higher Education in the Sarajevo Canton, this has become a requirement.

7 Learning-by-doing is a somewhat simplified approach initially posited by the American pragmatist philosopher and educator John Dewey (before Kolb wrote on the experiential learning) (Bates, 2016).

8 For the number of years «*he was head of the Oxford Centre for Staff and Learning Development at Oxford Brookes University and subsequently Director of the Oxford Learning Institute at Oxford University*» (Graham, 2013, p. 3)

Possibilities to Solve the Societal Challenges through Pedagogy

What better way could there be to describe how pedagogy can be part of solving the challenges of our time than using the knowledge of a price winning educationalist. This is why we choose to use one of his presentations in 2017 (the following description is free transcribed and adapted from Professor Steffen Wellinger, NTNU). (Wellinger, 2017)

At the Norwegian University for Science and Technology (NTNU), we have educated architects since the 1890s, later artists, planners and designers in Trondheim and later Gjøvik.

We all agree that many of them have been important community builders for both modern Norway and the rest of the world. Being the builder for, or, better, creating the society, is the unique core competence of the subjects we have at the faculty.

The dean has come this year with this definition of good education.

“Ultimately what leads to good education are good teachers and students who work in a good environment and with one direction.” (Dean Fredrik Shetelig, 2017)

I fundamentally agree, but want to elaborate a little. I could have said a lot about the teacher's staff that I would rather call educators, but I am probably not the right person for criticism. I jump right on to the students.

Based on the experience and research such as Self Determination Theory, we know that through ownership and inner motivation we can reach much longer than through external motivation.

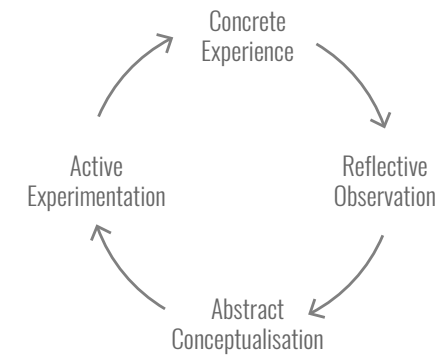


Figure 4 -Experiential learning cycle, (Graham, 2013, p. 15).



Picture 1 – BØLGEN public staircase (Nadja Sahbegovic, architect, Trondheim kommune)

If you really burn for something, you invest a lot more into it, withstand greater risk and overcome thresholds. This leads to learning.

And that's exactly what we also see in the student-initiated Live Studio projects that I want to use as an example for a student-initiated and centred learning.

Initially, the projects like a hut for an uncle, stairs in the city centre or a pavilion for seriously ill children are about the will and the joy of creating architecture in a community of practice, together with other students (Picture 1). It's about learning how to build, to control a budget, to negotiate with municipal agencies, user opinions, etc.

The projects are about aesthetics, form, handicrafts. They are about meeting a multitude of people who use, collaborate, consultants and professional opponents. It is about introducing the students to our professional culture – and all of it through own motivation in their spare time.

I have borrowed the professional model based on the professional culture in the centre from professor Tarald Lundevall from the Oslo School of Architecture and Design. It describes the profession with professional culture in the centre and practical knowledge and professional knowledge that lay around.

I strongly agree that it is important that we have a disciplinary core close surrounded by professional culture.

There is a lot of fun and enjoyment in the Live Studio projects – but even if someone is joking over a Live Studio, it's about fun with a case, so the projects are about more.

They are very much about understanding the context and that the society has so many more layers than the physical – it can be about social, economic, political; there are narratives and power relations and much more; and that most of the layers are relevant and important for good architecture and planning.

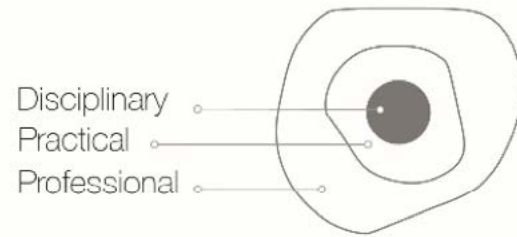


Figure 5 - Lundevall's model (Figure from Prof. Steffen Wellinger, NTNU adoptet from Prof. Tarald Lundevall, Oslo School of Architecture and Design)

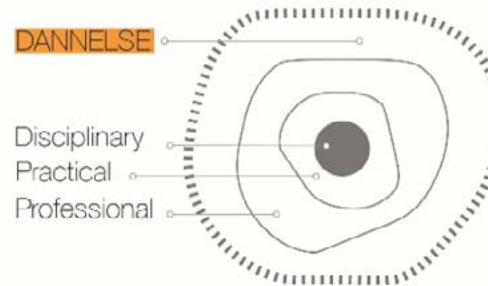


Figure 6 - Adaptation of Lundevall's model (Figure from Prof. Steffen Wellinger, NTNU adoptet from Prof. Tarald Lundevall, Oslo School of Architecture and Design)

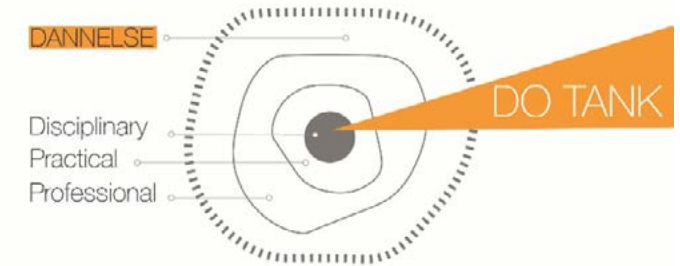


Figure 7 - Introducing "Do-Tanks" (Figure from Prof. Steffen Wellinger, NTNU adoptet from Prof. Tarald Lundevall, Oslo School of Architecture and Design)

In the Live Studio and similar projects, students are at the centre of a dynamic process with many, partly contradictory interests and premises. They are challenged in their understanding of their own expertise and understanding of the world. Through the weight of responsibility, it triggers a reflection on the architectural role, societal relevance and context. The world consists of so many more layers than the physical.

The projects are therefore about understanding of their role and possibilities and about what architecture can do for people and for the society. And for the institution it's about losing control.

Perhaps there are 10-15% of our students who, through their time at NTNU, are getting into the Live Studio and some more in similar projects. And it's not the main intention or vision that this is the educational model that we should apply to more or the majority.

But I believe that experience-based learning in a real setting is an important model that we must build on and, of course, the students' motivation and joy with and of the subject.

Formation

Today we face major societal challenges such as poor housing production, reduced natural diversity, climate challenges, mental health, inactivity, migration, divide, right-wing populist tendencies in Europe and in the United States, and many more.

Our social assignment should be that we as individuals and professionals actively participate in the community-relevant discourse.

In order to build on NTNU's slogan for a better society, I would therefore like to add formation to Lundevall's model (Figure 5 and 6). An important law for the profession and an important task for higher education.

I understand formation as both a way of understanding its academic role, but also as a motivator for creating a better society.

I believe that, in close cooperation with the community and the people around us, we must use the potential

of architecture, design, art and planning to invite to behaviour that not only prevents natural devastation and division of wisdom, but also introduces alternative concepts to what is now perceived as goods. Ownership, traveling long way, consuming and similar, can be replaced by concepts of social fellowship, sharing and experiences in the local community. And who, if we do not have architecture, will have the knowledge and expertise to create the good concepts for that?

I believe that we have a duty to contribute to radical societal changes based on an ethical democratic foundation.

Vision

I'm thinking of my vision for architectural education with both pleasure and concern. Pleasure because I think that with our intelligent and motivated students we can get the most done – but there is also some concern...

Will we be fast and strong enough to come up with a relevant input for solutions to key societal challenges?

Will NTNU and others understand that the future-oriented teaching in creative subjects is not about transferring knowledge that is produced elsewhere through teachers to the students?

We know that many of today's problems have arisen through the sector thinking and short-term solutions.

The solutions necessary are complex and demanding, but despite many smart think tanks, we are unable to deliver good concepts quickly enough.

We also see a development in society and higher education where specialisation and focus on avoiding risk are central. An instrumental approach to education through quality assurance, predictability and structure takes over the education discourse from state, down all the way to the student level. Also, many students are more concerned about how than why we are gathered at a university.

Education is still not being prioritised internally in terms of the resource allocation. And I do not think we can handle these currents, that is, less focus on content and less resources in a dynamic world only with an adaptation of today's teaching model alone. Much of what we have done is good and we have to take care of and protect, but we must think again too.

Good and relevant learning has to do with inner motivation, experience and community.

We have the slogan at the NTNU: *knowledge for a better world*. Knowledge is important, and a lot of good

research and knowledge has been produced, and yet we make a lot of bad architecture, bad plans, products and artwork.

We must strengthen the creative disciplines that can understand, balance and translate all the knowledge, data and interests that exist for relevant social contributions.

We have a unique opportunity at the NTNU to develop the future's creative PRACTICE.

So, my vision: imagine we wipe out the differences between the student, the researcher, the teacher; between the subjects of the faculty of architecture and other relevant subject areas at the NTNU. We can do that by further developing our THINK TANKS in teaching and research. Or DO TANKS; then we take on some harsh challenges from society and come up with solutions that both have results and a new practice as the goal (Figure 7).

With the help of conceptual thinking and the feet well-planted in history and culture, we can create solutions for many fields at the NTNU. Artists, designers, planners and architects individually and not at least together can again become active community builders based at the NTNU.

At the NTNU, we have opportunities that no one else has in Norway. We can make a difference.

At the same time, it is crucial that we can convey that creative education cannot be streamlined, rationalised in an efficiency strategy from the new public management.

Let us create experiences for the students, together with the students, for colleagues and many partners so that we can create not only knowledge for a better world but also a PRACTICE and community for a better world.

But let's also remember that it's incredibly fun to create and experience things together – with students, people, teachers.

A photograph of three people sitting on a wooden structure, overlaid with a large yellow letter 'B'. The image is tinted with a yellow-green color. The people are smiling and looking towards the camera. The structure they are sitting on is made of vertical wooden slats. The background shows a gravel area and some trees in the distance.

B

The “HERD” Case:
Rethinking Architecture and
Energy Efficiency in Buildings
and Urban Development

B. The “HERD” Case: Rethinking Architecture and Energy Efficiency in Buildings and Urban Development⁹

As already mentioned in the introduction, humankind is confronted with a vast number of challenges, and these push for a mutual alteration of the society. Architecture is one of the fields which will have to change itself to contribute to the change. Throughout history, architecture has shown its ability to adapt. There are several sub-fields in architecture where contribution and development/re-thinking is crucial. This project chose energy and its use in architecture and urbanism as the main thematic area.

The involved institutions and participants in the HERD/energy project in “Rethinking architecture and energy efficiency in buildings and urban development” tried to solve the above-mentioned challenges through new and alternative pedagogical approaches and structural changes in education. These two interlinked activities will have short and long-term gains for students, employees and the society as a whole.

⁹ This chapter is partially re-written from and some parts copied and edited from the HERD / Energy application between the Faculty of Architecture, University of Sarajevo and the Faculty of Architecture and Design, University of Science and Technology, Trondheim; written by professor Rada Čahtarević, associate professor Đenana Bijedić, assistant professor Mladen Burazor, professor emeritus Hans Skotte, professor Markus Schwai and professor Steffen Wellinger in 2013.

Structure/Goals

The overall objective of the HERD Energy project was to "contribute towards a sustainable future by fostering attitudes, generating knowledge and applying modes of learning recognizing the impact of energy efficiency in architecture and urbanism." (NTNU, AFS, AGGFBL, 2013) This overall approach responded to the given and the above-mentioned challenges, but had to be subdivided into several main objectives. This to end up with smaller, feasible and easier to handle tasks.

The Main Objective:

Through cooperation between partners at the University of Sarajevo, Faculty of Architecture (AFS), the University of Banja Luka, Faculty of Architecture and Civil Engineering (AGFBL), and the NTNU, Faculty of Architecture and Fine Art, the goal was sought and achieved through developing innovative approaches in the teaching of architecture and urban planning, aiming at generating the appropriate and applicable knowledge, and fostering an aptitude towards architectural and urban innovation at all three faculties engaged in this programme.

Specific Objectives (NTNU, AFS, AGGFBL, 2013):

To ensure feasibility and ability to implement the project and to create smaller parts, which would enable an easier achievement of the main objective, the tasks were subdivided in specific parts. Following were the defined specific objectives of the project, here presented as commented citations.

- *Develop institutional capacity within the field of energy efficiency and sustainability at universities in Bosnia and Herzegovina through modes of teaching that enhances the innovative capacity of staff and students.*

Parts of these new approaches/modes were already decided and known, others developed together within the project.

- *Building infrastructure for the university cooperation in knowledge and technology transfer, improving and developing education and study programmes at the University of Sarajevo, Faculty of Architecture and the University of Banja Luka, Faculty of Architecture and Civil Engineering.*
- *Innovation of the curriculum of the master study with the aim of raising awareness about the cause-effect relationship of architecture and energy. The exchange of teaching experience, improving the existing and creating new courses with an appropriate content and structure developed in collaboration between the partners; and incorporating research results in the master study courses and lifelong learning. Outcome of the courses would assist teachers/students in understanding concepts of energy and acknowledging the challenges of sustainability in architecture.*
- *Building capacity for collaboration of research groups in topics of energy and sustainability at the universities involved will be realised by establishing study visits and joint research projects.*
- *The application of research results that have been reached through innovations in teaching, through materialisation (realisation) of a 1:1 design of a specific architectural object in Sarajevo. The action research approach will generate an input in teaching and research.*
- *Transferring research results through journal publications and conference presentations at national and international levels.*
- *Preparing for the establishment of the Centre for Sustainable Development in Architecture at the Faculty of Architecture, University of Sarajevo.*

- *Collaboration with architectural practice, industry and public institutions and establishing and building capacity of lifelong learning in Bosnia and Herzegovina.*
- *Enhancing university cooperation between different universities in Bosnia and Herzegovina and the European universities on an institutional level, in teaching and research activities.*
- *Reflecting upon the common project and partner activities which will be summed up in a conference and public exhibitions in WB and Norway.*
- *Drawing benefits from the already-existing or previous HERD programs in the Western Balkans region.*

The Relevance of the Project according to the Aims of HERD/ Energy

This programme will address the shortcomings of current approaches to energy efficiency in architecture and urbanism in Bosnia and Herzegovina. Not merely by transferring and replicating the high-tech and expensive solutions sought in Norway, but through rethinking the way architecture and urban development is conceived and implemented and thus contextualised. This is to be done by establishing a new twin-entity programme centred at the Faculty of Architecture, University of Sarajevo. The programme will address the challenge through a three-way approach. 1) By relating to the knowledge generation within the field in Norway, to what has already been achieved through the Herd in Sarajevo, and the on-going HERD-work in Kosovo, and by relating to the knowledge and strategies emanating from this programme. 2) By developing new curricula and introducing new modes of teaching, i.e., by introducing a research-design-build approach

that is set to enhance innovation. This will engage all departments of the partner faculties. 3) By involving the building industry and building merchants (in our 'design-build' endeavours), public officers, private practitioners and their respective professional associations in both entities of BiH.

The impact sought is not solely for the future benefit of Bosnia and Herzegovina, it is designed to also benefit the NTNU and thus Norway's future practitioners through our joint efforts to advance our understanding, our modes of teaching, and our professional practices.

The Relevance of the Project according to the Strategic Direction of HERD/Energy

The design of the project is guided by the HERD strategies. It is built on the challenges as defined by the contextual understanding of the AFS faculty; its long-term perspectives are ensured through the key role allotted to young academics at all partner universities both in the planning of this endeavour and in the programme itself. The long-term funding of the ZEB (Zero Emission Buildings) programme at the NTNU gives further references to a long-term relationship. At the tail end of the programme the Centre for Sustainable Architecture will be established. The programme has been planned and will be conducted based on gender equality as per staff and student engagement (within our field the student bodies have a female majority). We have forged links to and drawn advice from the Norwegian Embassy in Sarajevo as well as from relevant experts and knowledge centres in Norway and Sarajevo. The program encompasses the two faculties of architecture in BiH, and will link on to activities in Kosovo. And finally, it will rely on interaction with and contributions from the private sector in realising the design-build component of the programme.

Ensuring Sustainability

The project should provide collaboration between the project partner universities, creating platform for a joint supervision of the teaching programme, joint research projects, technology transfer and joint collaborative lifelong learning courses, with community involvement through activities of cooperation of the university and social institutions.

Establishing a base for a long term collaboration of partner universities provides continuation of the cooperation, with prospects of joint programmes and young researchers' development. Teaching of new courses will be integrated into the education and research activities at Bosnian partner faculties. Collaboration between project participants will be continued after the project period through joint activities in education, research projects, joint publication, and joint application for projects financed by the EU. The collaboration between universities and public institutions will be fostered through student projects and knowledge applications in research projects.

Possible Changes in the Curriculum

As a result of the HERD projects, the entire curriculum of the AFS has been updated and translated. This is important to emphasise for two reasons: the first being that after more than 10 years, information in syllabuses has been updated and, secondly, for the first time in 10 years foreign students are able to find the English translation of the study programme on the official web page. Needless to say, this has proven a significant benefit for students that decided to study abroad and needed an English translation in order to continue education in other countries. Translation of the curriculum in 2017 is used here as a milestone to show the nature of the AFS study programme by comparing the influence of certain departments (manifested in the ECTS load) in the overall study programme.

At the AFS, there are in total 7 departments and the total number of obligatory subjects in the first cycle is 60, which counts for 174 ECTS (Arhitektonski fakultet Univerziteta u Sarajevu, 2017). In the bachelor course, 3 ECTS are awarded for the elective subject (one in total)

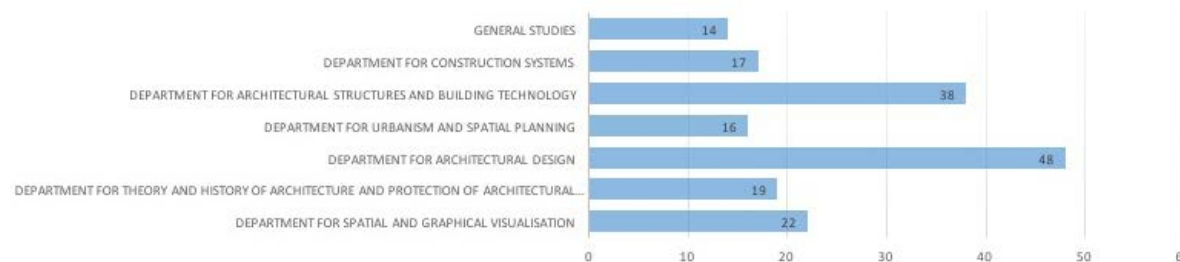


Figure 8- ECTS credits at the bachelor course.
(Authors)

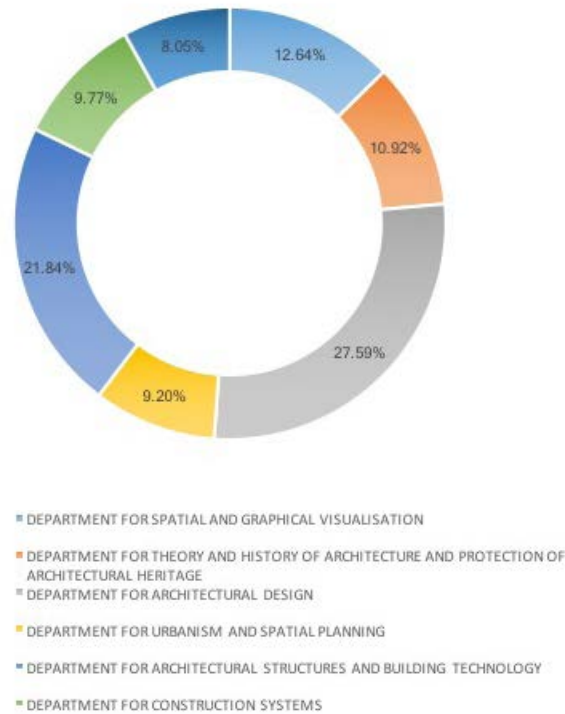
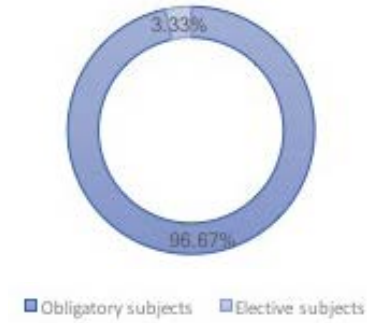


Figure 9- Distribution of ECTS credits at the bachelor course. (Authors)

THE FIRST STUDY CYCLE - 180 ECTS



THE SECOND STUDY CYCLE - 120 ECTS

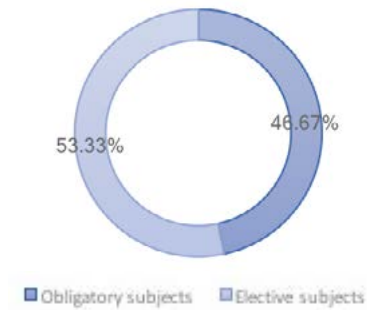


Figure 11- Obligatory vs. elective subjects in the bachelor and master courses. (Authors)

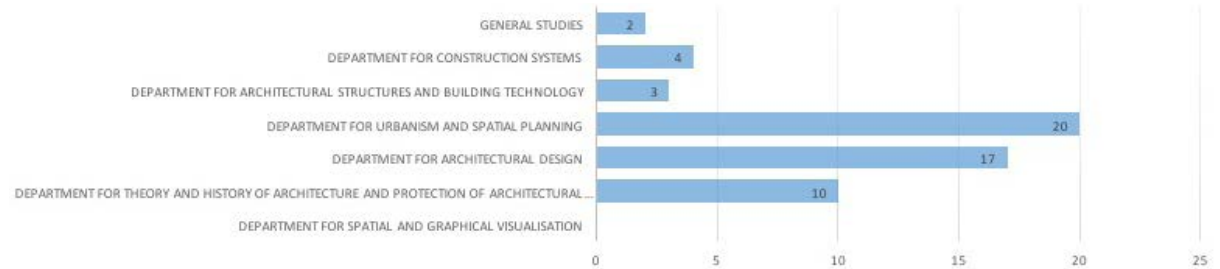


Figure 10- ECTS credits at the Master course. (Authors)

and additional 3 ECTS for the Synthesising project, which can be selected either at the Department for Architectural Design or the Department for Architectural Structures and Building Technology. Values in the Figure 8 show the distribution of ECTSs across the departments, where the Department for Architectural Design has the largest share.

Influence of the departments, here presented as the ECTS load, is, in our opinion, more relevant than the comparison between the total number of subjects because they vary in terms of the number of lectures and practical classes. An example is that there is the total of 13 subjects from the Department for Architectural Design, as well as at the Department for Architectural Structures and Building Technology, but the ECTS value is different.

Percentage-wise, Figure 9 shows the relation between different departments, and it is noticeable that two dominant departments at the AFS account for 49,43% of the curriculum.

With the second cycle, i.e. the master course, the difference in the departments' share is a lot different (Figure 10). First, there are only 18 obligatory subjects which attribute to 56 ECTSs, which is equivalent to 46,66% of the entire master course load, and that tells us more about the nature of the second cycle. Whereas the emphasis at the bachelor course was on obligatory subjects where 96,66% of the teaching is pre-set for students, at the master level, courses are more tailor-made, thus students have more liberty to create a unique programme (Figure 11 - Obligatory vs. elective subjects in the bachelor and master course).

The difference from 3,33% to 53,33% in terms of choosing subjects is therefore quite staggering. In the second cycle, 33 ECTS credits are allocated for elective subjects, and 31 for the master's thesis.

Secondly, while examining the departments' share in the second cycle structure, one can see that the "engineering" component is severely reduced, since the Department for Architectural Structures and

Building Technology is now at 5,36% together with the Department for Construction Systems at 7,14% (Figure 12). In the bachelor course, this component was at 31,61% compared to 12,50% at the master level.

The Architectural Design Department share has increased slightly but now the leading department is the Department for Urbanism and Spatial Planning with multiple increase, from 9,20% to 35,71% in the total share. At the same time, the Department for Spatial and Graphical Visualisation has a 0,00% share in the obligatory part of the course and is only present in the elective subjects and the master thesis.

As can be see, the bachelor course at the AFS is orientated towards "design and engineering", but the master course is quite different in that respect. In the obligatory structure of the curriculum, it could be defined as leaning towards "design and urbanism and spatial planning", but, at the same time, this could be altered though the choice of the elective subjects. Theoretically, if one student chose to take all electives (if they were offered in such numbers) from the Department for Spatial and Graphical Visualisation, this would mean that this department's share would be 53,33% in the total for the master studies, as compared to 0,00% if a student did not choose any of those subjects. This is only an illustration of this tailor-made approach which can be praised or criticised in the discussion how much a student must know "a bit of everything" and how "specialised" has to be.

The Original Concept of Bologna Curriculum at the AFS

Now when the current situation regarding the curriculum is known, it is worthwhile to reflect on the initial idea behind the curriculum development in accordance to Bologna Declaration (Čengić, REFORMAE, 2006, pp. 52-57). The (re)development

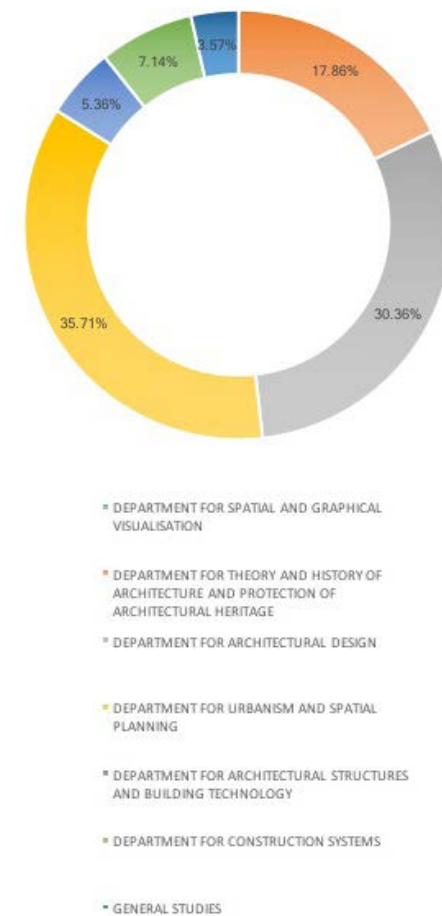


Figure 12- Distribution of ECTS credits at the master course. (Authors)

B. The "HERD" Case:

Rethinking Architecture and Energy Efficiency in Buildings and Urban Development

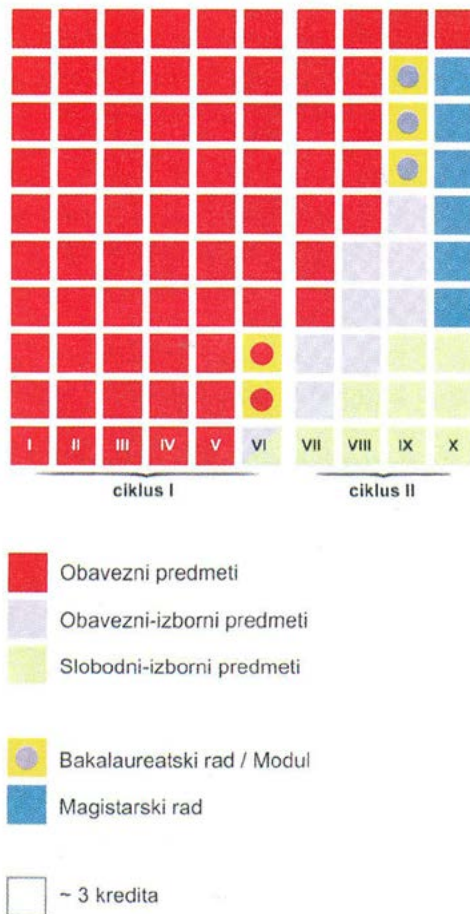


Figure 13- Distribution of subjects and modules trough cycles. Source: (Čengić, Razvijanje svijesti o Bolonjskom procesu, 2005, p. 113)

of the curriculum began in 2003, and was based on recommendations from the Bologna Declaration and in collaboration with foreign partner institutions from Italy, Spain, Austria, Belgium and Germany (Čengić, Razvijanje svijesti o Bolonjskom procesu, 2005, p. 107). The structure of the courses in terms of typology of subjects and related ECTS load can be seen from the Figure 13.

If one compares the diagrams Figure 11 and Figure 13, one can see that the "free-elective" category has disappeared. It is necessary to point out that, originally there were two categories of elective subjects: "obligatory-elective" and "free-elective". The former referred to the subjects that were supposed to be taught at the Faculty of Architecture, whilst the latter included subjects that students could take from other academic institutions in order to gain additional skills and knowledge (Čengić, Razvijanje svijesti o Bolonjskom procesu, 2005, p. 112).

The change from "free-elective" to "obligatory elective" subjects, and, subsequently, to "elective" subjects only (offered by different departments from the AFS) was somewhat expected. In practice, physical dispersion of faculties and academies through the city and a relative incompatibility with curriculums, proved to be a problem in sending and receiving students and fitting them into the timetable at the home institution. For some, this is not that great loss, but they see a problem elsewhere. With the given freedom to customise up to 53,33% of the master course, we are left with the extreme examples where students can avoid some important phases in architectural education. They can, theoretically, end up with up to 70% content of urbanism and spatial planning, without acquiring any skills to draw plans in some BIM software upon completion of the studies (especially if they finished the bachelor course at another institution). This certainly poses a problem and this issue can be addressed with some directives on what needs to be chosen. For instance, some elective subjects can be marked as those that contribute towards the minimum of knowledge a student has to obtain upon completion

of the course. In practice, this would mean this a student has a choice between several subjects, but they must be from the same department (e.g. from the Department of Architectural Design it could be either: housing, public buildings or industrial buildings). With that approach, the students are obliged to take subjects from several departments (hence acquiring the minimum knowledge from those disciplines) but are left with the freedom of choosing specific subjects).

An Increase in the Number of Subjects

One of the most obvious drawbacks of the Bologna curriculum is the increase in the number of subjects. From the comparison between subjects at the Department of Design from 1998 and 2013¹⁰, one can see that the number of subjects drastically increased. In the pre-Bologna curriculum, there were 6 subject that ran from the first to the ninth semester, meaning that some subjects span trough two study years (Figure 14).

In the year 2013, the total number of subjects that originated from the pre-Bologna subjects was 30 (Figure 15), out of which 18 were marked as obligatory and 12 as elective. From these numbers, the true nature of the transformation can be seen. Not only that the original subjects were split by semesters (than there would be 21 subjects in total) but a lot of the content was qualified as "too much": "Then, it have been realised

¹⁰ The year 1998 was chosen for the reason that one of the authors enrolled the AFS in that year and has a good understanding of the curriculum structure from the 1998-2004 period. At the same time, he has access to the reliable data from that time. The year 2013 was used since this was the time when the application for HERD project was prepared and the data for that purpose were collected.

2 - NASTAVNI PLAN I PROGRAM KATEDRE IZ 1998. GODINE

PREDMET	ECTS	SEMESTAR																				UKUPNO	
		1		2		3		4		5		6		7		8		9		10		P	V
		P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V		
Osnovi projektovanja		1	2	2	2	2	3	2	3												7	10	
Stambene zgrade										1	3	1	3	1	3	1	3				4	12	
Arhitektonske kompozicije										1	2	1	2								2	4	
Javne zgrade												1	3	1	3	1	3	1	3		4	12	
Privredne zgrade												1	2	1	2	1	3	1	3		4	10	
Enterijeri i dizajn												1	2	1	2	1	2	1	3		3	7	
MENTORSKI RAD + KONSULTACIJE																				2	4	2	4
UKUPNO SATI SEMIČIČNO:		1	2	2	2	2	3	2	3	2	5	4	10	4	10	4	11	3	9	2	4	26	59
Ukupno sati po semestru		15	30	30	30	30	45	30	45	30	75	60	150	60	150	60	165	45	135	30	60	390	885

Figure 14 – Subjects from the Department of architectural design from year 1998 (Authors).

3 - NASTAVNI PLAN I PROGRAM KATEDRE IZ 2013. GODINE - BOLONJSKI NPP (SVI OBAVEZNI I IZBORNI PREDMETI)

PREDMET	ECTS	SEMESTAR																				UKUPNO		
		1		2		3		4		5		6		7		8		9		10		P	V	
		P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V			
Osnovi projektovanja																							4	8
- Osnovi projektovanja 1	3	1	2																				1	2
- Osnovi projektovanja 2	4			1	2																		1	2
- Osnovi projektovanja 3	4					1	2																1	2
-Projektovanje 1 - Teorija i metodologija projektovanja	5					1	2																1	2
Stambene zgrade																							7	7
- Projektovanje 2	2							1	1														1	1
- Projektovanje 3	6									1	3												1	3
- Projektovanje 4	3											1	1										1	1
- (IZBORNI) Objekti za djecu predškolskog uzrasta	4													1	2								1	2
- (IZBORNI) Forma kuće i kultura	2																			1	0		1	0
- (IZBORNI) Prostori specifičnog stanovanja	3															2	0						2	0
Arhitektonske kompozicije																							2	4
- Arhitektonske kompozicije 1	4			1	2																		1	2
- Arhitektonske kompozicije 2	4					1	2																1	2
Javne zgrade																							7	13
- Projektovanje 5	3									1	1												1	1
- Projektovanje 6	4											1	3										1	3
- Projektovanje 7	3													1	1								1	1
- (IZBORNI) Zgrade za kulturu 1	6															1	2						1	2
- (IZBORNI) Zgrade za kulturu 2	6																	1	2				1	2
- (IZBORNI) Arhitektonska konceptualizacija i Arhitektonsko oblikovanje	6																			1	2		1	2
- (IZBORNI) Objekti zdravstvene zaštite	4															1	2						1	2
Privredne zgrade																							6	12
- Projektovanje 8	3											1	2										1	2
- Projektovanje 9	6													1	3								1	3
- Projektovanje 10	3															1	1						1	1
- (IZBORNI) Saobraćajni objekti	4																			1	2		1	2
- (IZBORNI) Komercijalni objekti	4																			1	2		1	2
- (IZBORNI) Sajmišta i izložbe	4																			1	2		1	2
Enterijeri i dizajn																							5	4
Enterijeri i dizajn 1	3											1	1										1	1
Enterijeri i dizajn 2	2													1	0								1	0
Enterijeri i dizajn 3	3															1	2						1	2
- (IZBORNI) Etno i nacionalni stilovi u enterijeru i dizajnu namještaja	3													1	1								1	1
- (IZBORNI) Sistemska oprema enterijera	1																						1	0
UKUPNO SATI SEMIČIČNO:		1	2	2	4	3	6	1	1	2	4	5	7	5	7	6	7	4	8	2	2	31	48	
Ukupno sati po semestru		15	30	30	60	45	90	15	15	30	60	75	105	75	105	90	105	60	120	30	30	465	720	

Figure 15 – Subjects from the Department of Architectural Design from year 2013 (Authors).

B. The "HERD" Case:

Rethinking Architecture and Energy Efficiency in Buildings and Urban Development

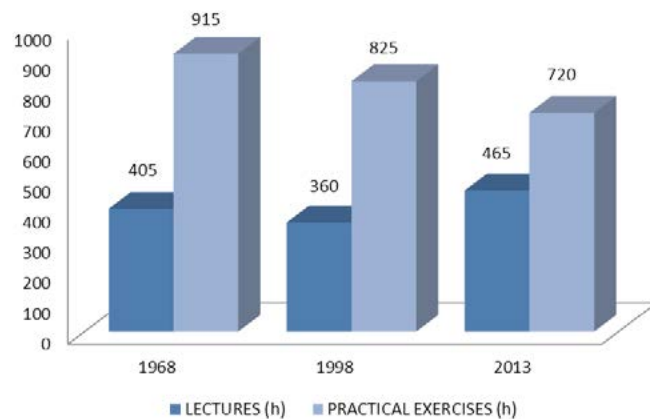


Figure 16 – Department of Architectural Design: contact hours comparison (Authors).

too that the present amount of knowledge taught, can not physically fit into the new ECTS framework” (Čengić, REFORMAE, 2006, p. 55).

In retrospective, where has this reduction of contact hours led us? It is argued that this is the reason why students are leaving the faculty without acquiring the necessary skills. In 1968¹¹, at the Department for Architectural Design, students had 1320 contact hours with the teaching staff, whereas in 2013, the theoretical maximum, provided that the students chose all elective subjects from that department, was 1185 (Figure 16). In this discussion, the Department for Architectural Design, since it accounts for the most of study content throughout the 5 years of study, is used to illustrate the changes happening in other departments as well.

Shortcomings and Needs for Capacity Building in BiH HEI:

Immediately after the introduction of the Bologna curriculum, there were calls for different levels of change, ranging from adjustments, modifications to even abolishment. However, once the new curriculum was in place and the first generation of students was enrolled, due to legal constraints, students had a right to finish their studies according to that curriculum. For this reason, any change in the curriculum has to be well thought through and therefore should not be rushed. Another reason why it took some time to engage the teaching staff in the redevelopment is because teachers had to follow in parallel the old and the new course for a number of years¹². Since the pre-Bologna curriculum lasted for five years, this meant that teachers were

doubling the load, for they had the “old” generations of students who failed some courses and had to re-take them. For this reason, academic staff had to organise the lectures and practical classes even for few students. However, what was immediately known after the initial evaluation of the introduced curriculum, was that the results were troublesome:

“The analysis which were made with the involvement of students, have shown following reasons of low level of students’ progress: (1) teaching program of a subject is not balanced with the number of credits, (2) teaching methods are not suitable to the program of the subject, (3) instructions on essentiality of continuous work were not well accepted from the students’ side, and (4) students who were studying under modified curriculum were under the influence of “advises” from the senior students who were studying under the “old” curricula.” (Čengić, REFORMAE, 2006, p. 57)

Throughout all these years, not much has changed and this is why the HERD programme was welcomed as a platform to try out some possibilities. The fact that the number of exams students had to take has risen from 45 (in previous 5-year system) to 99 in the new 3+2-year-system, has alone proved to be troublesome (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016, p. 16). Furthermore, the reduction of contact hours and their replacement with essay writing, lectures and research time did not reflect positively in the learning outcomes and teachers regularly expressed their opinion that the previous system was producing better results. Given the applied nature of architecture and planning, addressing a global energy shortfall was seen as a trigger to make changes in the curriculum, both structurally and content-wise.

The way out was seen in the possibility (allowed by the law) to change up to 25% of curriculum (which has to be approved by the University Senate), and in that case it is not treated as a new curriculum. So, within this legal framework, we saw a way to introduce the HERD

11 This year was chosen because of the data availability.

12 For instance, the deadline for completion of master theses under the old “master of science” course has been legally extended until 2018.

project in the existing curriculum. Since there were 35 ECTS¹³ credits at the disposal for elective subjects, which account for 29.16% of the curriculum content, the most logical approach was to develop elective subjects along the lines of the HERD initiative and keep the change under 25%.

It has been stated on several occasions that the Faculty of Architecture in Sarajevo was the first member of the UNSA to adopt the Bologna framework, and therefore was the first one to experience difficulties in its implementation, ranging from the lack of legislation on both the governmental level (in terms of HE regulations and standards) and the university level (inadequacies in the Statute). In retrospective, most of those obstacles could have been avoided had the decision been to wait with the implementation for a few more years. In 2011, the Curriculum Development Good Practice Guide was published and from the following citation one can see that those were the exact mistakes that we have made.

"Decisions have to be made about exactly what sort of skills students/citizens need in the 21st century and the mix of learning outcomes that it is essential to include in the curriculum. Such decisions have to be taken in the context of existing resource levels, institutional and national priorities and the realities of what is possible in the current situation. A further consideration is that academics cannot be forced to change their traditional approaches; as such pressure is invariably counterproductive. There are also dangers to avoid, as European experience has shown; hurried and compulsory top-down reform can produce overcrowded curricula, overloaded assessment diets, trivialised objectives, and purely cosmetic changes when new learning outcomes are applied like lipstick to otherwise unchanged study programmes." (Adam, 2011, p. 41).

13 35 ECTS credits were at the time of the HERD programme introduction, and in 2017 this number has changed to 33ECTS.

First and perhaps the most important deficiency was that the new bachelor diploma was not recognised at the labour market. Since there was no national regulation on the new diplomas and competences, the only choice the students had was to continue with the master course in order to gain a diploma which was equivalent to the "old" one and therefore recognised within the system. From the comparison tables between the old and new curriculum, we can clearly see that we had made a mistake of producing overcrowded curricula. With the additional time at hand and based on critical discussions, academic staff would have been better prepared for the changes.

BiH academics need to be convinced about the arguments and advantages of the new Bologna-inspired methods. They will need to be supported in their introduction. BiH higher education qualifications need to be rethought in a sensitive way that conserves the best of the old with the most useful of the new." (Adam, 2011, p. 41).

This advice was perhaps useful for other university members which introduced their curriculums afterwards, but for the Faculty of Architecture in Sarajevo and its staff, it was hard to see the advantages of the Bologna process. For some, the link with the old was lost and the benefits of the new were not emphasised enough.

The EE Component in the Curriculum

Raising awareness for the implementation of energy efficiency measures in architecture and urban planning is an ongoing process. In Bosnia and Herzegovina, before 1970, there were no rules or regulations in the field of thermal protection of residential buildings and only afterwards did it become an integral part of architectural education (Arnautović-Aksić, et al.,

2016, p. 18). At the Faculty of Architecture in Sarajevo, generations of students learned about the building physics from subjects that were part of the Department for Architectural Structures and Building Technology. In particular, the subject Architectural Physics, which was taught in the pre-Bologna curriculum, is now though placed in the 5th semester of the first cycle and in the 3rd semester of the second cycle; combined, it contains 5 ECTS.

"Energy efficiency is on the agenda of many planners, entrepreneurs and decision-makers today. A holistic approach to urban planning and architecture is necessary in order to bring about meaningful changes." (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016, p. 57).

Although students learned at the faculty how to calculate the necessary thickness of the insulation in particular buildings, at the urban planning level or the architectural design, this topic was not emphasised enough. For this reason, it was decided, in the preparatory stage for the HERD funding application, to introduce new elective subjects in the master course for the period 2014-2017, which would deal with those issues. The aforementioned flexibility within the curriculum that allowed for 25% change of curriculum, was used to engage other teachers and assistants to work on new subjects which would have EE issues as important part of the course. In that process, the teaching staff have broadened the knowledge in that field, and hence contribute to the capacity building at the home institution. Based on the feedback from students and staff, the idea was to further introduce energy efficiency as an obligatory part of curriculum.

Project Elements

The following list refers to the section 6.1 in the programme document, and is not exhaustive. It provides an outline of all project activities. In order to use it in our discussion, we will try to comment each of the following project activities with the respective idea behind, in an attempt to present the goal that was to be achieved (including some results and limitations, where appropriate - Table 1).

Table 1

Project elements with relevant comments (Authors)

Institutional development

- *Improvements of teaching methodologies and knowledge through seminars for the teaching staff, with the focus on the energy problem awareness and creative solutions in providing a sustainable society development. One-month visits of the teaching staff from the AFS at the NTNU, trainings on teaching methodologies and research, providing basis for a wider approach to energy and sustainability in architecture in all fields of architectural education.*

The implementation of new and alternative approaches in learning was seen as the leading method to improve learning outcomes on a general basis and in the field of sustainability and energy in particular. It has to be mentioned the imagined amount of activities in this field was too high, given the complexity of arranging these for and with participants from all participating institutions, as well as at all the respective locations. This should have had an additional networking and "contagious" effect, but was too complex and too expensive to fulfil on a broad base in this project period.

- *Development of curriculums for the master study at the AFS and the AGFBL, introducing new courses and improvement in the existing ones, with the focus on the creative approach to the energy problems and sustainability in architecture and urbanism, with broader aspects to the development of the society in general.*

The idea here was not only to improve the content of and the pedagogical approach in the courses, together with structural changes, but to show alternatives to the existing approaches.

- *Establishing the Centre for Sustainable Development at the AFS –providing a research basis for further work on projects that demands knowledge in energy efficiency and sustainability.*

This ambitious activity was planned to ensure the manifestation of the projects activities also for future activities at the university or in the country. Due to time and economic constrains, we could not implement the centre, only lay out roots for it. We here only mention the complexity and size of a project activity of this kind, which would/ will need a project on its own.

Curriculum development

(Bachelor, Master and Ph.D.)

- *The master study curriculum at the AFS will be developed and improved for 25% of subjects from all fields in architecture, upon joint collaboration at participating universities.*
- *The result of the project is to be used as basis for the new curriculum development at the AFS.*

The original intention of the whole project was to change the "national valid" curriculum for the education of architects as a result of the project, or as its parallel activity. The complexity of changing a document of national importance, implying the inclusion of national ministries, has proven too complex and time consuming to be implemented as part of the project. It was therefore decided to present small, but successful changes in this publication and the final reports from the project, to be used for further development by the respective, even national entities.

Study modules

- *Sustainable development study modules at the master level.*

The previously-described complexity in changing or implementing new, long-term valid activities to the existing curriculum lead to the change of these modules to other forms of input to master courses. The idea behind was to highlight sustainability in the educational process.

Study visits

- *A study visit for 12 AFS academic staff/researchers, duration 1 month each, to the NTNU, according to the objectives for training in joint projects*
- *A study visit for the NTNU academic staff/ researchers, duration 1-3 months, for preparing and monitoring the final phase of the project.*

The study visits were the basis for the exchange of knowledge and network building between the institutions and the employees, to foster the knowledge transfer in the field of science, culture and society, and to foster cooperation even after the project period.

Student/entrepreneur scholarships

6 master students of AFS/AFGBL – one semester (5 months) scholarship at NTNU

6 master students from NTNU – one-month field study in BiH

Scholarships covered travel expenses for participation in workshops in Sarajevo for the NTNU/ AGFBL students (6 students each).

Scholarships covered travel expenses for participation in workshops in Trondheim for AFS/ AGFBL students (6+2 students).

Scholarships covered travel expenses for participation in workshops in Banja Luka for NTNU/AFS students (6 students each).

Seeing the students, not only as future professionals, but also as the first line bank of information of what works and what does not in education, was the basis for this student exchange. To give them a possibility to learn from and with each other and to give us an insight in the processes.

B. The "HERD" Case:

Rethinking Architecture and Energy Efficiency in Buildings and Urban Development

Staff exchange

- *Exchange of the NTNU teachers/researchers at the AFS, duration 1- 2 weeks – at seminars and workshops*
- *Exchange of the AFS/AGFBL teachers/researchers at the NTNU, duration 1- 2 weeks – at seminars and workshops*
- *Participation of 4 AFS/AGFBL teachers at two conferences in Pristina organised through the HERD-financed "SEEB-Sustainable and Energy Efficient Buildings" programme.*

The staff exchange was intended as a support bank of teaching/organising power for project activities, like workshops or particular seminars, in addition to fostering networks. Also, increasing the geographical radius of the activities and gaining more insight to the locally contextual developments was important here.

Seminars/workshops

- *One workshop will be organised at Faculty of Architecture, University of Sarajevo. The participants will be students and faculty members of the AFS, AGFBL and NTNU. Themes of the workshop will include teaching topics in sustainable architecture.*
- *One workshop will be organised at NTNU. The participants will be students and faculty members of the AFS, AGFBL and NTNU. Themes of the workshop will include teaching topics in sustainable architecture.*
- *Three five-day-seminars for staff of the universities will be held at the Sarajevo Faculty of Architecture, with participation of NTNU and AGFBL.*
- *The final design and realisation of a prototype building in Sarajevo. Teachers, students from the AFS, AGFBL, NTNU, and industry partners.*

Apart from a changed order in workshops and different, more contextual, timewise beneficial themes, these workshop activities were the main carriers of the entire project activity. This as a goal

(and parallel) is significant for the students, but it also serves as a showcase to other internal and external viewers of the project. The goal was to involve and include them in the process and future activities.

- *One Regional Conference in Sarajevo to promote results at universities in WB to promote university cooperation.*

The conference was planned to be the highlight of the academic cooperation and a summary and celebration of the project activities. It was successfully implemented in autumn 2016.

Equipment

- *Information technology equipment for teleconferencing, online courses and multimedia broadcasting at the AFS, AGFBL and NTNU:*
- *"Cloud" for file sharing;*
- *Computer equipment and software licencing;*
- *Equipment for the 1:1 building workshops.*

This project component was a) to ensure the equal practical/ technical/ digital possibilities for all participants, in this case students especially, and b) to, not only have professional equipment and material for workshop activities, but also to give the students a long-term gain by providing this equipment to them upon completion of the projects for future, self-organised activities.

Development of the teaching methodology

The teaching methodology will be improved by developing cooperative learning and teamwork, and by incorporating research results in the master and lifelong learning courses. Research results will be integrated in the master courses' curricula. The courses will offer application of theory and practice, with semester projects that involve students in research problems,

based on real-life situations.

Reconceptualization of the approach by introducing new, contemporary forms of teaching: a multidisciplinary approach and cooperation, working in a multidisciplinary environment, introduction of modular programmes, sharing experiences through organising joint workshops, seminars and distant learning.

Solving problems not only in the academic, but considering economic, and social environments. Implementation of the acquired knowledge in the basic disciplines in the field of sustainable development of the society and the environment.

Staff development at the partner higher education institution in the Western Balkans

University staff will exchange knowledge and experience in the teaching methodology during joint courses development and study visits, collaboration within workshops and seminars.

Master course students and PhD candidates will be involved in project activities.

This part was a general description of the sought activities to increase the awareness of staff and students regarding the aforementioned themes in sustainability and the proposed modes or methods of gaining this new knowledge. This was planned to be the result of all other project activities mentioned earlier.

Scholarships for PhD students

(may be granted if deemed necessary for sustainability of the partner institution)

This part was planned as a possibility for increasing the impact and activities of the project's core intentions. This was not implemented, but is seen as a possible next step when further working with the project ideas.

Joint study/research

Joint research papers on project topics.

Joint research on the applied knowledge-based project on energy efficiency and sustainability in architectural building construction on a particular site.

The varying themes resulting from the cooperation were shown at the HERD_A conference in autumn, 2016 and span from pedagogical approaches to the main themes in architecture and urbanism.

Other collaborative activities

- Project management and quality assurance
- Project implementation plan, communication and promotion plan
- Project staff meeting - monthly (on-line meeting) and semi-annual meetings (exchanging locations between partners)
- Dissemination and promotion of the project to the broader public through exhibitions, publications and etc.
- Monitoring and evaluation of the project and results

All these activities are administrative tools to ensure the smooth implementation of the project and to reflect and change what is present.

4 METAMORPHOSIS OF ARCHITECTURAL EDUCATION IN POST-TRANSITIONAL CONTEXT		5 METAMORPHOSIS OF ARCHITECTURAL EDUCATION IN POST-TRANSITIONAL CONTEXT	
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Timeline

Planning of activities is perhaps one of the most challenging parts of the programme application. Based on these elements, the budget is created, and all subsequent changes are difficult to make. At the same time, there are unexpected developments that can occur and change the timeline. Planning assumes a certain number of involved individuals, required materials and equipment, but the actual figures, in the implementation phase, most often differ. The plan, which is the result of a methodological approach with the purpose of creating a strategical development frame, is there to be followed, and for this reason, we present the timeline with planned and executed activities and discuss deviations (Figure 17).

Year	Time		Activity																										
	Month		Project management, specification and development of guidelines for the creation of curriculum.		Meetings of staff and Development of curriculum		The Sarajevo-Summer Workshop 2013 (Students exchange and Participants introduction)		Joint study exchange, students and teachers 2014/15		The Trondheim-Summer Workshop 2014 (Students exchange)		Research seminars, AFS, reevaluation of results of the first year		Joint study exchange, students and teachers 2016		Joint research on prototype building		Joint study exchange, students and teachers 2017		Prototype building		Organisation of the seminars, conference, preparing and publishing publications		Organisation of the lifelong learning courses on energy efficiency and sustainable topics AFS		Evaluation		
			EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	
2014	Mar-14																												
	Apr-14																												
	May-14																												
	Jun-14																												
	Jul-14																												
	Aug-14																												
	Sep-14																												
	Oct-14																												
	Nov-14																												
	Dec-14																												
	2015	Jan-15																											
		Feb-15																											
Mar-15																													
Apr-15																													
May-15																													
Jun-15																													
Jul-15																													
Aug-15																													
Sep-15																													
Oct-15																													
Nov-15																													
Dec-15																													
2016	Jan-16																												
	Feb-16																												
	Mar-16																												
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2017	Jan-17																												
	Feb-17																												
	Mar-17																												
	Apr-17																												
	May-17																												
	Jun-17																												

Figure 17 – Comparison timeline: planned and actual (Authors).

The main project elements were:

- Project management, specification and development of guidelines for the creation of the curriculum.
- Staff meetings and curriculum development
- The Sarajevo-Summer Workshop 2013 (Student exchanges and introduction of the participants)
- Joint study exchange, students and teachers (2014/15)
- The Trondheim-Summer Workshop 2014 (Student exchange)
- Research seminars, AFS, re-evaluation of results in the first year
- Joint study exchange, students and teachers (2016)
- Joint research on the prototype building
- Joint study exchange, students and teachers (2017)
- Prototype building
- Organisation of seminars, the conference, preparing and publishing publications
- Organisation of the lifelong learning courses on energy efficiency and sustainable topics AFS
- Evaluation

Understanding reasons that caused deviations from the original plan and reflecting on the consequences is an important lesson, and here we emphasise crucial differences:

Project management, specification and development of guidelines for the curriculum development.

The first difference that can be seen is related to the project management, specification and outlining the curriculum development guidelines. Due to the fact that we received

information about the HERD board decision to fund our project quite late (7 March 2014), meant that we started later than planned and subsequently finished the planned activities a month later.

Staff Meetings and Curriculum Development

The staff meeting started two months later than planned due to problems regarding the engagement of academic staff. Only after the visit of the NTNU staff and the subsequent presentation of project elements at the faculty council at AFS, we were able to proceed with curriculum development. The pressure was to make up for the lost time and create syllabuses for the new elective studios in time and submit them for approval at the university before the beginning of the new academic year which, at the AFS, starts in October.

The Sarajevo-Summer Workshop 2013

The Sarajevo-Summer Workshop 2013 did not occur for two main reasons. First, because at that time, when it was supposed to happen, there were no teachers on board this programme at the AFS and therefore no one could prepare the content for the workshop. Second, there were administrative issues which were not resolved in time and they were related to the financing of student exchange. The contract between the NTNU and the AFS was not signed until the end of 2014 and, therefore, no money transfer was possible to make. Only after the University' board approved the contract, it was signed, but it was already too late to organise a workshop and it was decided to postpone it.

Joint Study Exchange, Students and Teachers (2014/15)

Although the NTNU teaching staff came to BiH in June 2014, the actual academic exchange began in September 2014, due to aforementioned reason. Even though the contract was still not signed, it was mutually agreed upon, and that

was the grounds upon which the first teachers from the AFS attended the international "Holzbau" conference in Trondheim. Once the agreed legal/financial framework was verified in October 2014, the first Bosnian students went to Norway and participated in the "sustainability week" events. They were accompanied by additional academic staff from both the AFS and the AGGFBL. These exchange visits, apart from the educational value for participants, had practical implications on establishing contacts between participating institutions. Students that were sent to Trondheim were among the best students based on academic achievements, and as time would show later, one of those students proved to be a great asset in the 1-to-1 building workshop preparations and executions.

The Trondheim-Summer Workshop 2014

In 2015, the Trondheim Summer workshop occurred a bit later than originally anticipated, but this was an intentional decision in order to deliver workshop results as a part of the "0-emission week" and "sustainability week", which were happening in October that year.

Research Seminars, AFS, Re-evaluation of Results of the First Year

An internal evaluation of the courses began in February 2015, just upon the completion of the winter semester. This was several months sooner than originally planned, which was at the end of summer semester, and the reason was to get feedback as soon as possible and react upon it if there was a need for improvement or remedy. An online survey for academic staff and students was in place, and initial results showed the advantages and disadvantages of working in a studio. An external evaluation, when students and teachers from the AFS responded to questioners and participated in interviews, took place in May 2015, and was

executed by the "Scanteam", appointed by the Norwegian Ministry of Foreign Affairs, with the purpose to assess the higher education programmes.

Joint Study Exchange, Students and Teachers (2016)

More than 12 months was designated for a joint study, student and teacher exchange, from the beginning of the 2015 winter semester in 2015 until the end of the 2016 summer semester. However, it soon became clear that it was a big challenge to bring the teaching staff from the NTNU to BiH for more than a week. Engagement in teaching and other ongoing projects at home institutions, combined with private issues such as the separation from the family, were principal reasons why it was difficult to conduct an exchange between academic personnel. This was the reason why in this brief period of time when the exchange occurred, activities were intense, combining lectures, seminars and workshops. More teachers participated (were exchanged) at once which was more efficient in terms of making further plans based on discussions and immediate feedback as compared to sequential exchange. Students from BiH also travelled in groups for specific events in Trondheim and since the decision was made to make two 1-on-1 projects, this meant that two groups of students from Trondheim came to BiH to participate in the building process. This was the reason for such evident difference in the duration of exchange, i.e. more people for a shorter period of time.

Joint Research on Prototype Building

Preparations for the 1-on-1 building project started at the beginning of 2016, and the first task was to mobilise students to take part in research and planning. The principal idea behind this part of the HERD project was to make students responsible for and in charge of the project, from scratch until completion,

and, in doing so, to expose them to real-life challenges that usually come after they finish formal education. This way, they were given an opportunity to acquire experience on several levels and be much better prepared for future practice. The first built project, the "Sarajevo Pavilions", was successfully completed in August 2016, and with the start of the following academic years, further preparations were made for the "Banja Luka – a Small Scale" project. Since there were two built projects instead of one, the time spent on research and preparations was doubled.

Joint Study Exchange, Students and Teachers (2017)

Exchange of the academic staff and students was directly linked to the 1-on-1 building project and the organisation of seminars and conference which occurred in the second half of 2016. Teachers from NTNU accompanied students on their trips to BiH, and the exchange officially ended in June 2017, upon completion of the Banja Luka project.

Prototype Building

In the planning stage for the prototype building, the required time for this activity proved to be greatly exaggerated. The chosen building material and the scale of the project were such that eventually a group of around 20 students were able to complete a single structure within 10 days. Also, this was possible because more time was invested into preparations, thus the execution was straightforward. Communication between students was happening online and they met in person only when they came to the building site. To communicate all project elements from distance and without establishing personal contact, was certainly one of the biggest challenges they had to overcome.

Organisation of Seminars, the Conference, Preparing and Publishing Publications

At the end of 2016, the international HERD_A 2016 conference took place at the AFS and served as a dissemination platform for project results. For this reason, more time for preparation was needed than originally allocated, and the preparations started almost one year before the actual event. There were two main reasons why so much time was needed: the first was the process of making the conference content, and the second was months'-long public procurement procedures for the execution. The academic staff had an opportunity to publish results of their findings in their fields of expertise, and altogether there were 18 contributing authors in the publication entitled "*Metamorphosis of Architectural Education in (Post) Transitional Context*" (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016). Writing papers, submitting them for peer-review, making necessary corrections, proof reading and making it ready for printing proved to be the most time-consuming processes. As part of a two-day conference, an exhibition of the selected student works took place, showing the nature and content of elective studios. A follow-up seminar involving representatives from all participating institutions, was held immediately afterwards, discussing future steps. As a result of these efforts, an ERASMUS+ mobility grant was subsequently received in 2017.

Organisation of Lifelong Learning Courses on Energy Efficiency and Sustainable Topics at the AFS

At the time of writing, there were still no lifelong learning courses organised at the AFS. In 2015, at the very onset of the HERD projects implementation, this issue was discussed in the context of purchasing IT equipment. A proposal for the courses was made together with the equipment specification, but due to

administrative obstacles, it has not happened. A part of it was due to the fact that lifelong learning courses in EE and sustainability were organised at the Faculty of Mechanical Engineering and other supplementing architectural courses were organised by the Association of Architects.

Evaluation

Evaluation of the HERD programme and report writing came at the end of the 2017 summer semester, as planned. But, there was a strong need to go beyond the simple reporting, common to these kinds of projects, and the intention of this publication is to provide a more in-depth and qualitative evaluation.

Possibilities and Ideas from Additional Partner

Once the initial contact with the AGGFBL was established, it was important to explore the possibilities of how to incorporate their points of interest. At the time, focus of the faculty management team was on the future development of the University Campus, where the faculty was located. The case for this was very strong because the used space was inadequate and insufficient, since the faculty was placed within the former military barracks. On a larger scale, the recurring theme was to integrate the University of Banja Luka into the context and nature, and to stimulate innovation and education.

Energy efficiency topics were very applicable to the new faculty building, designed to meet the highest EU standards and classified as an "intelligent" building (Arhitektonsko- građevinsko- geodetski Fakultet Univerziteta u Banjoj Luci, 2014). Reaching this goal would mean linking the teaching content on EE to the practical development. This would also enhance the identity of the faculty as an architectural school which is to be perceived as the one that embraces progressive solutions related to EE, renewable energy and eco-friendly materials. Unfortunately, due to the lack of financial means, the new building has not been completed to this date, but the structural elements are in place and are waiting for its envelope. The practical experience gained in the design, construction and reconstruction process is, in fact, valuable knowledge which can be passed onto students and this is what teachers do at the AGGFBL. Development of the University Campus in Banja Luka is such a complex task, where a number of variables, stakeholders, long-term planning, all cross-referenced with financial means and development goals, need to be taken into consideration. This task is monumental in size and therefore requires a great deal of time and involvement of personnel from different governmental and non-

governmental instances, researchers, scientists and planners on a grand scale. For these reasons, it could not be fitted into the established framework of the HERD programme. However, capacity building among teachers and students which are, or will be, taking part in those activities, was something that could be facilitated. So, the proposed modes of sharing by the AGGFBL, were completely in line with the HERD programme application and were subsequently executed.

"Working together, our two universities with the Norwegian in order to ensure their successful exchange of knowledge and experience will deliver a new value and experience. Creative workshops are new ways of learning with active stakeholder participation and dialogue. Wood and daylight have since the past times been the oldest materials, but also the most desirable modern materials in our country for the future. They are an inexhaustible source for further research and practical application of theoretical knowledge in everyday life. Summer workshops, participation in conferences, joint publications and the development of new methodologies are possible forms and results of this project." (Stanković, 2014)

In retrospective, five years later, the University Campus in Banja Luka, just like the others (in Tuzla or Sarajevo), are stagnating and still waiting for better times to come in terms of further development. Questions of sustainability, renewable energy, implementation of energy efficient systems are still very current and relatable to educational facilities. Applying innovative, intelligent and practical solutions in the urban development and architectural design should result in spaces that encourage the transfer of knowledge and enhance creativity. To reach those goals it is necessary to expose personnel from HEI in Bosnia and Herzegovina to educational institutions which have experience in those fields and this is why exchange of staff is so important.

"The unfulfilled dream of our school is remarkable in an inspirational and integrative process of education that enriches wealthy experiences and achievements of successful international cooperation." (Stanković, 2014)

Academic staff and students, through exchange, recognise comparative advantages from different systems and, in the process, they become advocates for the implementation of new concepts at their home institutions. This consequently leads to progress.

Modes of Learning (Learning by Doing, Workshop, Combined Courses)

Rethinking Architectural and Planning Education

The proposed 'live studio' approach is meant to remedy some of the administrative and academic shortcomings presented earlier, but it is also meant as a vehicle for expanding our capacity to innovate, to rethink and conceptualise issues related to energy efficiency as a central constituent of sustainable development. Building on the success of this approach at the Faculty of Architecture and Fine Art at NTNU, we seek an integration of subjects through working on real buildings or planning proposals.

Studios are conducted to challenge the students; to bring them out of the "academy" and into real-world situations, enabling them to gain insights, skills and understanding that cannot be academically "taught". Thus, rethinking architecture as a function of energy efficiency is a real-life experience, not merely the content of lectures. Hence, at the same time a challenge – and an opportunity – for the teaching staff.

They are given an opportunity to expand their knowledge through collaboration on new courses/studios/subjects together with the Norwegian partners. Joined collaboration on publications and papers will also affect credentials of the WB faculties.

The Practice Approach in Education

An ongoing, bigger discussion, about "The Big rethink" (Buchanan, 2011), where most of the globally-discussed contemporary themes, like sustainability or other new methods, are implemented as small additions to architects' education, instead of comprising the core of the same. To do so one cannot rely on the technology alone, partly because technology is resource dependent, and resources are unevenly distributed, partly because sustainability is invariably dependent on social and political acceptance. Given the role of the built environment and urbanisation, the future is critically hinged on architectural and urban reconceptualization and innovation. Hence, a sustainable society will depend on perceptions and attitudes, as much as it will on knowledge. This programme uses higher education in architecture and urbanism to develop new and appropriate knowledge, as well as foster attitudes through modes of learning where energy efficiency is the principle vehicle. Engaging the teaching institutions of both entities in BiH is in itself a means to that end.

The NTNU Collaborative Studio Example

Another possibility in educational variation/ education involving the use of the existing structures and resources is to "combine them". This was the reason for conducting an interview with professor Steffen Wellinger from the NTNU, who created and participated in the Collaborative Design Studio.

There has been a discussion at the faculty about reducing the number of master subjects in order to utilise the teachers more efficiently. The danger is, however, that a reduction of subjects will reduce the diversity and richness in the existing curriculum. It was therefore decided to try an alternative approach to the need to rationalise, namely to collaborate between two or three subjects. This could help utilize the teacher group better, and at the same time provide learning benefits for both students and teachers.

In this paper we will first describe how we organised the collaborative design studio then discuss the major benefits and challenges, and finally present some suggestions for further development of the 'collaborative' model.

Interviewer: What can you tell us about the Collaborative Design Studio / contents and structure (organisation)?

Interviewee: The teacher group decided on a common topic for all three subjects: a reception centre and temporary housing for migrants. This was regarded as relevant for both students working in Trondheim (the Complex Programme and Housing Design) and the group going abroad, to China (Metamorphosis). A common introduction to the design studio was written and presented for students beforehand, which covered both the Norwegian reception system for asylum seekers and the situation in China with a huge movement of people from the rural areas to the urban centres, hoping to get work.

Three main arguments were given for the choice of the topic: first, it is a public matter of high societal significance today (nationally as well as globally), and where architecture may influence the life of vulnerable people. Second, the topic encompasses fundamental architectural issues relevant for all three subjects collaborating in this design studio. These issues are related to the complexity of different functions, cultural and social backgrounds and life conditions gathered as well as a challenging relationship to the local

community and the temporariness of the situation. And, finally, that the faculty is involved in a newly-established research project related to architectural qualities in asylum centres. This was thought to provide a synergy effect in terms of extra expertise and competence into the programme, relevant contacts, visits to asylum centres, etc. At the same time, the student work will give input to the research project by investigating potential architectural dimensions of asylum centres.

Relevant common issues mentioned in the programme were: quality of life for residents (safety and freedom, self-respect, mental health, meaningful activities), cross-cultural meetings (relations, conflicts, contributions), social integration (local community), cost-effectiveness and environmental issues.

Interviewer: What was emphasised and what were the teaching goals?

Interviewee: Within the common framework described above, each subject had somewhat different focus and teaching goals.

The benefits for the students were greatest when they worked together on common tasks. This went for all three subjects when it came to the case studies in the first phase (week 34-36), and later on, mainly for the Housing and Complex programme students. Although they did not work directly together, they were mixed in the studios and there seemed to be quite a lot of discussion and exchange of ideas crosswise the two subjects. Students further appreciated the opportunity to have lectures and tutoring from a larger group of teachers with different competencies. The common excursion to Hamburg for the Housing and Complex programme students also contributed to a common 'group feeling' across the whole student group. In fact, the division between the Housing and Complex programme became rather blurred. This may be a positive thing if it makes students rethink how we tend to make a strict division between housing and other programmes. An asylum centre is thus a programme

where this division should not be taken for granted. As such, the assessment worked very well as a common overall topic for the two subjects, since it opens up for both going into detail on housing issues and for working with a rather complex programme consisting of accommodation, as well as several other functions. For the research project on architectural qualities of reception centres for asylum seekers, it was clearly a benefit that it was dealt with from various perspectives, not only as housing or homes.

For the teacher group, the benefits were related to the exchange of views on teaching methods and approaches to different aspects of architecture and the role of architects. New potential cooperation opportunities were to some degree established, e.g. between the Complex Programmes and the competence on sustainability issues. There were also some gains when it came to reduced teaching loads for each teacher, in particular due to the fact that we merged three knowledge subjects into one. Also, for the practical coordination of the semester, there was some timesaving compared to organising three separate subjects. Normally, the coordinator uses most of their time organising. The fact that there were two coordinators this time, organising common reviews and information for three courses together, made them more available for tutoring. This was benefit for both them and for the students.

For both students and teachers, there were great benefits from the common final review at the end of the semester. This provides an opportunity to get more insight than normal on what other subjects are dealing with.

Interviewer: What were the challenges?

Interviewee: The main challenge in the collaborative design studio this fall was related to the specific combination of the participating subjects. It turned out that the subject Metamorphosis probably was too different from the other two, in order to get an optimal benefit from the collaboration. The exchange between

the student group working in China and those working in Trondheim was limited, both due to rather different tasks (and contexts) and due to different approaches to the design process and the use of tools (presentation form). This also to some degree went for the exchange between teachers. The fact that the Metamorphosis students spent 5 weeks in China also limited the social interaction. And they preferred to sit together in one studio when returning home.

On the other hand, the two other subjects (H and C) became perhaps too 'similar'. It seemed difficult both for students and teachers to identify the elements that most clearly distinguished them from each other. And it was not clear from the final results which projects that belonged to which group (which however was not necessarily the goal).

It is thus a challenge to find the right balance between differences and similarities. One aim by introducing a collaborative design studio is to question the way we tend to distinguish between e.g. housing and other programmes. Another aim could be to become even clearer on the different approaches to architecture the various subjects may imply and thereby develop new and interesting ideas, design proposals and thinking about architectural education. Finding this balance requires that time and effort is given to discussions within the teacher group, between students and between students and teachers throughout the semester. Time for such discussions may be hard to find in an already busy schedule. It is also an extra challenge when not all teachers are present at school every week. This is due to the fact that the Metamorphosis group teacher was away in China for five weeks and that the main teacher at Complex programmes commutes between Hamburg and Trondheim and is only present here ever second or third week.

There were some challenges related to the coordination of evaluations during the process, grading etc. It became rather complicated due to the fact that the students worked together cross-wise courses in the first task, individually in other tasks, and finally many

of them in new groups in the main assignment. This system should be more thoroughly thought through and coordinated and carried out similarly for all subjects.

Interviewer: What are your suggestions for further development of the model?

Interviewee: A common introductory period and shared subject knowledge is a good idea – and may also be so for quite different subjects and topics. Three weeks seems, however, to be too short a time, since there is a need to give both a general (shared) input and an input more directly pointed to each subject early in the semester. It is also necessary to put some time and effort into integrating exchange students into our 'system' in this period.

Different levels of collaboration should be discussed. Some activities, such as part of the common introduction period and shared subject knowledge, and common review periods (in particular for final reviews) could be beneficial – even if topics, sites and the course programme are rather different. Other shared activities (lectures, workshops, seminars, site visits, etc.) would probably require the existence of several common aspects between the subjects, such as the main topic / programme, sites and modes of presentation.

An optimal outcome of a collaborative design studio requires that the group teacher works closely together throughout the semester in order to have a continuous discussion on methods and contents of the subjects. We believe that this is essential both in order to create a real added value of a collaboration, not only doing 'more or less the same together'. There is a need to be more clear both on the specificities, of each subject as well as on the more general elements they share. We also believe that there is a need for a mix of shared and separate activities throughout the semester. Separate areas are important in order to develop a 'group identity' for each subject and will also make it possible to go more in depth into specific issues (such as housing plan layouts or specific sustainability issues). Shared

activities are, on the other hand, crucial for an optimal benefit from the collaboration. There could be put more effort into testing out new ways to work together in the student group, e.g. to give students from different subjects an opportunity to work together on the same project, perhaps on different parts of it.

Ideally collaborative design studios could create new constellations between staff members and even new common research activities. This would probably require more than collaboration one semester, and should be part of a long-term strategy.

On the other hand, if the goal is mainly to get a broader perspective, and to test out new forms of co-operation, it may be wise to alternate between traditional separate design studios and different kinds of collaborations. All models have both advantages and disadvantages.

AFS Collaborative Studios

Building capacity at the AFS and further integrating energy efficiency and sustainability themes into the curriculum were the main tasks for the implementation team in Sarajevo. After a number of meetings and discussions, the decision was made to create elective studios consisting of teaching staff from different departments which (with their own field of expertise) support the main studio theme. This meant that the EE and Sustainability could be approached from different angles, from an urban level to the building level and further down to the interior design level (Figure 18). More than 20 professors and teaching assistants participate in those studios alongside with guest lecturers (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016, p. 118).

Altogether, five studios were created around these core themes: contemporary single-family housing challenges, contemporary design and prototypes, architectural and cultural facilities, traditional housing and new ways of implementing traditional materials (Figure 19). In terms of the curriculum structure:

No.	Position semester/year	ECTS	Course leader	Teachers	Assistants
1	I (14/15) W	7	Associate prof. dr. sci. Nina Uglien-Ademović	1. Assistant prof. dr.sc. Amira Salihbegović	1. Senior TA mr. sci. ElšaTurkušić, 2. Senior TA mr.sci. Senka Ibrišimbegović, 3. TA Vedad Islambegović, 4. TA Dženis Avdić, MA
2	II (14/15) S	9	Assistant prof. dr.sc. Lemja Chabbouh Akšamija	1. Assistant prof. dr.sc. Azrudin Husika – Faculty of Mechanical engineering Sarajevo, 2. Prof.dr Mirza Dautbašić - Faculty of Forestry Sarajevo, 3. Assistant prof. dr.sc. Slađana Miljanović – AFS	1. Šabić Lejla 2. Kasumagić Vedad 3. Zečević Svjetlana - Faculty of Mechanical Engineering Sarajevo
3	IV (14/15) S	10	Associate prof. dr.sc. Adnan Pašić	1. Assistant prof. dr.sc. Nihad Čengić, 2. Assistant prof. dr.sc. Amira Salihbegović, 3. Assistant prof. dr.sc. Aida Idrizbegović, -Zgonić, 4. Assistant prof. dr.sc. Slađana Miljanović	1. Senior TA Senaida Halilović 2. Senior TA Nasiha Pozder, 3. TA Vedad Islambegović, 4. TA Amela Šljivjić
4	III (15/16) W	10	Prof.dr. Amir Pašić	1. Assistant prof. dr.sc. Aida Idrizbegović Zgonić, 2. Assistant prof. dr.sc. Lemja Chabbouh Akšamija, 3. Prof. dr. Adnan Pašić; 4. Prof. dr. Denis Zvizdić; 5. Assistant prof. dr.sc. Dženana Bijedić, 6. Assistant prof. dr.sc. Amir Čaušević, 7. Assistant prof. dr.sc. Neriman Rustempašić,	
5	III (15/16) W	10	Prof. dr. Emir Fejzić	1. Associate prof. dr. sci. Adnan Pašić, 2. Associate prof. dr. sci. Erdin Salihović, 3. Assistant prof. dr. sci. Nihad Čengić, 4. Assistant prof. dr. sci. Lemja Chabbouh Akšamija 5. Assistant prof. dr. sci. Slađana Miljanović	
6	I (15/16) W	7	Associate prof. dr. sci. Erdin Salihović	1. Associate prof. dr. sci. Denis Zvizdić, 2. Assistant prof. dr. sci. Amir Čaušević, 3. Assistant prof. dr. sci. Amira Salihbegović,	1. Senior TA dr. sci. Nermina Zagora, 2. Senior TA dr. sci. Nasiha Pozder, 3. TA Amra Salihbegović, 4. TA Nadira Kuljuh, 5. TA Vedad Islambegović.
7	II (15/16) S	9	Nihad Čengić-Adnan Pašić ?		

Figure 18 – Teaching staff proposal for elective subjects (Authors)

B. The "HERD" Case:

Rethinking Architecture and Energy Efficiency in Buildings and Urban Development



Figure 19 – Elective studios timeline
(Authors)

“Those elective studios were positioned in the first or second year of the Master course. They were distributed throughout semesters and study years in such a way to allow for their gradual introduction and there were two reasons for such an approach. The first reason was the number of strictly assigned ECTS credits (7, 9 or 10) for elective subjects per designated semester and the second was to provide students an opportunity to continually increase knowledge from one semester to the other regarding energy issues.” (Burazor, HAS THE HERD PROGRAMME MADE A SIGNIFICANT CHANGE TOWARDS DEVELOPMENT OF A NEW CURRICULUM AT THE FACULTY OF ARCHITECTURE IN SARAJEVO?, 2016)

Problems of Modernity of Single/Family Houses

The first studio that was implemented, started as a fusion of two different subjects but with an added value. They converged on a single-family house typology from two angles: integration of theory in education through the site-specific applied practice and envelope materialisation as an expression of modernity through passive housing strategies. When reviewing the outcomes of this studio, teaching staff pointed out further reaching implications of the devised methodology: “Due to the ever-present intense social dynamics and transformation in Bosnia and Herzegovina, working methodologies developed through the HERD program at the Faculty of Architecture of the University of Sarajevo could help develop new and more innovative curricula. In addition, this strengthens valorisation as both the potentials and weaknesses of the educational curriculum are exposed in this way, with a purpose to revive and raise architecture beyond purely academic frameworks.” (Ugljen-Ademović, Ibrišimbegović, & Turkušić Jurić, 2016, p. 43)

A revitalisation of the lost knowledge comes into a focus every time we see flaws in designs which result in inadequate thermal comfort, poor ventilation, or problems with moisture. When we analyse what our ancestors did, using an empirical approach to problem solving, we realise that there is enough room to use traditional materials and still be in line with

the contemporary design. *"An integrated approach to education should help define modern building expressions, architecture adjusted to contemporary age, using economically-viable, energy-efficient and environmentally-acceptable technologies, materials and solutions. Traditional materials and techniques should be considered in designing process of single family housing structures, as one of the main modernity features, and also as comfort-defining factors through building physics."* (Salihbegović, Islambegović, & Avdić, 2016, p. 57)

Contemporary Spatial Concepts, Design and Prototype

For a number of years, the interior and design group of subjects promoted an integral approach to design, which on numerous occasions resulted in actual prototypes being materialised based on student concepts. The new HERD studio is perceived as an upgrade to the already-established positive practice, and has been developed beyond its initial borders. The modular approach and prefabrication was used for the conception of multi-use structures which were further treated as adaptable, sustainable and energy efficient (Arhitektonski fakultet Univerziteta u Sarajevu, 2017, p. 27). The implications of this studio on the curriculum are perceived by the academic staff as follows: *"The introduction of the HERD program at the Faculty of Architecture University of Sarajevo has generated a platform for comprehensive studies on the values of sustainable and energy-efficient models in design and underlined the importance of the design of accessible and adaptable spaces; it has transformed the perception of energy efficiency principles in relation to the design studio, turning it into one of the crucial elements in architectural education."* (Salihović, Zagora, & Salihbegović, 2016, p. 34)

Architecture and Cultural Facilities in the City of Sarajevo

Framework of this studio was set simply as a means of easy control and ultimately being able to handle the

entire process of mapping, analysing and researching the cultural facilities' architecture in the city of Sarajevo, using the existing capacities. Lessons learned can be implemented now on any other city, even on a bigger scale. The ultimate goal was to develop the right design strategies, based on the processes of examining the existing institutional, special and organisational potential and the use of green design principles. *"The proposed model for Integrated Architectural Design through the integration of traditional and contemporary architectural qualities is not only about intangible and tangible architectural qualities. It is also about the integration of all technical knowledge and skills in planning, designing and construction as well as that of all the important contemporary issues related to the sustainability paradigm, including energy efficiency."* (Pašić, Čengić, & Miljanović, 2016, p. 71)

Protection and Development of Historic Urban Areas; Case Studies: Počitelj and Vranduk

At the Department of History and Preservation, two studios were formed which treated traditional architecture on two levels. The first was dealing with more complex themes of historical urban areas and the second one was a one-time research on the traditional house and its EE characteristics. It is important to emphasise that the established methodology and used principles can be applied to other historical settings or buildings. Behind every successful intervention within a historical setting, there is a long list of answered questions on how to deal with the existing context and not disturb the given qualities of the built space. Therefore, a specific task: *"...for the HERD Course was made for students – a critical analysis of spatial forms and processes behind the unique formations of historic cities of north/central B&H (continental climate Vranduk) and south B&H (Mediterranean climate Počitelj). The two settlements share a large number of common features, such as topography, vicinity of a river, size, and fortification character. The primary aim was not the design of contemporary structures but a comprehensive analysis and comparison based on parameters (particular and universal) – interaction*

between natural, anthropogenic conditions with the inclusion of contemporary mitigation of values (positive and negative)." (Idrizbegović Zgonić & Pašić, 2016, p. 88)

An Analysis of Traditional Materials and the Study of Energy Efficiency in the Case of Svrzo's House

Even though traditional (historical) housing units do not comply with EE regulations (that is not a requirement), it is interesting, from an educational point of view, to investigate their characteristics and see how they perform in comparison to today's contemporary requirements. In the process, it is important to identify areas of improvement, which can be fulfilled, without affecting its original qualities.

"Through direct 'in situ' and practical actions, students have tactilely explored the 'traditional' in an original context, but also the 'traditional' in a changed surrounding, to be able to form opinion about something that can be named 'contemporary traditional'. This exploration process also included and considered many aspects of just construction as such – the actual potential of using local materials and knowledge about structure (degree of 'localness' and sustainability), recent sociological contradictions, (not) logic cost saving at the expense of living comfort, expectations of the community in relation to the question of habitation..." (Chabbouh Akšamija & Šabić, 2016, p. 76).

In this section, only a brief outline of the established elective courses is given because a more extensive description and student results were presented by the academic staff in the publication: *"Metamorphosis of Architectural Education in (Post)Transitional Context"* (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016). On the other hand, a more elaborate description and insights into the workshops is provided here because it constitutes an important part of the HERD programme and was not presented to such extent at the elective studios.

Practical 1:1 Workshops

This chapter describes the idea behind the workshops planned and executed alongside the project; offers a short insight into the progress and the process. In this chapter, we will also try to underline and describe activities, results, as well as shortcomings. Discussion follows in the last section.

The original plan for the HERD project was to have three workshops, whereas the first and the second, in Sarajevo and Trondheim respectively, should prepare the ground for the third.

The idea was to organise one workshop at the Faculty of Architecture, University of Sarajevo, with participation of the AFS, AGFBL and NTNU students and staff. The themes of the workshop included teaching topics in sustainable architecture, and the main goal here was to "break the ice" and make people, staff and students comfortable working together. The second workshop was planned at the NTNU, with participation of the AFS, AGFBL and NTNU students and faculty members. The overall thematic approach included teaching topics in sustainable architecture, like in the first one. Here the pedagogical focus was on fostering the established relations, while the scientific direction was set towards the project result, which was to be tested in the third workshop. The final design and realisation of the prototype building in Sarajevo with teachers and students from AFS, AGFBL, NTNU and industry partners.

This original plan had to be adjusted during the project period, due to several reasons. The final activities were the following.

Trondheim 2014

In Trondheim, there were two activities, involving students and staff from the Bosnian institutions and the NTNU:

Sustainability Week

A new activity at the Faculty of Architecture and Fine Art was the sustainability week. During this week, in the middle of an ordinary semester, students from different years of study were united in learning, not only from each other, but together around a thematic area. For the first of these activities/ workshops the chosen theme was the life cycle (Figure 20). This week looked like a good starting point to substitute the original, first workshop. Students from the AFS and the AGFBL joined the Norwegian students in their endeavour to learn more about the life cycle and sustainability.

The course setup was a combination of group work to solve a task and lectures. The group work was dealing with respective thematic challenges on the scale Small, Medium and Large, and lecture series were varying from day to day, covering various fields, covered by architecture, real estate development, urban agriculture, life cycle calculation, landscape, and many more.

The primary idea of the workshop 1 was to “break the ice” between the involved parties in the project.

Figure 20 – Workshop invitation “FELLE SUKE - common week” at NTNU, (Ingrid Tjåland Ødegård)

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Figure 21 – Zero emission workshop poster (Bjørn Inge Melås)

Urban Zero Emission Workshop

The second workshop activity, was a tailor-made activity, also because of time constraints. The second workshop was called "Urban zero emission workshop" and was actually dealing with behaviour in public space in Trondheim, and how to change the negative behaviour and by which tools (Figure 21).

In the following short evaluation, we will try to present the expectations from the workshop and what could be achieved (Picture 2).



Picture 2 – Discussion on workshop (Authors)

Expectations

- Good cooperation between students (conversation and discussion)
 - Discussion about the problem and sharing ideas about fixing it on the location.
 - Trying to find the best solution.
 - Exchanging habits and experiences between students.
 - Learning more about what people in Trondheim, residents and visitors, think of the city.
 - Discussing what a city is with students from another country.
 - For the workshop, we wanted get to talk to the citizens, but did not expect to get to talk to that many.
 - I wanted to see what another culture could bring to the way I see Trondheim as an urban city.
 - An interactive design process among students, and lectures.
 - My expectations were much more work on the main idea and the design process.
 - Activities, organised work group, a defined leader and lectures.
 - Bring more people to the street. Bring more fun and joy in everyday streets. Making the city centre more interesting to live in.
- Making the streets more alive. Activating everyday life in Trondheim. Making the Trondheim centre more interesting for people to come and live there.
 - Another expectation of mine is meeting new people and getting to know a bit about architecture students abroad.
 - The idea was to try to make a workshop to show students other ways of working with architecture projects. We tried to compare Bosnian to Norwegian culture, and wanted to use these differences to make people want to use the streets. Therefore, we wanted to gather information from the common man on the street, to try to find the real problems.
 - I expected that there would be a strict programme which we would have to follow. Actually, the workshop concept was really free: it was up to the students to make their own programme and to act without any influence coming from tutors or mentors or professors. Also, I learned that Norwegian and Bosnian students have a similar approach when it comes to applying architecture in space.
 - I like that the whole city is in human scale, and every building has a logical place.



Picture 3 – The site (Authors)

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Picture 4 – Workshop activities in progress (Authors)

if you could call it like that. Talking and discussing about the problems of Trondheim with the Norwegian students was productive and in the end the final result was very modest but again very effective.

Kjønn: Kvinne Mann

Aldersgruppe: 0-10 10-20 20-30 30-40 40-50 50-60 60+

Hvor mye liker du å tilbringe tid i Olav Tryggvassons gate på en skala fra 1 til 6, hvor 1 er svært dårlig og 6 er svært bra?

1 2 3 4 5 6

Hva slags transportmidler bruker du for å komme deg hit?

bil sykkel buss taxi beina

Hva er det neagtive med gata?

få trær
 trafikkstøy
 åpningslidene til butikkene i gata
 lite variasjon i aktiviteter
 annet: _____

Hva vil få deg til å bruke gata mer?

bedre shoppingmuligheter
 arbeidsplass
 caféer
 nærliggende grøntområder
 bedre transportsystem
 lekeplasser
 kunstinstallasjoner
 annet: _____

Hva er ditt favorittsted/område i Trondheim sentrum?
 Marker på kartet. Skriv gjerne et stikkord/en setning om hvorfor.

Hva tror du ville fått flere til å flytte inn i Trondheim sentrum?

flere offentlige plasser
 tryggere gater
 lavere priser
 flere skoler og barnehager
 annet: _____

Figure 22 – Survey questions (Workshop participants)

Activities

- Work in the street (public space) (Picture 3).
- Showing and sharing our own habits with others.
- Sharing, cooperation, having conversation and survey with the local people (Figure 22 and Picture 4).
- Hanging around and having a good time.
- Creating a different setting in one of the streets, seeing how people react and talk to them about the city.
- Established a temporary cafe in the street without knowing what would happen. After a slow start we got to talk to many people about the city.
- The concept of bringing architecture and a “social” pop up to the streets and its people is very moving and effective in its core. It was a very nice adventure, if you could call it like that. Talking and discussing about the problems of Trondheim with the Norwegian students was productive and, in the end, the final result was very modest but again very effective.
- We obviously have different approaches when it comes to designing and planning, the difference is in the theoretical and the practical part.
- Joint activities thought me that we have very different approaches when it comes to planning and working with people.
- I learned that the most important part is to discuss and exchange different opinions.
- Planning how to implement our ideas in the first days of the workshop. Meeting people, making new friends and bonding with people. Doing the survey with the Trondheim citizens to find out what they are missing in everyday life.

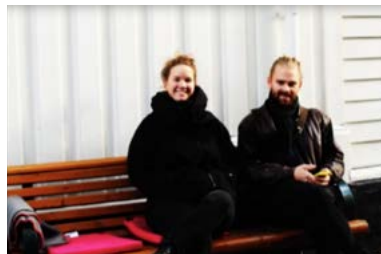
- Gathering people on the street, hanging out with them, making soup and coffee and giving it away to people. A survey to find out what people like and miss about the main street in Trondheim.
- The project had a slow start, but at the moment everybody was there, everything was just fine. There were so many nice people in the streets, and so nice to get to talk to them (Picture 5)!
- The best thing about the activities – they were spontaneous, created in one moment without any pressure. Once we started and relaxed, the whole idea and everything that we discussed came to life!
- I met a lot of amazing people, even became good friends with some of them, and we got to know the city throughout the day as a beautiful, familiar, romantic and easy to feel comfortable in. I had a lot of useful discussions, even out of college, in our free time. Doing workshop activities on the street, which required communication and approaching people, was unusual for me, but fun. Also, the workshop was more flexible and relaxing than I expected.
- I had a lot of fun with Norwegian students, and with Bosnian students as well. We went to the museum, and made soup. I met the city from a different angle through the eyes of the local people because I had an opportunity to communicate with them.



Picture 5 – Workshop activities in progress (Authors)

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Picture 6 – Workshop activities in progress (Authors)

Reflection

- We have completed a survey with the local people who were in passing by (Picture 6).
- Because of the survey we should now probably know better what the biggest problem is, and how to fix those problems, or find better solutions.
- We got to talk to a lot of people about the city, and got some interesting answers.
- There were many good conversations about Trondheim, but also about what the city is and should be. Not just between students and citizens but also among the students.
- We have obtained a lot of different opinions on how people see Trondheim.
- Cultural differences were quite obvious, but nonetheless not an obstacle. I think it is important to listen to what people say and need in order to have a better and a more effective result. The most important thing is that when we come back to Sarajevo we will try this approach with some moderations to make our city a better and a greener place.
- This workshop helped me to see some different aspects of the design process.
- But in the end, it was still an interesting experience, not just as an architecture workshop but also as an interpersonal experience.
- For me it was a very good experience. I met some new people and heard some new and interesting ideas. For me, the most important thing in this workshop is to get to know other cultures and to exchange our thoughts and ideas with one another. This could be very helpful in the further work and life.
- People are very friendly; we learned a lot of useful information, that will help us improve urban planning in real life in the future.

- I enjoyed the workshop and was happily surprised with the insight some of the pedestrians had about the city life and the street as a meeting place. I was further delighted to meet the foreign students and walk around the city with them. The latter helped me clear my thoughts on the city I live in and be able to better articulate what I like or dislike about it.
- The workshop resulted in a "Do it" style day where we showed that you can make a pretty cosy basic urban settlement with a little bit of cheap furniture. We got to have a lot of interesting conversations with the people in the streets of all ages, gender and cultural background. It was great that we also managed to serve soup and coffee so the participants would not freeze during the day.
- We gathered a lot of information, and got to talk to a lot of people. Everything now depends on how we use this information. It could be a nice pre-project for gathering even more information.
- We shared cultural experiences and tried to learn from each other in a funny, relaxed way. We worked as ONE group (both Norwegian and Bosnian students). We managed to get in touch with the local people and to find out their opinion on project we were doing. The best thing about the workshop is that everything was spontaneous, we learned from our differences and our habits.
- I realised that there is no huge gap between Norwegian and our students, as a group of people, and that creativity and knowledge are individual (except for the technical things and given possibilities). It was good that we were given a lot of freedom to work alone, but maybe it wouldn't be bad if we got a few hints along the way that would help us define goals better and structure our activities. Also, the workshop changed the street for a day, but it would be better if we came up with a solution that would help long-term. I am glad that, even if we are different than Norwegian students in a lot of ways, we got along very well and had nice time together (Picture 7).
- I realised that we live unhealthy, and that we should ride a bike a little bit more in Bosnia, and eat more vegetables.



Picture 7 – Workshop participants (Authors)

Sarajevo 2015

After the above-described activities, we planned the first building workshop in Sarajevo, at the Historical Museum. The principal idea was again to mix and bring students from different universities together. The second part of the planned achievement was to make Bosnian students accustomed to working on real-life projects and introduce some basic understanding in carpentry for implementing a temporary architectural object. The first "live studio" workshop involved the AFS, AGFBL and NTNU students and staff.

We will try to describe the activity and the achievements and challenges alongside key words and based on the input from the participants:

What and Why

The Live Student Project is a student-driven project, where students have the responsibility and initiative. These projects are born when students engage in projects outside their educational institution, and they often take the form of physical design – and build projects, but are by no means limited to this. What makes them different from other curricular projects is that they present an invaluable opportunity for students to learn and work by designing and building. This project also stands out because of the international collaboration between the students from Bosnia and Herzegovina and Norway (AFS, NTNU and AFB), making this a unique opportunity for learning, making connections, exchanging ideas and teamwork between the students of these three faculties. The students that take part in this project will also make good use of the generous support offered by the teaching staff and the faculties of architecture when met with problems, particularly those that are design-related. Our task with this project is to recognise a problem in Sarajevo and find our solution to it whilst implementing the idea of sustainable design. This will result in a summer workshop where the participating students from all three faculties will come to Sarajevo

and work together to finalise the design process and build the designed structure. Finally, although projects such as this pose many challenges for students, having to take full responsibility for the project and dealing with these challenges is what makes the experience both demanding and rewarding.

Identification of the Architectonical Problem

The idea of the Ars Aevi (Latin for "art of the epoch"), the initiative to form an international collection of contemporary art, was conceived in 1992, during the war in Bosnia and Herzegovina and the siege of Sarajevo. The concept was to invite the internationally-renowned artists to donate representative works that would be included in a temporary exhibition of another European museum and then become part of the collection of a newly-established museum of contemporary art in Sarajevo. This would not only emphasise the importance of culture as a part of the identity of a country and its citizens, but also the spirit of the international cooperation when it comes to contemporary art. The idea took roots and a vast and valuable collection of contemporary art was formed. A building that would house the collection, the Museum of Contemporary Art, was designed by Renzo Piano in 2000, but has not been built to this day. Besides the Ars Aevi Bridge, the only physical evidence of the intention to build the museum was an installation by Daniel Buren, temporarily placed in the location of the future museum's sculpture park. The Ars Aevi Art Depot was opened in the Skenderija Centre in 2012 and currently holds the collection.

The Location

The site where the museum is to be built is located between the Vilsonovo šetalište and Zmaja od Bosne Street, in close proximity to the National Museum and the Historical Museum (Figure 23). It is also close to the Sarajevo University Campus, and several faculties (Philosophy, Mechanical Engineering and Mathematics and Natural Science). The area has the potential to function as a cultural focal point, attracting visitors and activating the space (Figure 24). However, even the

existing museums are facing problems:

the building of the Historical Museum is in poor condition, while the National Museum was closed three years ago and has only recently been reopened. The lack of progress in building the planned Museum of Contemporary Art and the neglect other cultural institutions are facing, can be identified as a problem that definitely needs to be brought to attention.

Additional Problems

- The lack of appropriate exhibition spaces for the Sarajevo artists
- Underused public spaces in Sarajevo

SWOT analysis

Strengths

- good connection with public transport;
- Versatility of the neighbourhood area (museums, education, residential, embassies, etc.);
- the existing pedestrian promenade (Vilsonono šetalište)
- stimulating atmosphere - trees, open spaces, the river
- many visitors

Weaknesses

- poor maintenance and upkeep;
- lack of public park spaces;
- lack of pedestrian level streetscape design and amenities;

Opportunities

- public space and small group gathering nodes;
- stronger pedestrian connectivity to the surrounding areas;
- a place for student and art work promotion;
- upgrade to the existing popular space – Vilsonovo šetalište;

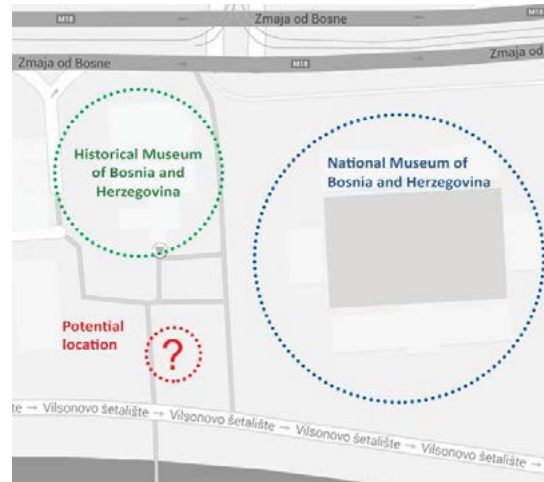


Figure 23 – The site (Workshop participants)

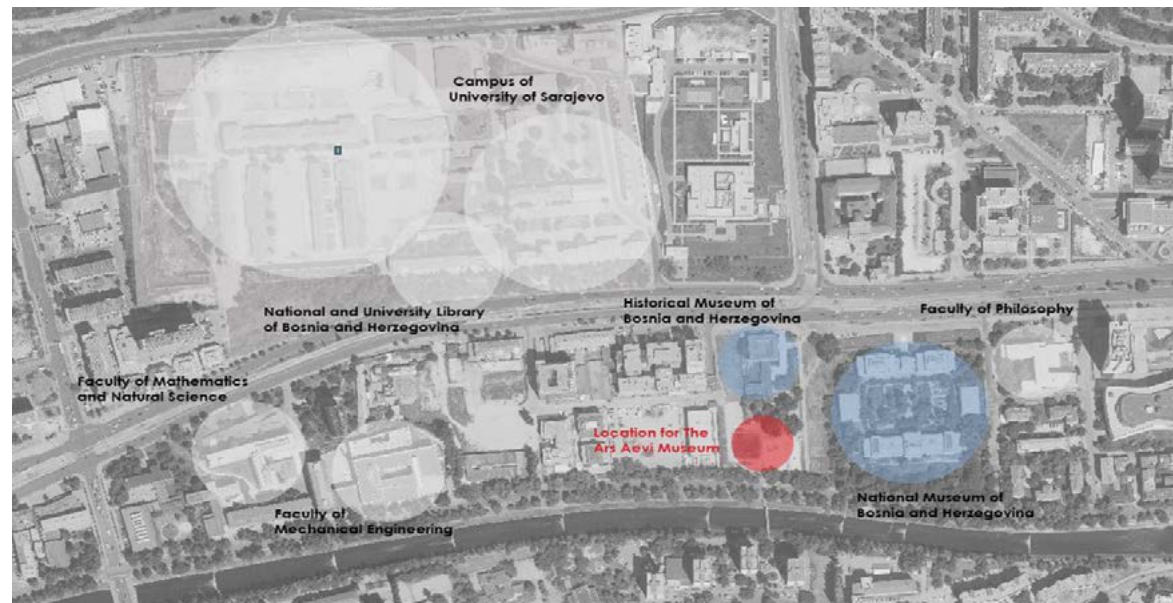


Figure 24 – Macro location (Workshop participants)

B. The "HERD" Case:

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Picture 8 – Work in progress (Authors)

Threats

- lack of a visible safety programme and crime prevention;
- future infrastructure and urban planning improvements
- conflict with the planned design activities.

The Idea

The main goal for this workshop is to activate the site of the future Ars Aevi museum. By specifying the problem and adding a new and necessary architecture, we hope to revitalise and protect the site through an increased use. Therefore, our idea is to build a pavilion with a concept of a street gallery. The pavilion will symbolically mark the place where the museum should be situated and should itself represent a piece of art. Since the chosen location is right next to the Vilsonovo šetalište which is a frequently visited recreation zone (for all the passengers, cyclists, kids, parents, etc.), our pavilion should also become a resting and information place for all those users. The pavilion will provide an interesting place for all of them to sit, take a rest and enjoy art in all its different forms. With this project we hope to raise awareness on the importance of art, which is currently highly neglected in Sarajevo, as shown previously. The chosen building materials for this pavilion should reflect the idea of sustainable design so we would build in wood and/or other acceptable materials.

Timeline

The overall plan was to work within a half year window. The first part was planned to be administrative and design-related, the second should be used to finalise the design and to organise the infrastructure for the construction during one week in summer, and the third part was the construction workshop week (Picture 8).

The Responsibility

From the very beginning, the main challenges rested in the area of responsibility.

- Given the distance between the students involved, and the project to be designed – an external idea (implemented by us) – it was difficult to find a steady group to take the responsibility for running the design process.
- Even more serious was the question of who is doing the activity, who owns the area, and most importantly, who is legally responsible. These are important questions regarding “insuring” the use of final object. These questions came as an addition to acquiring a building permit, and issues related to it.



The Ability to Build

The main issue here was not only/ or primarily the students' ability to build; it concerned the lack of experience, neither tools and organisational skills, since because this had never done before. These themes were the first milestones achieved through a close cooperation between Bosnian and Norwegian students and knowledge exchange. Cultural understanding on the one hand, and the experience in running small scale projects independently on the other. In addition to learning to handle the tools, the Bosnian students had also bought tools for the following activities.

The final result was missing some architectural quality, but this was compensated by a lot of other achievements; acquired technical knowledge for constructing, self-confidence, and friendships only to mention some (Picture 9). The resulting pavilions were intensively used by spectators and managed to increase the awareness of the historical museums future and the existing problems (Picture 10).



Picture 9 – Testing the construction (Authors)



Picture 10 – Information pavilions (Authors)

B. The "HERD" Case:

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Banja Luka 2017

The last 1:1 project, which marked the official end of our HERD project, was a "small SCALE" workshop held in Banja Luka. Even so, this was the most challenging project to organise and materialise, yet it has become most successful. This has to do with: utilisation (purpose), the achieved cooperation with the industry, user inputs, communication with municipality administration and with the general public, combined with a specific architectural quality. The idea "what to build" proved to be the strongest case in presenting the project and bringing on board all relevant participants in the construction process. The project was based on the idea that a minimal intervention can produce maximum effect if threatened rightly. "... *this project focuses on a 'small' scale in the local context, pointing to the urban and identity potentials of the Vrbas River in*

Banja Luka, to the problem of the lack of well-designed, active and accessible public spaces along the river, it opens up a series of different issues regarding the river – fort – the city, and is experimenting with the possibilities of building next to the river and on the river. The result of this kind of reflection is a linear multifunctional structure that allows sitting, enjoying the end of the river, recreation and since it leans over the river, forms a pier/dock for boats on the Vrbas River." (Alić, 2017)

Making a pier for traditional "dajak" boats for the nearby sports club and for the local community meant that there were real users with their real needs that needed to be threatened (Figure 24). Addressing those needs is at the core of every architectural design and different opinions from a different stakeholder had to be accounted for (Picture 11). In the end, it is the users that evaluate the quality and are being the judges whether it is a success and what is not.

OSNOVA DAJAK STANICE, R 1:100

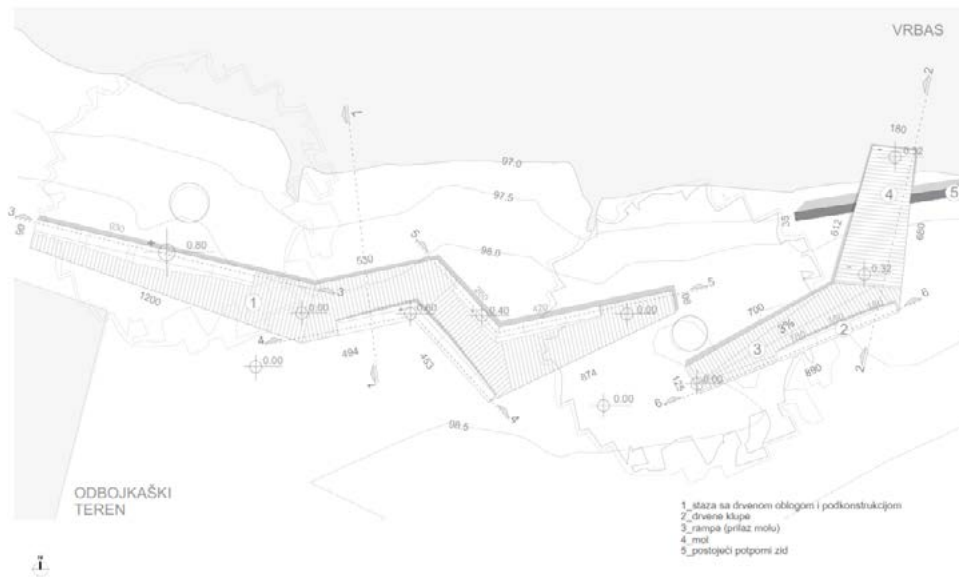


Figure 24 – Conceptual design and work in progress (Alić, 2017)

Without the support of local authorities which issues permits, even the best design is condemned at the very start. Building a strong case for the building permit and explaining the relevance and importance of a project is of paramount importance, especially in the case such as this when the building occurs at the river bank. From the engineering point of view, taking into consideration the daily fluctuations of the river and designing the foundations for the pier, is most challenging, and not many people were involved with such tasks. An adequate promotion is very important in raising awareness for further public projects. Once there is a successful public project, it serves as an advocate for new initiatives. With the "small SCALE", students achieved it all, they finished the pier at the Vrbas river bank on 2 June 2017, and it was promoted at the "Days of Architecture 2017", which were organised in the nearby "Obilićevo" sports hall. Print media covered the story behind the project and disseminated the information. In the following months, the site and the pier itself was being used by many visitors from different age groups proving that it has a valid purpose. More importantly, citizens of Banja Luka received a message that architectural interventions, even on a small scale, can significantly increase the quality of life.

From the students' perspective, as argued many times before, there are several benefits which can be summarised as an irreplaceable real-life experience: *"This construction is the final part of the 'small SCALE' project, which is an international student workshop that includes urban acupuncture research, design of urban-architectural structure of small scale and its construction at a specific location - a complete process that a student passes without having an opportunity at the faculty".* (Alić, 2017)

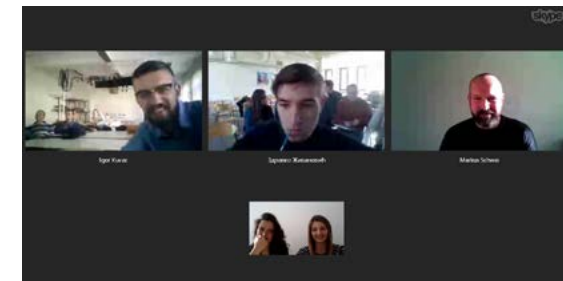
Pedagogical and Architectural Results

As per pedagogical perspective, new ways of learning architecture and interacting with the urban environment were tested. It was a pleasure to see the results and the high level of activity generated in students.

Architecturally, the implemented workshop in Banja Luka on the river bank was a full success, not only in the sense of implementing an architectural novelty in Banja Luka, but also because of the fact that it was established through students, which is a new achievement in this region.

The success could be measured in many ways¹⁴, but we would like to mention two. Credibility of the workshop resulting from the students' activity was highlighted by the local mayor, who not only highly praised the activity and the result, but also involved the active students in further "small scale" activities.

The other part of the achievement was that this architectural intervention, or one could call it architectural acupuncture, allowed for the revival of the riverbank usage by families and other individuals, unlike the previous situation, when the area was characteristic of drug and alcohol abuse (Picture 12).



Picture 11 – One of the first "Skype" meetings (Alić, 2017)



Picture 12 – Opening ceremony (Authors)

14 In April 2018 at the annual "Collegium Artisticum" exhibition of the architectural projects, this project received a special award from an international jury.

The 2016 Sarajevo Conference

Scientific conferences are one of the means for dissemination of knowledge and scientific findings. Other means are, more often, publishing papers in journals and online databases due to a bigger impact factor. Even though conferences may not have biggest possible audience, they are very important because of the social interaction between participants. During an international conference, people from different backgrounds gather, exchange views, discuss common topics and leave with contacts for further cooperation. This represents a value for higher education institutions,

which cannot be achieved through peer-to-peer review in a scientific journal.

In November 2016, an international conference in Sarajevo was organised to promote results of the established university cooperation. It consisted of several parts: an exhibition of the best student assignments conducted within the HERD elective studios, presentations of research papers from the teaching staff and collaborators and lecturers. Altogether, 32 students presented their work and 19 contributing authors published their papers (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016). Over the next two days, more than 100 students, teachers, and visitors attended the HERD_A 2016 conference.

Dozens of individuals (both academic and non-academic) were involved in the preparations for the conference and the entire organisation rested upon the nominated conference board members. The scale of activities conducted "within the house" was large because a decision was made to accommodate more activities within the allocated budget instead of hiring specialised agencies that organise such events and pay additional fees. This meant that everything was done by the AFS staff and instead of having one public procurement procedure for an organisation of the entire event, a range of tender documentation was prepared for each and specific task that had to be outsourced such as: accommodation, catering, audio-visual services, simulations interpretation services, printing of the materials, etc. (Figure 25) In the end, all expectations were met and published materials serve as a permanent testament of the conducted activities.

I KONFERENCIJA							
R.BR.	AKTIVNOSTI AGENCIJE	SPECIFIKACIJA AKTIVNOSTI	BR.	ROK	AKTIVNOSTI AFS	ZADUŽENJE/AFS	ROK
1. PRIPREMNE AKTIVNOSTI							
1.1.	POZIVNICE	DIZAJN ŠTAMPANJE SLANJE	100 komada	01.11.2016.	TEKST POZIVNICA ADRESE	MLADEN SENKA NERMINA	
1.2.	POSTERI	DIZAJN ŠTAMPANJE POSTAVKA	10 komada	01.11.2016.	TEKST DEFINISATI LOKACIJE POSTAVKE	MLADEN SENKA NERMINA	
1.3.	KONFERENCIJSKI MATERIJALI	PRODUKCIJA KONFERENCIJSKIH MATERIJALA SA OFICIJELNIM NAZIVOM I DATUMOM KONFERENCIJE HERD_A: CEKERI/TORBE USB SA MATERIJALIMA KONFERENCIJE BEDŽEVI SA IMENIMA UČESNIKA BLOKOVI OLOVKE	150 KOMAD A	04.11.2016.	LISTA UČESNIKA DIGITALNA VERZIJA PUBLIKACIJE REFERENTNI PRIMJERI KONFERENCIJSKOG MATERIJALA	MLADEN SENKA NERMINA	
1.4.	SMJEŠTAJ GOSTIJU	REZERVACIJA I PLAĆANJE SMJEŠTAJA GOSTIJU KONFERENCIJE	5?	07.11.2016. 08.11.2016.			
1.5.	NAGRADE ZA NAJBOLJE STUDENTSKE RADOVE	KNJIGE/ČASOPISI?	??	??	SPISAK NAJUSPJEŠNIJIH STUDENATA ??	MLADEN SENKA NERMINA	
2. REALIZACIJA KONFERENCIJE: PONEĐJELJAK 07.11. I UTORAK 08.11.2016.							
SALA BURENCE, AFS							
2.1.	AUDIO OPREMA	MIKSETA MIKROFONI	1 KOM 4 KOM	07.11.2016. 08.11.2016.	KOORDINACIJA	FADIL DŽENIS	

Figure 25 – Planning stage of the Conference (Authors)

COOP

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N: ECOBOX

PRACTICE

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INSTITUTIONAL COOP

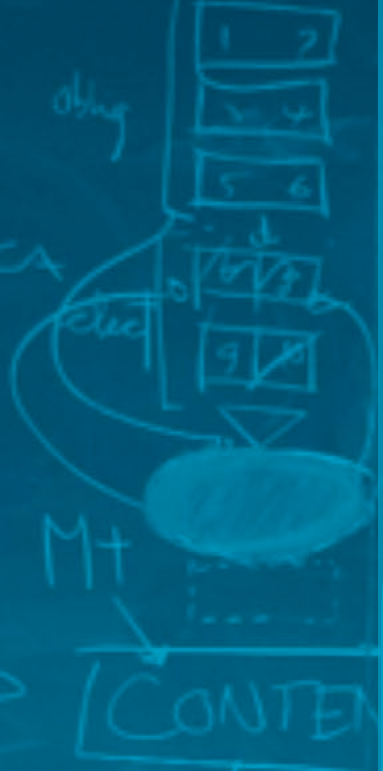
CURRICULUM

VALUE

KNOWLEDGE

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Discussion

STUDY T

5y M

SUSTAIN

1:1

PROCES

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PROFILE

LIFE LONG LEAR

INTEGRATED

HOLISTIC

C. Discussion



Picture 13 - One of the workshop venues - Međugorje
(Authors)

In this chapter, we will present and discuss processes and activities related to the HERD/ Energy programme. We are not going to strictly order it in terms of geographical location or “legal” responsibility, but we will try to follow an overall division – before, during and after the programme. We also chose to present and highlight the events through the use of an interview form, where we will cross-reference the results of projects, questionnaires and other data gained. After a number of questions were mutually asked on each side, here is the edited version with answers summarised into paragraphs.

Q: Let’s start the discussion and follow our three main points: before, during and after the HERD programme, so please open up. What can you say about the reasons for applying?

A: Yes, as I said, let’s start by talking that we have to divide the pre-starting time into several parts. Number one are the reasons we first came together and how we got to know each other a bit. This was based on a coincidence, a professor at my department suggesting me to do project together with a Bosnian/ Norwegian architect, who at that time was head of the Architect Association in Bosnia. They soon agreed upon an activity which was to bring students from both countries together for a workshop in Međugorje,

BiH (Picture 13). From the Faculty of Architecture in Sarajevo (AFS), there was one professor coming with students, and from the Norwegian University of Science and Technology (NTNU), I accompanied the students. This workshop was mainly envisioned as a one-time activity where students investigated the “urban” and rural development in Međugorje, and provided a direct feedback to the Čitluk municipality, leading to some improvement to the place and benefiting the education of the students (Figure 26). It was afterwards, because of students’ questions about a possible future cooperation and our own discussions on the same theme that we reflected on possible later activities. Anyway, this was the first step that led to reactivation of the earlier activities between our two universities. These activities were conducted by two professors from the NTNU, who were engaged in projects in Sarajevo immediately after the Yugoslav wars, and the re-establishment of the connection led to a joint project. So, again, as it is said before, this was the context.

Q: Which other reason do or did you see for engaging in this cooperation and these collaborative activities?

A: Yes, of course there were other reasons to engage. As far as the academic staff were concerned, the questions to be answered were: Why should anyone from Sarajevo

work with Norway and why should anyone from Norway work with Sarajevo? What can one gain in the field of science is important and from this starting point it is important to highlight that this has never been seen as a support project, helping the universities in the south, but as a mutual knowledge exchange project. This idea, and the awareness of the existing financial possibilities, led to our first encounters, which later on led to book and other documents and project results. Nevertheless, everything started with several meetings, where we learned about our mutual interests, the areas of knowledge exchange, and the shortcomings in both institutions. These initial meetings led to the idea of applying for a bigger project.

Q: Can you remember when this workshop took place? I remember the very first phone call which I received from prof. Hans and where I was at the time, because it was a milestone in my memory (the initial contact with NTNU). The first contact with you followed later (in Trondheim); just to mark on the timeline whether the Medugorje workshop took pace before or after the HERD application.

A: The pre-organisation of the workshop was in spring 2012, and the workshop happened in October 2012. The first visit of the AFS representatives to the NTNU was after this.

A: Okay, this is how it started. I think we have to highlight what we actually discussed in this first meeting. This is a good introduction and covers the direction the project took from the first meeting in Trondheim. So, one can see which themes and activities found their way into the application and the implementation afterwards.

A: Yes, and further on what is said lead to the application. I think it is very important to cover the before part for understanding the background and the main themes in the application. The reason of being together like this was our initial inability to understand bigger challenges and that we needed to cooperate and learn from each other. This is why the overall idea was, as described in the HERD application, to discuss the

contribution of architecture and urbanism in a reaction to these challenges and changes. Not as a side effect, but as an integrative part we wanted to elaborate on learning, especially because we agreed already at the beginning that the modes of learning are the ones that are driving the development of new solutions. Citing one of my idols, Einstein, is that *“We cannot solve our problems with the same level of thinking that created them”*. This means we have to develop new knowledge, and in our primary discussion this came up as one of the main goals: how to achieve this new contribution to architecture. So, with that, we “kill two flies with one slap”. And still, this was only the overall idea. Now we can talk about activities at the meetings, but I would say that the challenges, which were approaches to the projects, were very different. This also had to do with our different cultural backgrounds and, as a result, we had some problems of establishing a common base or a common language for this application, or this common project. I think now, in the aftermath, it’s more obvious that we divided the whole activity in several parts, which are the knowledge exchange through scientific activities, but also the knowledge exchange through involving students in other intellectual activities. These, in the best case, would lead to some urban development/ improvement as well. The separation of activities was a good part of writing this application. Additionally, or better said primarily, if you don’t have committed people/partners, nothing is working. I think this is not something new we have learned from this project, but we could discuss the reasons for them being committed.

Q: Motivation is the most important for successful cooperation. Do you agree?

A: Yes, but what is motivation? What triggers motivation? I’m not sure if this is right or not, but I would say that, for example, social relations between the participants are very important.

A: I agree. At the same time, we can always talk about the material implications. Now, going back trying to exemplify through this latest attempt of cooperation

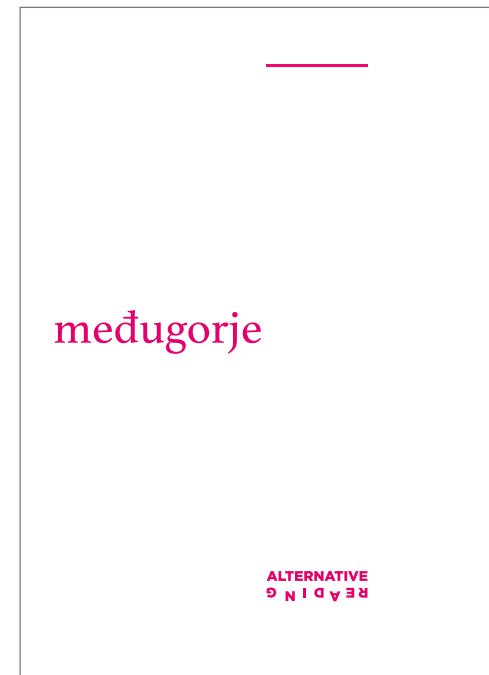


Figure 26 - Workshop publication (Authors)

with an Italian university, which didn't happen as we hoped, I will just make a small digression pointing out why. They expected that our students in Sarajevo, once they came in two crowded busses, would also jump on board and be doing the workshop with them. We invited students and pretty much knew that no-one, or, in the best case, only few, would apply. Why? Because it was the end of the semester, they had to hand in their own assignments, they were preparing for the exams, so the timing was very wrong. At the same time, this represents extra work they had to do, to what purpose? To what gain? But, if students had, for example, ECTS credits assigned for this workshop, then they might have shown interest in doing it. If they had an opportunity to get a scholarship and travel to Italy for a week, or participate in an exchange, then it would be another benefit. This has to be approached realistically, in my opinion, and with HERD we had students that gained some of these benefits; they travelled, they were also involved in the respective studios, so that worked well. Additionally, the HERD project was bigger and tried to work on the structural part (e.g. ECTS allocation) as well.

A: Yes, but you're jumping to the end, you are already in the after. We should discuss more what triggered the participation and our motivation to do it.

A: Fine, now I'm thinking about the motivation from our side. I was personally interested and wanted to have some concrete results; I wanted to see this cooperation happen. It had to do more with a feeling of responsibility, since this was a good thing for my faculty. It's something that offers you to gain additional knowledge, you can learn from others, you are benchmarked against another institution. On a personal level, there are more triggers for the cooperation. It really has to do with a personal interest. I believe this approach was present with my colleagues too. It is important, however, to have a sufficient number of the people involved.

A: Yes, I agree. There's also others working in our environment, in academia, but, in learning, one tries to establish a common knowledge ground or a common

ground of understanding and all of this should be based on a series of cases which then has to be evaluated. Sometimes one has to trust one's guts and jump into the unknown.

A: Coming back to that feeling... I'm now reflecting on the very first visit to Trondheim. I felt obliged, at the same time, to deliver something, because someone put an effort of bringing us from Sarajevo to Trondheim, exposing us to that environment, in every respect. This was an investment, so you have to deliver something at the end of the day; you cannot go back home and do nothing, can you?

A: You're right, but again this is your impression. Let us assume it was the opinion of more than one person, also shown by later involvement, but it comes down to the feeling in your stomach or to your sense of what is right and wrong.

Q: Okay, anything else for this initial part?

A: What is important in this part is to show on how this started, on how we met, how it proceeded and other reasons, but also on how we developed the project. Here I want to highlight a thing that maybe is not the first one sees or considers, but I would argue that it is a good representation of how the project developed the first time. We held our first meeting in a small room at your faculty, and then, for the second meeting, everything was the opposite. We wrote down what we discussed there, the main points and themes, and their importance was such that they came up in the final application. What is the systematic part and what is the practical way in which we finally did it. Another thing, still belonging to the preparatory/ initial part, is the number of participants. We are, after all, talking about three big institutions, which have been to this day running the follow-up activities. One has to put a lot of effort in making this happen; in meetings, in discussions, in writing and revision, as well as in rewriting, all the while aware that the probability of getting this kind of project financed is not likely. There has to be a lot of commitment to this kind of

approach/project and I think now, in the aftermath, reflecting on our pre-project time that the ongoing/long lasting commitment was there not only because of our resulting positive relation, but also because of us knowing that this was maybe not an easy way to go, but maybe the only one, giving good and long-lasting results. To combine learning, exchanging teaching modes with new ways of learning, done by and with people from and with different cultural background and "structural" understanding, with different interests, to come up with new solutions.

Q: So, we proceed to the implementation then. What do you think were the main themes and actions that need to be highlighted and discussed in this part?

A: The "during" of the project also had several parts. The organisational part and not to forget the direct feedback loop. All the projects can be divided into several stages; in project activities and from there onwards the first issue we encountered was the different culture, but also the different structure in academia, at the involved institutions. As per the former, we have a different division of the academic year, we have a different responsibility distribution, who is doing what. On the Norwegian part, the project leader can implement and decide on the project parts. Especially because the accepted project receives the faculty support before the application is sent, and in this discussion here it means that the resulting project parts and activities are already pre-agreed on. I think it is very important to name these differences, firstly because of them being part of the explanation of a past project, but also as themes, which have to be discussed in the Bosnian context if one wants to have flexible projects. Here, it is especially important to name all additional faculty council meetings, to certify or start the implementation of the already agreed activities. This is not about good or bad, but about structural differences. On the Bosnian side, the main responsibility rests with the faculty council, who passes the final decision. This, in my opinion, not only covers the legal responsibility, but also brings up themes like personal interests and competition. Another point, named before, has to

do with flexibility, not only talking about having an ability to change, but also touching upon the ones deciding on small deviations and determining the time frame. This is not a qualitative evaluation; it is more a description of what the primary challenges were. The second part of these challenges was the project activities implementation, which comprised of student exchanges, other common activities, and later on in the project period the workshops.

Q: Can you elaborate this in more detail?

A: We realised already in the beginning, that implementing these activities is an immense work, even long before you have any outcome or any encounter of students. Of course, there is money involved on both sides, so things have to be more regulated and controlled. This meant that themes as procedures, activities and stakeholders had to be taken up long time before we started. The very forming these groups of people, establishing project activities, had been challenging even before the given academic year. One of the project "problems" was that we had assumed all students were interested, but due to different external influences the participation of students is always triggered by many other factors as well. Study credits, the students' situation or position in the study programme, the time schedule or private reasons are just some of them. So, as you mentioned before, in the example of the Italian university, this is triggered by what other activities students have at the same time. There will always be questions like: "what is in for me?", or "what is the outcome to be gained?" From this point of view, regarding the university's outcome, we knew that during the project it was going to be very difficult to have e.g. study points or some European credit outcome, because this was the long term goal and any short-time variation would have negative implications to this long-term process. I think the assumption that any student has the maximum willingness to learn whatever it costs has to be revised, thinking about other influencing factors like financing, only to name one. We were maybe aware of these problems, but in the end forgot about them, or did not

make them first priority while planning the activities in detail. Here we saw project activities as means for achieving the project goals, without discussing the single project activity as a means/ goal for students and the implications it carries.

Q: Here we need a more detailed description of your/ our thoughts!?

A: In the beginning, we realised that there were a lot of challenges, but the point I wanted to make is that we had already realised in the project description that if we wanted to have the freedom to give students the ability to learn and exchange their knowledge, we knew we had to arrange for the economic part. This meant, for example, flights and travels, but this only additionally increased the burden on the administrative part and other challenges in organising. And so, I see that a list of things which made it challenging could be made: financial responsibility, the time frame and academic calendar, the students' stage in education, and so on. As a result, we realised in the beginning that we had to change the setup of project activities. As you remember, we originally had planned 3 workshops; one in Sarajevo, which should have been the start of the trip, then one in Trondheim which should have focused on the project development, and one again in Sarajevo, which should have been the project realisation.

Q: Can you elaborate on the reasons for changing them?

A: We realised that the time frame was too short to come up with a satisfactory connection in-between the courses, workshops and their interconnection that would result in a 1:1 building. We had to find flexibility in the overall very rigid structure and change these activities. There had to be a different connection between them, primarily time- and theme-wise. The workshop originally planned for Sarajevo was moved to Trondheim and was combined with the local activities divided in two. One activity was participation in the sustainable week at the NTNU. The goal was to give the students an opportunity to meet each other,

but also to give the Bosnian students an insight into local activities. And then it was followed up with the sustainability workshop, which I think worked out quite well, thinking about the core idea of making students know each other, and making the project known to the students, discussing different themes regarding the overall view on sustainability, but also observing the ways in which this could be tackled in an urban setting. Small scale initiatives, with bigger outcomes for the society and introducing the students to a "live-approach".

A: I will just add few remarks about the implementation process. I want to cover the bits of organisation issues, what had to be done here before proceeding. As you mentioned before, there was the issue with the faculty council (which meets once a month) and forming the "informal" group of teachers that would run the courses and help in the decision-making processes to have all the necessary people on board. That was the first part. The second part would be the teachers and their assistants and their involvement and motivation. What we have already covered for students applies for the teachers as well, because they too had other obligations, but nevertheless I would like to point out that they really wanted to cooperate. Perhaps what is more important is that the cooperation was realised within the faculty. It did not happen as much with the Norwegian teachers, but it happened within the faculty where you had people that worked for the very first time together and this resulted in high qualitative solutions.

Q: Can I ask you what would be the result of this combined study? In addition, do you remember this was something related to the curriculum change idea? Not that we would change the curriculum, but to find out what the missing link is, and if this cooperation (of running courses together) was the best alternative to do business as usual, but with a completely new outcome. We would not change the curriculum or credits; this change is a combination of bringing different teachers together, which means that we can achieve the planned outcomes whilst running in the

existing structure. We realised very soon that it would be difficult to change the structure, so we changed the people's approach, and the project helped to facilitate it. This was a good result.

A: Yes, it is still happening but and with different people. The idea was to have them even once the HERD program is over. So, we saw the benefits of this cooperation, we learned more, we were exposed to energy efficiency topics on different levels and insights from other departments; we raised the capacity of the teaching staff. This is probably a good basis for discussion for the "post project" part.

A: Now, one could ask a question about all these different parts of the project and end up with the final project parts, which were these two workshops and the conference. Let's name all these project activities. We also realised at the beginning that this was a project of national importance in Bosnia, because it involved Bosnian institutions which cover a high percentage of architectural education in Bosnia, thus, it was necessary and desired to make the University of Banja Luka, Faculty of Architecture and Civil Engineering (AGFBL) a part of it.

Q: Sorry, but I have to interrupt you with a question: what was your interest from a teacher's point of view?

A: I would say there are two sides of it; one is my or other teachers' personal interest. Mine for example was triggered by me being Austrian and my previous personal experience at different places, but the academic interest from our side was that this gave us an opportunity to try out different things in another place and to establish a distance to reflect on our own practice. It gave us also a new possibility to tackle other, new challenges doing this.

Q: My question would also be, since you were running the project as the project leader, you had full responsibility for it, but from the point of view of, let's say, other involved teachers on your side, what was their gain in coming to Bosnia, in giving the lectures, their involvement, and so on?

A: I would say we all had some similar interests. Different local responsibilities made it also more obvious for some of our employees to participate: with for example more knowledge of how live studio activities work, it gives you the possibility to experience other approaches and to get out of your normal environment. This gives you a good distance and different setting to reflect on your own approaches. I think we are all aware that we have to learn one from another, and as well from and in unknown situations.

Q: Okay, so we covered the students, we covered the teaching staff, and this implementation process...!?

A: I think that some parts we're going to miss in this description, but we have prepared an infinite list of activities, so... All these activities could be listed, maybe from teacher exchange, comments, research project, student exchange based on the ERASMUS idea, where students leave to another university in another country... In that case, we did not even have a capacity, not in this short period, and neither did we have enough support nor the administrative staff involvement. Underlying each learning activity, which has to result a mutual international exchange, is an administrative task. This is why this is usually implemented through other projects. We were not aware of this complexity when writing our project description and the underlying project activities. Some of the planned activities, teacher exchange for example, we had to push to work together academically in the field of the project and, as I said before the planned student exchange was implemented though short time exchange for conferences, collaborative activities and workshops. This student exchange in a form of collaborative activities reached the peak at the two workshops in 2016 and 2017.

Now, if one can discuss those workshops, I would highlight that the first one, in the summer of 2016 in Sarajevo, which was the first live studio workshop run by students in Bosnia. This means it was a) run by Bosnians, which was good, because they were very aware of the contextual problems and they tried to

find the solution; and b) another challenge, pushed towards a solution was that there was no knowledge, no capacity, no faith into the student-driven work; neither from the institution, nor from the society, and this left the students with their own motivation as the main driving force; and they, were able to come up with a positive result, even against all odds. They had difficulties in trusting themselves, because they had never done this before, so they did not have faith in their own knowledge. It was difficult in the beginning to get them to believe and to get the support from the faculty. What additionally needs to be mentioned is that it also much depends on a committed leadership. I think one has to be brave and to allow or accept things that have never happened before, to try something new. Coming back to the first workshop, this was a good representation of all the challenges mentioned here before, but also of all the positive interferences leading to success. To have this is a part of a bigger project, actually the biggest achievements could only be reached by partially uncoupling it from the overall project and making it a student self-run activity. This of course implies questions in the field of insurance and economic and professional responsibility. The students could learn from each other, especially when it comes down to the practical part. For example, all the challenges we had to get permissions, all the problems and misunderstandings to get the building permit, the local agenda of the responsible local stakeholders, and many other, to them, completely unknown things. I have to admit, from the project planning point of view, we actually did not think about this. We did not have plans, because, originally, this was planned to be a temporary construction in Norway. In addition, we were very focused, maybe too much, on the learning outcome, instead of focusing on the actual project implementation process. There never was a discussion about the insurance. There are things we never thought about that came as an additional challenge for the students. This was the first project part. The different language has to be named as an additional problem, but bringing the students together and making them exchange knowledge was beneficial.

Q: In comparison to the first 1-1 workshop, what do you think about the second one?

A: The last part, the second workshop, as I wrote in our introduction, was the workshop in Banja Luka, and I will call it the highlight of the project, because it was the peak of the activities, and it had a lot of implications. There were civil engineers, architects, engineers of geodesy and practicing architects involved. The second thing here is that this was a quite big administrative challenge, another thing we didn't think about before, or at least not in this detail. In this context, it is very important to name local stakeholders, in between academia and the Centre for Spatial Research, who should be greatly credited for this. Without them this would not have worked. This workshop started with a pre-workshop time where the project was developed, planned, controlled and discussed. Then additionally, this was a project built in a real urban context, not only a temporary one. There was also all the challenge of political influence, with all its good and bad results. Overall, it was a good representation of how these students approached and came up with a solution for this challenge, how they could even use and learn about and from these additional challenges. Then, the project was very good in terms of showing the importance of the pre-workshop time. There were Skype meetings between different project groups in Sarajevo, Banja Luka and Norway to discuss the design. This long-distance cooperation had its own challenges, be it the possible extra time for the students to use, different timetables at universities, or communication problems due to different language or problems with communication technology. Then there was also the involvement of civil engineering and geodesy students, because of difficult structural and geological challenges. There was the project location in the city, a difficult area to work with, also due to social problems. Another unknown part was the involvement of a construction company. All these things worked out well, and coming back to the overall time constraints of the project, it led to a situation where some parts had to be done prior to the workshop week. Again, it was the

commitment of a small workshop group from all places. The Banja Luka part of this group has to be mentioned extra, because of their long-term commitment. What is maybe the main achievement with regards to our project is not only the student exchange and all related social encounters and mutual knowledge exchange, but also the urban gain and effects of the project. It managed to convert an unused open space along the river, which was “occupied by” social problems in the neighbourhood, to a friendly, clean and exiting urban park in Banja Luka. It also shows that these student-run, small scale projects can combine learning and have a positive effect for the city in the same time.

Q: I would like us to reflect on the “after” part of the project and discuss the students’ surveys. Is that alright?

A: Okay, but before we start this post-project part, I want to mention that I have talked to other people, asking them why they were involved and why they participated in this project. It gave me a confirmation of what I’ve mentioned before: it was because this project and its activities provided new approaches to be discussed, so they saw this as an ability to reflect on their practices.

Now, let us go to the “after”, the post-project time. This time after the project has at least three parts; one part has to deal with the surveys and questionnaires; what this meant to the students. The other part would be to discuss what the project actually meant for one of the original ideas, improving the curriculum, and the third part would be what these activities did for students’ behaviour, learning and possible future outcome. The Banja Luka project serves as a very good example for this last part, because the involved students from Banja Luka proceeded with another workshop, under the same name – “small scale”, and were doing a project in the centre of Banja Luka during the 2017 Christmas period. I think what this project primarily did was to open their minds. We could discuss a lot about the curriculum development, but I think a black and white answer would be that we didn’t change it and

the question there would be if it was our intention to change the legal framework or the modes of learning. I would argue that the main goal independently was to change the approach students and teachers had, so we worked to change the modes of learning. We did this through the interrelation between students from inside and outside of the country, but also through the willingness and ability of the teaching staff to adapt to the situation. I think we fulfilled the task. All this is a starting point for the structural change, but I am not sure if it is necessary, because we are living in a fast-changing society, and any change in the structure would require another change or adaption, again followed by changing the structure, and so on, hence, one would always be one step behind. So, making people cooperate in/and changing their modes of learning is much more important, as well as because this works under and in each structure. The first thing I mentioned would be to discuss students’ direct response to the activity, shown in the survey and their activities and implemented projects.

A: Just coming back to when you talked about changing the curriculum itself. We did impact the curriculum. With new subjects, with the new content within the subjects, we have affected it because we provided students with more options for their work, and we saw that this is a better thing compared to what they had before.

A: This is good, because I only reflect on it in terms of the project results, and not relating to the factual results of the new implemented courses. This as well can be shown in the students’ reaction to it in the survey.

Q: Okay, but I would also like to discuss where we have failed.

A: If we take the same three divisions, I think in the “before” part we failed in motivating more people in doing this, in participating in establishing the project ground. Had we done that, the source of knowledge and running this international project would’ve been much bigger and easier. Also, the project’s burden

could've been solved much easier, distributing it in between more people, who could help each other in implementing. I could also reflect on why I think this was not possible. Working together is better if people know each other; we did not know each other in the beginning. Now we would have a much better ability in doing this. The thematic part is also important. Nowadays, all of us are asked to apply for a lot of extra funding, and everyone has to find their own projects to participate in. So, in our case, the theme of energy defined what we had to apply for and we had to adjust to it in order to have the opportunity to work like this. This thematic cooperation between our institutions didn't exist before, so in establishing a sound academic ground for this, also meant enforcing more staff cooperation as the basis for the workshops, which we failed.

A: I would also add two things that crossed my mind. One would be the Banja Luka cooperation, because it didn't happen on an academic level. As per students' involvement and encounter, they met and they collaborated. On an academic level, since we were not involved in the same projects otherwise at all, there was no cooperation between the teaching staff. We cooperated more with others on that GIZ project and that even brought more knowledge and understanding between the peers of both faculties, than HERD itself. Not knowing the people is also to blame, and the lack of funding for the participation for people from the AGFBL in Banja Luka.

A: Yes, but this is something more when reflecting on our mistakes. Now, in the after match, I believe in two things: one, I think we could have increased AGFBL's participation by giving them an equal share in the project in the beginning, but the whole project should have been divided in three "pieces of cake" – one for the AGF Banja Luka, one for the AFS, Sarajevo and one for the NTNU, Trondheim. Another thing I think we didn't think about was setting aside some money, to make a high level encounter on the faculty or university level possible. This also to make the "institutions" meeting each other. I also think it's very important to search for

the political support as well. Maybe in the beginning we neglected these things, but later on, when this would have been necessary for the implementation, it was too late. In our future joint projects, we have to think about the strategic and political level, to make things more smooth.

Q: Here is another point I would like to cover: it has to do with unused financial possibilities, scholarships for example. I think it is important to describe this a bit further. Which is better in terms of the results? Students that participated in studios learned more than those who didn't (!?), but sooner or later they all leave the faculty. They become practicing architects or are going to work abroad, so in terms of the transfer of knowledge, it is related to a few generations of students. Therefore, it is important to continuously increase the knowledge of the teaching staff that is educating new generations. But coming back to students, the dilemma which we faced at the beginning was which is better: giving few scholarships for PhD and one semester scholarship for fewer students, or to have more students experience the exchange but in a shorter time. At some point we decided it was much better to affect more students, but, the question still remains: what if this one person could have made an outstanding PhD dissertation that changes the world, and this was not facilitated because of the decision to engage more students?

A: I agree with you, I think this is an important point. There is this big discussion of what we achieved to gain these students' qualification increase, and we also gain the teachers involvement in understanding different behaviour. What do all participants give back to their institutions? They should have been asked to summarise their experience. This is something we also did not do.

Q: Are there other things to be discussed?

A: There were many failures based on miscommunication, not knowing each other's culture and structure. In addition to other things that we could not have influenced. I think there are many things we

did not know of each other and each other's modes of doing things, processes, which also had negative consequences. We had to use too much time for introducing all these diversities and adjust activities into the existing framework. Maybe legally we did not change the future of the curriculum, but touched upon other questions, directly related to the students learning.

All the small things in this project had to go through the faculty council, but maybe future programmes could establish their own structure, their own board, so that you can make corrections much faster. It was not our task to organise this change, but this can be a lesson learned. There were students' scholarships, there were teachers' scholarships, but we didn't have time to deal with all those things, especially because there was no relation between our institutions preparing for these activities. The learning for us here should be that each activity has to be planned in detail, and for example checked upon already existing structures and connections.

A: Coming back to these structural challenges, all the way from the university board, through the rector, the Senate, our faculty council to our dean. It is probably a good idea to have this drawn in terms of how things can happen in a more simplified way in your institution. Showing and discussing the challenges we have and also how to relate to other parties running projects. It is important to learn from each other, also in the modes of how to implement projects. But, what I would also like to emphasise is the amount of time required to deal with this project, because at one stage, when reporting, I checked the number of emails that we exchanged on the topic of HERD. Not just between Norway and Bosnia and Herzegovina, but also between other colleagues at the faculty. And I realised that we are talking about thousands. When you see how much time it takes to write just an email, to organise a meeting, to organise even a simple thing, it sums up to a lot of time. In my opinion, you should have or a person that is delegated to run the project, if you want things happening on a daily basis. The other solution, as highlighted before,

would be the even distribution of responsibility and activity between more involved persons.

A: I agree, but now it is a discussion not only about what happened, but what does it do. One solution could be that you have a dedicated person for this, but then again, it's a question of whether or not that person should be planned in the budget. It also means one more link in the communication-chain. I understand and agree with your concerns, but it would not change much, because you will have one person but again many emails. This is a structural problem. Most emails had nothing to do with the content of the HERD project, but with internal procedures, which the HERD project had to follow. The HERD programme was not a programme to change the system of Bosnian universities, but this can come as one of the resulting information.

A: In the "post-project" part, we have to mention the external evaluation.

Q: Yes... Do you have something more to say?

A: We need to reflect on the students' surveys and get the general picture from their viewpoint (what was the general notion etc.).

A: It could be the idea. Another idea could be that you just read it and write the feedback from the questionnaire. They only give a limiting factor; the limited point of feedback: a) it's not all the people involved, b) it's usually the ones directly asked in activity, c) it's a very specific activity feedback. All students were happy meeting other students, but the diversity of students and their expectations were something we didn't count on. There were students that went to Bosnia from Norway to meet other people. This was their kind of scientific expedition, not in a way of holiday, but in a way of meeting other one's culture, how they see things and think in a different way. Others were more focused on the process itself, some were more focused on the final outcome, and so on. Now I remembered some feedback from the Bosnian students: coming out of their system for the



Picture 14 – The first meeting at NTNU (Nerman Rustempašić)

first time, they expected a different way of approaching the knowledge. So, when they got days off instead of getting two days full of lectures, they didn't know what to do. And it comes down to us, because we didn't discuss about these different expectations. I think in the future we would have to work much more on the individual level. This refers to teachers as well. There are for sure people in Bosnia and Norway that could have participated based on their pedagogical level and knowledge. And there were others who are masters in their field of work, but didn't do the right thing, you know?

This self-interview between the authors was an introduction to the “discussion” chapter where we wanted to clarify certain points of general interest. Those points of interest, or rather phases: “before, during and after”, are present in all projects and are easily relatable.

The Implementation Process

The implementation phase starts once the programme is officially approved. But, in order to reach that point, a significant amount of effort is needed for the programme preparation, and, in many cases, it is a voluntary endeavour of the academic staff, performed quite often without any financial support. The key factor in the application phase is commitment of the staff, which can be triggered in various ways.

The “Before” Part

In the case of HERD application in 2012, circumstances were such that the NTNU had secured some initial funds for the preparation of the application. Those funds were used solely to bring together academic staff from partner institutions and provide enough time

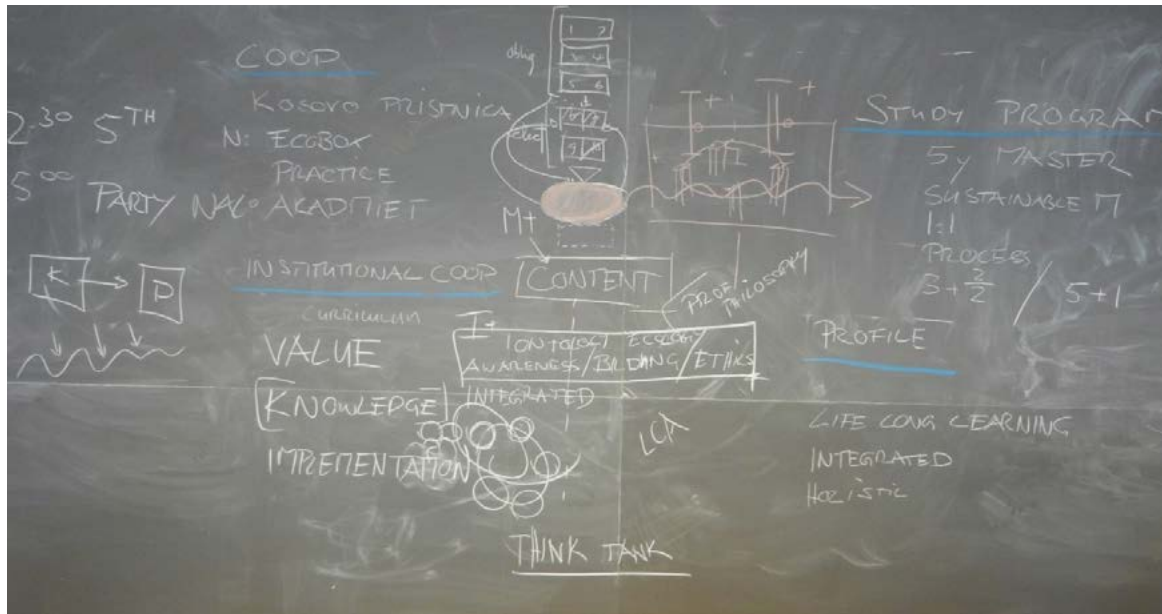
to exchange ideas and to agree on further steps. The personal contact made a substantial difference to the quality of the programme because “brainstorming” activities are very difficult to conduct over video calls, especially when we talk about groups of individuals. In total, two trips were organised, and the first AFS representatives came to Trondheim in June 2012, followed by the NTNU representatives' visit to Sarajevo only a month later, in July 2012 (Picture 14).

For the purpose of illustrating the development of the “before” part, the following are edited versions of reports written by the authors.

Trondheim 2012

Over the period of a three-day visit to the NTNU, hosts organised a number of meetings in order to meet the staff from different fields, and to come up with ideas for the application through interaction. The first meeting was more on a “formal note” with the intention of informing the dean and securing support for the joint efforts with the following conclusions:

- After a short introduction and greetings from the dean, all participants were invited to see the work of Barbara Matusiak's PhD student Claudia, followed by a visit to the Day Lighting Laboratory and student model workshop.
- A visit to Steffen Wellinger's studio and introduction to the student work.
- At this stage, a comparison between the Trondheim and Sarajevo curriculums was drawn, in an attempt to establish possible links that could help create the basis for collaboration.
- As professor Hans Skotte pointed out, the project should not be along the lines of the “development aid” programme, but rather based on equality that each side can benefit from.



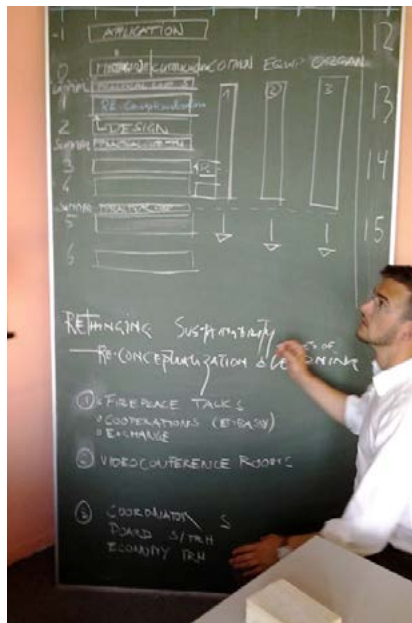
Picture 15 – Planning of the HERD courses (Authors)

The second meeting was important for the purpose of gaining information on the already-approved HERD programme and utilising a feedback from the project coordinator on that project. It was useful for steering the discussion towards the master's course content (Picture 15).

- After a visit to Selbu to see the student work and a lunch with heads of the international section, Oyvind Ustad and Vojislav Novaković; a meeting was held in order to gain valuable information on Vojislav's experience on the previous Herd Energy application, as well as to learn about the expectations from the HERD board.
- Vojislav's suggestion was not to have too many partners involved for practical reasons. Two or three partners set as an optimal measure.

Involving partner University of Stuttgart was not possible in the way previously discussed. Since the emphasis was given to applications coming from Bosnia and Herzegovina and Kosovo, and based on the fact that the University of Sarajevo has links with the University of Priština, this collaboration should be strengthened.

- Around 18 million NOK still available.
- The board members involved with traditional energy sectors (oil and gas), and with regards to architecture, our project description should be appealing for them.
- It is essential that proposed project ends in 2014/15 so that the board members are able to see reports and results that can be evaluated.



Picture 16 – The Sarajevo meetings (Authors)

- Project has to be self-maintained in the future.
- A symbolic link between the subjects is not recommended. Connections should be made much stronger.
- After a discussion, a decision was made to create a MASTER+ programme, lasting for two semesters, dealing with the holistic approach to sustainability in architecture, based on the studio concept. (See photo for reference: Figure 40)
- *Discussions and agreement about a broader definition of “sustainability” (not limited to energy consumption in use). For example, issues like lifecycle, urban context, material, area/land use, transport etc.*
- *An important part of teaching in Master+ should be professional ethics and related issues.*

The third meeting was exploring possibilities for the 1-1 building workshops and bringing more experts aboard on the topics of EE and sustainability.

- Following up the conclusions from the yesterday meeting and taking into consideration that our partners in Trondheim are doing too much teaching, it was proposed that the MASTER+ programme also contains an applied research component that will result in erection of a building.
- A “Norwegian house” concept was proposed. This would be a building which is to be awarded to the Architects Association once completed. It will represent the joint effort along the lines of the holistic approach to sustainability in architecture.
- Its intended use is for the Architects Association (currently renting an office space) and for lifelong learning (lectures, presentations, exhibitions).
- Collaborative student workshops should be considered in the development of the cooperation.
- Luca Finocchiaro was mentioned as a possible participant, due to his experience with solar

decathlon, prefabrication and sustainability.

- Sunniva Vold Huus was mentioned as a possible contributor, due to her experiences as a student cooperation manager and the realisation and founding of the master project.

Reference for a possible timeline and organisation could be ETH Zürich and Neue Monterosa Cabin¹⁵.

Sarajevo 2012

A few weeks after the meetings in Trondheim, a delegation from the NTNU came to Sarajevo, where we continued the discussion on how to approach the HERD application, and, finally, how to channel all the ideas into a single application file (Picture 16).

After the initial preparations were made by the AFS and NTNU representatives, the time was to engage more teaching staff from home institutions in the programme development. An invitation letter was sent to heads of departments at the AFS, explaining what had already been done and what was still missing.

Sarajevo, 27. 09. 2012.

FACULTY OF ARCHITECTURE, UNIVERSITY OF SARAJEVO

TO ALL HEADS OF CHAIRS

RE: CALL FOR ACTIVE PARTICIPATION IN THE HERD ENERGY PROJECT

Dear colleagues,

We hereby wish to inform you on the implemented activities on preparing the application for resources from the HERD energy fund, as well as to invite you to participate in further activities. Members of the faculty council have been verbally informed twice about the project at the regular sessions of the council. Since one of the main goals of the

¹⁵ <http://www.neuemonterasahuette.ch/>

project is participation of all interested teachers and associates, I expect heads of chairs to make relevant information available to them.

As a reminder, the Norwegian Ministry Foreign Affairs Ministry has crafted the programme HERD – Higher Education, Research and Development in the Western Balkans. The goal of the programme is economic and social development through cooperation in the field of higher education and research in the Western Balkans. Since the Dean’s Office received information on the existence of this fund in late February, and the application deadline was 2 March 2012, we missed an opportunity to apply to the third call. However, upon learning from our partners from the University in Trondheim that the fourth call is to be announced, we have initiated intensive application procedures. We are currently in the phase of drafting the budget. Please find attached the working draft of the application, with partially defined activities within the project.

Teachers and associates are expected to recognise their role in the planned teaching activities:

- institutional development,
- curriculum development,
- formation of study modules,
- staff exchange,
- organisation and implementation of seminars/workshops, and
- other joint activities,
- addressing their proposals in writing to the vice-dean for international cooperation.

Although the fourth call has not been announced (and is expected in early October), we have taken upon ourselves to present to our Trondheim partners our remarks/suggestions/comments. In that respect, we expect assistance of all colleagues interested in this form of international cooperation.

Annex:

- Completed application form

At that stage of the application, we did not receive a single written answer from the academic staff, and the only option was to proceed with the general description and anticipate the number of personnel involved. Aside from the content part of the project, this was perhaps the most challenging part of the planning, because without knowing how many “committed” individuals there were are at the disposal, later problems would concern insufficient financing and a lack of staff to conduct the planned activities.

Our first application was not successful and we received a brief note explaining reasons for the rejection. Based on further consultations, in 2013, we submitted an improved application, which was finally approved in March 2014. These were the main points of improvement:

Improvement proposal for the 5th Call for Applications - HERD/Energy 2010-2016

Dear colleagues,

As you remember “*The request for support is rejected because the application lacks a clear description of the current situation and the needs for capacity building at the institutions in the Western Balkans*”, and this was an unfortunate answer to our application. Here are some thoughts on how to improve our chances and to discuss whether to pursue matters in that direction.

In order to address our shortcomings, we need to address following points that are interdependent:

- A. Student issues
- B. Teacher issues
- C. Curriculum issues

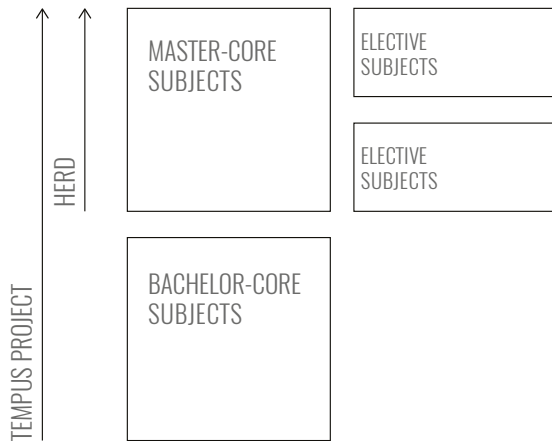


Figure 27 – Compatibility between TEMPUS and HERD project (Authors)

A. Students

Upon the Bologna process adoption in 2004, we had to make considerable changes to our curriculum in order to meet the European Credit Transfer and Accumulation System (ECTS) requirements. In this ongoing process, we have identified several shortcomings that primarily affect students. For instance, the total number of exams has risen from 45 to 96, for the total of five years of studies. This is mainly due to the fact that the majority of subjects at the Department of Design ran through 4 semesters in the former curriculum, and now this means 4 subjects – one per each semester. This change also meant that the practical classes – architectural projects that used to run through several semesters had to be modified to fit into one semester or they were removed altogether and were replaced with essays. An analysis of the curriculum changes at the Department of Design (for the year 1968, 1998-prior to the ECTS introduction and the current curriculum) revealed that students are having considerably less practical work than needed. This means that, in many fields, students have not been prepared for actual architectural tasks upon completion of the master's course. For the entire length of the study, 195 hours of practical classes at one department only have been lost in comparison to the year 1968, or 105 hours compared to 1998.

B. Teachers

Currently, 23 professors and 23 teaching assistants are employed at the Faculty of Architecture in Sarajevo.

Five of our teaching assistants have met academic requirements to be promoted to assistant professors, but cannot advance to higher positions due to a lack of funding from the Ministry of Education. Standards for funding have not changed since 2005, when they were

imposed regardless of the fact that we have adopted the Bologna process. Shortcomings are that these young individuals are unable to enrol into foreign exchange projects due to formal reasons, and their academic development is somehow slowed down.

Issues of energy in relation to buildings are incorporated into several subjects at our faculty (as part of the architectural physics group), and all of them are taught by one professor. Due to the current needs in the buildings sector and energy efficiency requirements, those complex issues have to be represented more throughout the curriculum.

C. Curriculum

For the past 8 years, there were several attempts to act upon the shortcomings of the present curriculum. However, major changes require the entire curriculum evaluation and it also means that, in accordance to the law, we need to have the "old" curriculum available for the period of five years, alongside the new one, which puts a considerable strain on staff. The other possibility is to modify the current curriculum in the amount not exceeding 25%.

Since the master's course consists of a number of elective subjects, which total 36 ECTS credits (more than 1/4 of the total number of credits), there is enough room for improvement through the HERD programme. A complete change of the curriculum is, however, expected through the TEMPUS project, and, most importantly, these two projects are compatible (Figure 27). The TEMPUS project is a joint multi-country project which deals with the Bologna process, and the result of our application will be known in October 2013.

The HERD programme will tackle issues in the master's course, and all improvements can be applied in the 2014-17 period. The results from

this project can that be incorporated into the general strategy for the entire curriculum change and improvements to the core subjects.

REMEDIES

- A. The student issue regarding insufficient practice throughout the studies can be addressed through the HERD programme with the introduction of new courses/studios that would contain more ECTS credits than the current elective subjects. Instead of having 3-4 different subjects with very little in common, a studio (consisting of several branches) can be formed specifically for the purpose of simulating the actual architectural work (such as the WP2 Live studio). Throughout further education of the teaching staff, other elective subjects would adopt the “energy” component in relation to architecture.
- B. Through HERD programme, the teaching staff would be given an opportunity to expand their knowledge through collaboration on new courses/studios/subjects together with Norwegian partners. A joint collaboration on publications and papers would also affect credentials of the faculty. With the changes to curriculum and even establishment of a parallel master course, there will be “financially” room for academic advance of current staff.

Much needed improvement of Curriculum cannot be done without thorough evaluation and incentive for change. Past changes affected all teaching staff and many of them lost significant number of hours per subject. This has caused reduction of number of professors and assistants and with obsolete standards that do not permit academic advance of staff (due to financial reasons) outside help is required in order to make changes.

The “Duration” Part

Once we received the information that our HERD application was approved, we started “visualising” the planned activities and engaging the personnel to organise and conduct them. For that purpose, again a letter of invitation was written to the AFS academic staff (after the kick-off meeting) in an attempt to bring them aboard on a voluntary basis.

The Kick-off Meeting in Sarajevo

Almost two years after the first meeting in Trondheim, the same AFS and NTNU representatives met again but with a different agenda. It was time to implement activities listed in the application part and agree on the necessary changes. The HERD board’s decision to reduce the amount of funds by almost one third meant that many of parts had to be readjusted. Here is the outline of the main conclusions:

PROJECT: HERD ENERGY
STAGE: IMPLEMENTATION
DATE: 12 – 17 June 2014

- A. THEMES (CONTENT)
Architectural design, Urbanism, Cultural heritage, Interior design, Structural systems, Graphical and spatial representation.
- B. STRUCTURE
 1. Elective subjects
 - a. A new elective subject (7 ECTS autumn and 9 ECTS in spring) is run by two or three teachers respectively. The overall content is energy efficiency, whereas a detailed programme and content will be decided

by the participating teachers. Students get one grade.

- b. Two or three teachers are running a “combined” studio based on the existing course description. Students get same grade for two or three subjects.

Both methods require that teachers work and plan the course together. Students benefit from the integral approach to the problem-solving procedure. The first option is more future-oriented because of the adaptable content of the course. Each participating teacher has to deliver a written reflection of his/her course with regards to the HERD themes/core at the NTNU.

2. Workshops (new modes of learning sustainability/energy efficiency) e.g. Wood in Public Buildings. The participating students and teachers (in the best case the same teachers from the studios) should be able to participate in the chosen/important workshops in one country or the other (but also in Kosovo, based on the NTNU Kosovo cooperation).
3. The summer workshop (condensed exchange, built 1:1). The studio work follow-up with the participation of the same students. More detailing and practical applications.
4. The conference
 - a. Dealing with themes that we feel are important to HERD in terms of teaching/sustainability. The participating teachers have to deliver a presentation of the lessons learned.
 - b. Sending teachers to another relevant conference (based on the HERD budget, the participating teachers can travel to one of the above: 1, 2, 3 or 4)

5. Guest lectures

- a. An NTNU representative guest lecture at the courses.
- b. Delivering lectures at the NTNU
Can be seen as a network activity for the participating teacher (possible future cooperation)

6. Extra curriculum activities

Possible financing of the small scale / bottom-up energy efficiency-related activities

C. TIME SCHEDULE

- Information to the faculty council
 - Outline of the concept (themes/structure)
 - feedback on the content possibilities
- Identification of the personnel – teachers (3) fluent in English.
- Content adjustments
 - what is the teacher’s important field of expertise in a course?
 - what is energy efficiency role in his/her field of expertise?
 - HERD participants find necessary to be provided from the outside.
- Submission of the Studio curriculum to the faculty council (in time constrained)
- Identification of students (5 students) for the 2014 autumn activities.
- Contract signing by September
- Booking the accommodation
- Trondheim - sustainability week 44 (27 - 31 October)
- Identification of more specific content issues for the spring Studios.
- Identification of teachers for the autumn semester

- Identification of teachers/students from AGGFBL for the autumn semester
- Identification of teachers/students from AGGFBL for the TRD summer workshop
- Identification of teachers/students from AGGFBL for the SJJ summer workshop.

We proceeded with the agreed activities, but, once again, there was no reply to the written invitation to the academic staff for participation in the HERD programme, and at the moment it seemed that even though the funding was secured, there was no interest, and, therefore, no realisation of planned activities (Figure 28).

At that point, only weeks before the summer holiday, a decision was made to present the HERD programme at the AFS faculty council session, as the last attempt to bring to the attention to all possibilities for the academic staff and students. After the presentation, several teaches expressed willingness to participate, and from that moment onwards, ten official meetings were held from July 2014 until July 2016 in an attempt to bring to life the planned activities. This informal group consisting of teachers and teaching assistants became the “body and soul” of HERD activities at the AFS. Teachers proceeded to create elective studios, and in the autumn of 2014, the first studio was underway. Along the way, numerous meetings on a smaller scale were held, and as an illustration of the amount of work from March until December 2014, here is an excerpt from the report submitted to the AFS dean on 3 December 2014, which illustrates the process:

“During the preparation of the cooperation project with the Norwegian University of Science and Technology (NTNU), nearly 120 working hours were spent. More than 150 e-mails were sent, dozens of telephone conversations were conducted with the NTNU co-coordinator, the Architectural and Construction Faculty of the University of Banja Luka (AGGFBL), and several meetings were also conducted with the Sarajevo University’s Faculty of Architecture management (AFS).” (Burazor, Mladen).

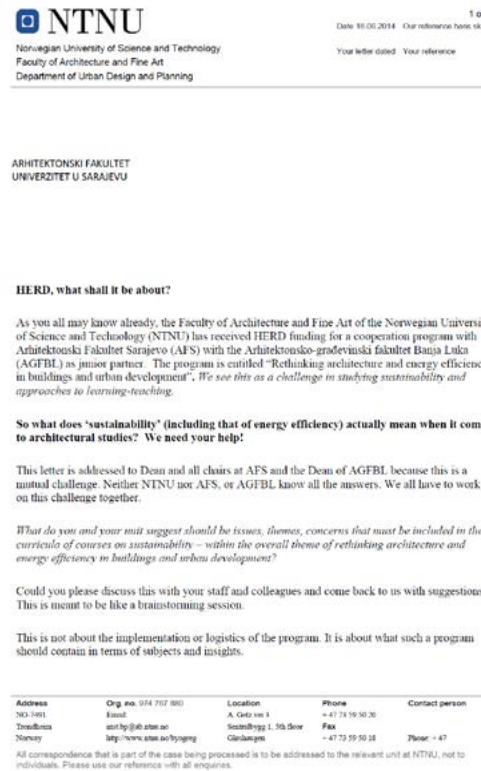


Figure 28 - An invitation letter to the academic staff (Hans Skotte)

Organising Supporting Activities: Seminars and the Conference

Behind any, even the smallest conducted activity, a lot of preparatory work is involved, especially when dealing with international cooperation. One of the greatest administrative challenges for the AFS project administrator was conducting public procurement procedures, which, in their own right, require some time.

In 2004¹⁶, the Law on Public Procurement Procedures was passed in BiH, and all public institutions had to comply. In practice, a procurement plan for the following year has to be made before the beginning of that year, and any changes to it have to be verified, and that also requires time. In real life, a lot of things may change within a year, and it is difficult to anticipate all variables. Even though the know-how for the preparation of the tender documentation was outsourced, academic committees had to be formed for each public procurement. Only to name some: procurement for computer equipment, accommodation of staff on seminar trips, conference publication printing, simultaneous interpretation service, catering, accommodation, and so on.

Difficulties and delays may occur in situations when one of the bidders complains, and, then, the procedure is prolonged to a point where that service is unnecessary. For instance, if the conference materials are not ready on the day of the conference, then they are not necessary the following day when everybody is gone, since the materials are not planned to be sent by post. Or, if transportation issues are not sorted out before the trip, then the booked accommodation (with payed reservations) is no longer needed. The reason why it is not possible to conduct those procedures months

before is simply because the majority of activities are interconnected, one preceding the other. For instance, it is impossible to know the number of pages in a publication until all texts are received. Proofing and book design follow the reception of the text, and it is only then that the necessary elements are obtained for the printing procedure tender. Preparations for the 2016 HERD conference held in October, which was completed without any problems, started in January that same year. Prior to and after the conference, seminars were conducted, which covered a range of themes from modes of teaching to future cooperation programmes.

Many teachers at the AFS were aware of the amount of energy required to administrate all that, hence they saw it as a waste of intellectual capacities on administration, instead of focusing on research. In comparison, private institutions, which do not have to comply with the public procurement procedures, are in a much better position and can accommodate much easier to any unforeseen events.

The entire processes behind the main HERD activities are outlined in the following sections: “Project Elements”, “Timeline”, “AFS Collaborative Studios”, “Practical 1:1 Workshops” and “The 2016 Sarajevo Conference”.

The “After” Part

Upon the completion of the projects in June 2017, there was still work for the project management team at the NTNU and AFS in terms of writing final reports, collecting and submitting invoices and organising an archive. Apart from these administrative tasks, more concrete steps were undertaken along the path of our continuous cooperation and securing funding for further activities. But, before proceeding, it was important to do a self-evaluation from three different viewpoints: administrating cooperation, student perspectives on the outcome, and teacher

¹⁶ <https://www.javnenabavke.gov.ba/index.php?id=10zak&zak=1&jezik=hr>

perspectives. The “after” part consists of the reflections on the outcome of the HERD programme. One of the crucial questions is what has been done to improve the learning processes.

Evaluation of Curricula and Modes of Learning

Programme evaluations provide an in-depth insight into the current status of the study programmes and the challenges they face and provide a basis on which to maintain and enhance their quality. Having stated that, it is important to realise that the evaluation (internal or external) has not been conducted at the AFS to this date, since the introduction of the Bologna system. At the NTNU, the situation is different and the need for evaluation has been welcomed since: “... A foundation is now set for the challenging and interesting work to develop our program to be even better than it already is.” (Yanar, et al., 2015, p. 5).

This in-depth evaluation of the study programmes by an external board is a regular activity for all bachelor and master programmes at the Faculty for Architecture and Design (the former Faculty of Fine Arts). This evaluation usually ends with a report, which describes assets and shortcomings of the evaluated study programmes. The evaluation is performed differently, depending on the committee, but there are some common activities. The observation of course activities and interviews with teachers in charge of the course, and in-depth interviews with students. This periodical evaluation takes around one year, is concluded with a report and then followed up with a catalogue of changes/ inputs/ activities, prepared by the responsible study programme. These suggestions/ plans are thereafter implemented in each of the courses. This in-depth evaluation is part of the regular evaluation activities at the university (NTNU), as all courses are evaluated by the course teacher, and a student reference group each semester where the respective course is taught.

By the time an official internal or external evaluation of curricula is performed at the AFS, one part of it has been affected by the HERD programme since: “*It is responsible for addressing the shortcomings of the current curriculum in terms of form and content and based on the fact that there is a 20% change of the curriculum in the master course, it can be concluded that the HERD programme has made a significant change towards the development of a new curriculum at the Faculty of Architecture in Sarajevo.*” (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016, p. 22)

Evaluation of the HERD Programme

From the administrative point of view, evaluation of the project was performed in the form of annual reports, since NTNU and its’ partner institutions were obliged to submit reports on the progress according to the established indicators of success. An integral part of these reports were financial reports, which were covering the past period. In this administrative part, the focus is on the implementation, not on goals.

Annual Reports

The HERD programme’s obligation to pass yearly reports provided an opportunity to react to the shortcomings in the respective years, meaning that it was a description of on-the-run solved and unsolved challenges in implementing the project. This book should also serve as a basis for a conclusive evaluation, goals of which were achieved, as well as a guide for future activities. In the Table 2, a brief summary is given for each one of the main points of the HERD programme.

Table 2 – The HERD programme success indicators and reflections on the implementation (Authors)

Students:	Institutions:	Research:	Gender:	Development:	Other indicators:
<p><i>Student exchange in the form of workshops - 1 week x 2 terms ;</i></p> <p><i>18 students from the AFS, 14 students from the AGFBL; 18 students from the NTNU;</i></p> <p><i>Master courses: estimated 40 AFS students;</i></p> <p><i>Student exchange in the form of field work and master courses abroad.</i></p> <p><i>6 students from the AFS; 6 students from the NTNU</i></p> <p>The total number of students who participated in HERD activities was even higher than anticipated, and interest for the courses was such that 81 students attended HERD studios – more than double (Burazor, HAS THE HERD PROGRAMME MADE A SIGNIFICANT CHANGE TOWARDS DEVELOPMENT OF A NEW CURRICULUM AT THE FACULTY OF ARCHITECTURE IN SARAJEVO?, 2016, p. 21).</p>	<p><i>Development of the educational and research capacity in BiH with the focus on Sustainability in Architecture and Urban Planning.</i></p> <p><i>Preparation for a future Centre for Sustainable Development in Architecture at the AFS.</i></p> <p>An introduction of elective subjects/studios in the AFS curriculum proved to be a positive change. A Committee for Curriculum Change and Amendment was appointed at the Faculty of Architecture in Sarajevo. Six out of eleven members of this committee were at one point involved with HERD activities, whether through participation in studios or their organisation, and it is expected that they will present a strong case for studio implementation. At the AGFBL, interests for the introduction of studio work at their faculty is very strong and, as a matter of fact, one of the capacity building applications will be based upon that concept at this institution.</p>	<p><i>Establishing research groups in topics of energy and sustainability and establishing a research base at the Universities of Sarajevo and Banja Luka, based at the Faculty of Architecture research institutions.</i></p> <p>The established research groups consisting of teaching staff that were involved with both HERD and GIZ project related to energy efficiency and sustainability have produced tangible results. As a result of the research activities, in November 2016, HERD_A conference was organised in Sarajevo, where research papers were presented by 19 contributing authors and published in “Metamorphosis of architectural education in (post) transitional context” (ISBN 978-9958-691-49-2). A group of 10 authors from the University of Sarajevo and the University of Banja Luka that were involved in an EE project by BIZ, delivered a book entitled “Typology of Residential Buildings in Bosnia and Herzegovina” (ISBN: 978-9958-691-50-8) and the results now serve as a basis for further scientific research.</p>	<p><i>50% involved staff, professors and students in the project will be female.</i></p> <p>Prerequisites that the 50% involved staff, professors and students in the project will be female has been met. Furthermore, due to the total number of female students that are enrolled into elective courses, this percentage is much higher.</p>	<p><i>Developing new courses, upgrading curriculum structures within the field of energy efficiency and sustainability for each BiH faculty. New courses will be realised within the existing Master programmes at each BiH faculty .</i></p> <p><i>New programme manuals for the existing courses will be developed.</i></p> <p><i>Developing capacity for submitting joint international research and project proposals.</i></p> <p>Altogether, 81 students attended 5 elective studios which were established through the HERD programme and “HERD programme has made a significant change towards the development of a new curriculum at the Faculty of Architecture in Sarajevo” (Burazor, HAS THE HERD PROGRAMME MADE A SIGNIFICANT CHANGE TOWARDS DEVELOPMENT OF A NEW CURRICULUM AT THE FACULTY OF ARCHITECTURE IN SARAJEVO?, 2016, p. 22)</p>	<p><i>The project presentation and dissemination to wider regional public - architectural practice, education, industry, administrative social institutions (through 1 conference, 2 workshops, 1 prototype building, exhibitions, publications, web page, media appearances)</i></p> <p>Guest lecturers from other faculties, government institutions, building companies and architectural offices were involved in courses which will ensure a better project presentation and dissemination to wider regional public.</p> <p>Conducted activities were promoted at various events and were covered by the media. Student work was presented in the form of an exhibition and the conference publication is listed on the web page¹⁷ of the AFS and distributed to the University and National Library of BiH.</p>

17 http://af.unsa.ba/pdf/publikacije/metamorphosis_of_architectural_education.php

The Final Report

In the final report, there was a need to provide more detailed explanations on the fulfilment of the main project goals.

The two main goals for HERD/energy are as follows:

Institutional development: HERD/energy shall help educate a national workforce who has the competence to find innovative solutions in the energy sector by building up sustainable capacity at higher education institutions in the Western Balkans.

More than 80% of all architects in Bosnia and Herzegovina graduate from the two public institutions: Faculty of Architecture in Sarajevo and Faculty of Architecture, Civil Engineering and Geodesy from Banja Luka. Therefore, institutional development at those HE institutions has the biggest impact on the national workforce in terms of the transfer of knowledge and acquirement of required competences and skills.

“The HERD programme offered a platform to try out possible models of overcoming the shortcomings at AFS. At most, 48% of students in a semester were influenced by the changes in the curriculum. HERD elective studios offered an alternative to the existing subjects and in terms of content that change amounts to 69%. The overall change of the curriculum in the master course is 20%, which is a significant change if we consider that a 25% change in a curriculum amounts to a new curriculum.” (Burazor, HAS THE HERD PROGRAMME MADE A SIGNIFICANT CHANGE TOWARDS DEVELOPMENT OF A NEW CURRICULUM AT THE FACULTY OF ARCHITECTURE IN SARAJEVO?, 2016, pp. 20-21)

Applied research and development: HERD/energy shall stimulate innovation and product development in the energy sector through support for applied research in the Western Balkans.

Influence of the HERD energy programme on research can be traced directly to the academic staff involvement in a comprehensive, strategical, national scale recommendations on energy efficiency measures in housing. Teachers, who are not primarily dealing with energy efficiency and sustainability themes, participated in the related activities that increased their knowledge. Owing to the prior HERD energy programme at the Faculty of Mechanical Engineering in Sarajevo, a training programme for energy audits and energy certification of facilities was organised with participation of teachers and assistants from the AFS. Upon completion of this course in 2014, three teachers from the Department of Design were awarded certificates. Two of them were further engaged in energy themes in housing together with a senior teaching assistant from the same department, as part of a team working on a project entitled National building typology in BiH. This project, backed by the German Organisation for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit - GIZ GmbH), relies on the academic staff from both faculties of architecture in Sarajevo and Banja Luka, as well as from the faculties of mechanical engineering in those two cities.

Presented results show that, on the national scale, it is possible to reduce the energy needed for heating by 55.23% when introducing standard improvement measures for envelopes of the existing residential buildings (Arnautović-Aksić, et al., 2016). With the non-standard measures, this percentage is even higher, measuring at 69.07%. The recommendations that were outlined, form the solid basis for all further research on EE in housing. In addition, the programme document states that the following elements shall be emphasised by allocating funds:

- Long-term Partnership and Avoidance of a Fragmented Project Portfolio

As a result of the HERD cooperation between the NTNU, AFS and AGGFBL, a successful application for

the ERASMUS+ mobility programme was submitted, and this is just one of the means to continue joint ventures. The established professional relationships between the academic staff and their cooperation in publishing research papers, are another guarantee in a lasting, long-term partnership. The HERD programme facilitated a collaboration between staff from different departments within the AFS, and this served as a prevention method for the project portfolio fragmentation. The results were communicated between different groups, and therefore dissemination of results had a far reaching impact.

- Academic Quality

The HERD programme is responsible for a systematic integration of different subjects into studios under the umbrella of energy efficiency. Studio work was (re) introduced and the HERD programme is responsible for the motivation of the teaching staff in making additional efforts to create new content. Teachers and teaching assistants from different departments collaborated in those studios in numbers previously unseen in the history of the AFS. Challenges that teachers had to surmount, and the results achieved now serve as a base on how to treat the entire curriculum for both bachelor and master courses. The HERD programme has influenced both students and the teaching staff. It supported activities related to an exchange of teaching experience, collaboration in research, study visits and dissemination of research results.

- Synergies with other Norwegian-funded Initiatives

Due to a successful completion of the training programme at the Faculty of Mechanical Engineering in Sarajevo which was partially funded by Norwegian government, teachers from the AFS participated at other training modules as lecturers. Another project, which was conducted at the Burch University in Sarajevo, involved a Norwegian teacher who conducted lectures and participated in an architectural forum.

- Equality

Any member of the AFS academic staff had equal opportunity to participate in HERD-related activities based on the expressed interest. All students were offered elective subjects and for those who enrolled, different activities were presented based on their academic achievements. More than half of involved staff, professors and students were female. Furthermore, due to the total number of female students that were enrolled into elective courses, this percentage is significantly higher.

- Inclusion of Minorities

Since this was a HE programme and the focus was on the already-enrolled students and academic staff, the question of inclusion of minorities was not relevant. Students are representing different ethnic backgrounds and were integrated equally in all activities.

- Sustainability

HERD elective studios are now part of the curriculum at the Faculty of Architecture in Sarajevo. *“In February 2016, a Committee for Curriculum Change and Amendment was appointed at the Faculty of Architecture in Sarajevo. It consists of one representative from each department, one representative of senior teaching assistants and assistants, one student representative and vice dean for student affairs. Six out of eleven members of this commission were, at some point, involved with the HERD activities, whether through participation in studios or their organisation. This information is significant in terms of discussions related to the introduction of studios as obligatory in Bachelor and Master Courses. For the personnel involved in the HERD elective studios, their insights into the advantages of work in studios, as well as identified difficulties in work processes, will prove valuable in suggesting solutions. Reducing the number of subjects and integrating related study material into studios is seen as a way forward.”* (Burazor, HAS THE HERD PROGRAMME MADE A SIGNIFICANT CHANGE TOWARDS DEVELOPMENT OF A NEW CURRICULUM AT THE FACULTY OF ARCHITECTURE IN SARAJEVO?, 2016,

p. 21). This way, the legacy of the HERD programme will be embedded in future curriculum at AFS.

- Regional Cooperation

The project tried to link up with the HERD Kosovo project in the beginning, and established some basic links. The focus was more on fostering the network between the two main universities in Sarajevo and Banja Luka, which represent a wide stretch over the region.

- Business Cooperation with Norwegian or International Players

As mentioned before, a close link to GIZ was established. Part of the ongoing discussion on further cooperation (also a possible application for a project financed by the European Commission) between the involved parties is a close link to for example the “Wood industry”. This will be followed up closely.

- Environmental Effect

A major part of this project was related to re- and new-thinking of architecture and urbanism, which of course closely relates to the use of resources in and from our environment; passively and actively. The main positive effect on the environment is the discussion and change in the mind-set of the participants with regards to these questions. In the project, materials were bought and reused concisely and with a life-cycle thinking.

- Inclusion of Young Academics / Researchers

In teaching activities at the AFS 10 assistants were engaged in the HERD-related activities. At the HERD_A 2016 conference organised in Sarajevo, research papers were presented and out of 19 contributing authors, 7 of them were teaching assistants. These figures show that the inclusion of young academics was well balanced.

External Review of HERD

In June 2015, advisory and consulting group – Scanteam, was asked by the Norwegian Ministry of Foreign Affairs to assess the programmes in higher education, research and development (HERD) in the Western Balkans that it funds. In this connection, a number of interviews¹⁸ were conducted with students and teachers regarding their views and experiences with those parts of the HERD programme they were familiar with. All interviews were confidential and for that reason here only brief answers to questions answered by one of the authors are presented.

Relevance:

- Did your project address a relevant need in your/ your partner institution? *YES! EE topics are mainly treated by mechanical engineers at our University.*
- How was this priority established (are there any formal decisions by the local institution that lie behind this claim)? *NO*
- Apart from the individuals directly engaged in the project, are others at your university/ institution interested in this project? If so, in what way? *YES. The Faculty of Civil Engineering*

18 Dr. Rada Čahtarević, Dean, Faculty of Architecture, Energy
 Dr. Neriman Rustempašić, Vice-Dean, Academic, Faculty of Architecture, Energy
 Dr. Dženana Bijedić, Vice-Dean, International Relations, Faculty of Architecture, Energy
 Dr. Mladen Borazor, Assistant Professor, Faculty of Architecture, Energy
 Senka Ibrišimbegović, MA, Senior Teaching Assistant, Faculty of Architecture, Energy
 Ms. Emina Alić, first year MA student, Faculty of Architecture, Energy
 Ms. Irina Bošnjak, first year MA student, Faculty of Architecture, Energy

with their courses (as an inseparable part of architecture) are interested in collaboration.

- Has the management of your university/ institution been involved and supportive of this project? In what ways have they shown support? *YES.*
- Are there other donors funding projects in the same field? Who? How does the HERD project fit into this larger project portfolio? *YES. GIZ (HERD helps in building the academic structure)*
- In what ways does this project address the relevant needs in-country? What are the arguments for funding this project compared with other projects in this field? *Other projects are addressing one-specific need. The HERD project helps in creating a long-lasting academic structure that affects generations of students.*

Results Achieved:

- What are the key results produced by the project?
 - How do they compare with the original plans?
 - What do you see as the main causes for the positive results?
- Are there important shortcomings compared with the original plans?
 - If so, what caused the shortfalls?
- Have any of the results come about because of cooperation with other funding sources (EU, other donors, other national actors)? If so, which ones, and how did the cooperation contribute?

Efficiency:

- Have relations to your cooperation partner been predictable, transparent? *YES.*
- Have you been able to access the resources promised in a time-efficient and cost-efficient manner? If not, what have been the hurdles? *YES - but significant delay was caused from the UNSA and AFS side because of the integration process at the university which prolonged signing of the contract.*
- Have the reporting requirements been reasonable, given the size of the project? *YES.*
- Has the Norwegian partner contributed to the quality of the project? In what ways? *YES! By providing support for our students/teachers in the exchange part. Providing guidance through structuring.*
- Has the overall management of the project been good, transparent, efficient? If there have been issues in this field, what were they?
- Does the management of the overall programme appear good, transparent, efficient? If there have been issues in this field, what were they?

Effectiveness:

- In what areas do you see that the project has provided innovations/new approaches that are useful to your institution? *Introduction of studio work and collaboration between teachers on the same student projects. Better relations between colleagues based on mutual respect...*
- In what areas do you see that the project has provided innovations/new approaches that are useful to your research? *With this form of collaboration, new or unknown topics can be explored for the benefit of teachers and students (GIS tools, for instance).*

- In what areas do you see that the project has provided innovations/new approaches that are useful to business and employment? What are the documented effects that you can point to? *Students have a better understanding of the workflow in real life situations and learn how to tackle problems on an interdisciplinary level.*
- In what ways has the project contributed to improving skills at the national labour market? What are the documented effects that you can point to?
- Has this project strengthened your relationships with other research-based institutions in the region? If so, in what ways?
- Has the project contributed to gender equality? What are the documented effects that you can point to? *Male students are a minority!?*
- Has the project contributed to enhance participation of ethnic minorities? What are the documented effects that you can point to? *NO.*

Sustainability:

- Are the two parties (Norwegian and the Western Balkans-based) interested in continuing the collaboration after this project funding ends? In what ways is this likely to happen? *YES. Joined papers/books, reviews, proposals of new projects and joint applications.*
- Is this project important compared to other projects in your faculty/university/ institution? *YES. The number of teaching personnel is the greatest on this project.*
- Will the activities initiated under the HERD programme continue at the local institution? *YES. As part of the curriculum. HERD ideas are now integrated in the curriculum.*
 - If so, will this have to be funded by other external sources (EU,)?

- Is this area likely to be funded by own funds (state budget, university budget)?

The actual questions asked during our conversation will depend on which areas you feel comfortable addressing.

In the Scanteam report we find further evidence that students and teachers were satisfied with the proposed curriculum and structural changes: *“Possibilities for a regional interaction and learning are being further strengthened through the establishment of multi-media learning centres at the participating universities. This will allow for a formal distance learning – using professors from different universities in the region, from NTNU and elsewhere – but also host student workshops that will allow for joint projects across the region, something that is also generating excitement. A similar approach to how students learn is being used at Sarajevo School of Architecture. Instead of doing a series of stand-alone modules, students are now given the option of a more long-term “studio” where they have to work on a real issue, such as the development of a Sarajevo neighbourhood. Students and teachers found this very stimulating and something they would like to generalise.”* (Disch, Crasto, Komlossyová, & Tønnesen, 2015)

How did Learning Work?

A number of activities were organised for students and therefore it was essential to receive their feedback. On the other hand, the teachings staff's insights were also valuable in deducing how successful the programme was. Here we reflect on students' and teachers' impressions and observations.

Students' Reflections

In October 2017, we conducted an in-depth questionnaire with 12 students from all three partner institutions asking them to reflect on the joint activities. In the Appendix section (Students' Review of HERD Activities, p. 112), their responses are recorded in an anonymous form and organised into a table in accordance to each question. Those answers are students' own reflections on the learning processes and outcomes. First hand observations helped us gain a better insight into the students' experience, which was our intention when looking for feedback. In this section, we only wish to summarise the general notion surrounding the elective courses, live projects and exchange workshops.

- a) Modes of teaching are an important part of the educational process, so with the question: "**How did the live studio approach work for you?**", we wanted to know wheatear students thought it was a good way of learning and if there were some setbacks. We learned that depending on the study year, one can expect a different level of "enthusiasm". For those that participated for the first time, for obvious reasons, this was well accepted (since they did not have any previous reference points). This is, however, important for further activities, since one can "rely" on the enthusiasm of students to achieve good results. All students, in their way, complimented this mode of acquiring knowledge.
- b) Cultural differences can affect cooperation and with the question "**Was there a difference in working together with different colleagues (foreign/ domestic)?**" we wanted to learn how different is working alongside colleagues from home institutions compared to the foreigners. The crucial component for any form of joint activities is language. Students pointed out how important this was for communicating ideas (aside making drawings) and making something together. Difference in (pre)knowledge showed that this can be a challenge when working with different study years. For others, there was no obvious difference, which can mean that there are universal values that exist among the students of architecture, regardless of their background.
- c) In urban planning and architectural design, being exposed to different regional/climatic settings requires a suitable response to those conditions. Thus, the question: "**Did you learn or understand mutual dependencies of the different parts in architecture to each other? (e.g. housing typology is dependent on the location, prices, size of family; building material is dependent on climate...)**" was aiming to find out how much students recognised these links. It is expected that students are aware of those links but at the same time, students acquire knowledge primarily based on their own experience within a country where they live and work. Designing buildings for other parts of the world, requires this kind of understanding. An interesting point for discussion, which one of the students has brought up, is the difference in building materials used in housing. Bosnia and Herzegovina is characterised by continental climate, with temperatures oscillating from -25°C to +45°C throughout the seasons. Even though it has a good stock of timber, wood as a building material is used only for roof constructions, openings (doors and windows), and flooring. Traditionally, in housing, especially for exterior cladding, natural wood is not used, unlike in Norway.

- d) In addition to the already-posed question on collaboration between students, specific differences were identified, such as building experience, design approach and work ethics in a response to **“Was there a difference in working together with foreign or domestic colleagues? If so, name it.”**
- e) For students, taking initiative in organising events can be an intimidating task. Through the education system, they are guided by their teachers and they rely on them to intervene if necessary. But, when faced with a responsibility to handle organisation of cooperation events on an international scale, it is safe to assume that it is the most challenging task for many. Skills are required to successfully organise work. Those skills are exactly the same that most architects acquire once they begin with practice. At the same time, those skills go beyond the architectural profession and they are necessary for social interaction. When answering the question **“What new did you have to learn regarding organising matters?”** students pointed out the importance of communication between peers and establishing a decision-making procedure. Together with the delegating work comes the responsibility on a personal level for his/her own obligations and responsibility towards the team.
- f) In the responses to the question **“What where the main contextual challenges (local municipality, climate, socio-cultural differences)?”**, socio-cultural differences were rated as the main contextual challenge. Adopting to the local climate and different building practice and legislation were also points of diversity that required time to accommodate to.
- g) When discussing cooperation with other people **“How did the cooperation with other people (with different culture and language) work? What was the main asset and difficulty?”**. Language as a form of communication is one of the greatest limitations if there are difficulties conveying a message to others. Differences themselves for some were perceived as advantages because they lead to different ideas and results. Although today’s technical infrastructure such as satellite images, a close-up overview of the site with drone surveying, live video sharing, collaborative drawing tools, is very helpful, perceiving the context, i.e. being on site is still very important for an architect before proceeding with the design task. When organising the construction projects, visits to the site and face-to-face communication should occur in initial stages.
- h) From the viewpoint of the modes of teaching, it was important to receive a feedback on: **“How do you feel that you were prepared for the work (through you education so far)? Compare your situation before and after.”** Students from Norway which had participated in previous workshops and the live build project, felt prepared based on the gained experience, but there are others that did not have those opportunities and found collaboration as a significant means of increasing confidence and knowledge. Furthermore, even those that participated in the previous workshops had found additional value in collaborative tasks with students from BiH.
- i) When conceiving the HERD application theme, energy efficiency was embedded into urban planning and architecture core. In two instances, a respond to: **“What new field of knowledge did they gain (that you did not have before)?”** led to sustainability issues in relation to regional/ climatic setting. For others, organisational questions were the main fields of improvement. A holistic approach to urban planning and architecture in education versus specialisation was another point of entwine in the application. One of the students pointed this out admitting that this was the first time to cover everything from planning to building on a single project.

- j) From the students' answers on "**What was the main challenge (overall)?**", one can devise three main points that were most challenging for them. Firstly, there were management issues such as scheduling, planning and allocating the work force, secondly there was communication issue in terms of using a foreign language to communicate ideas and work with new people. The third point is related to personality and one's ability to accept new ideas and (work) culture and adopt to the given setting.
- k) In a survey, a very important question was the financing part. It is important for project managers to know whether a specific activity heavily relies on the financing or if it can be "effort-driven" regardless of the financial part. Answers to the question: "**Would you repeat the same without financing? Why or not?**" showed that most students would consider participating in similar activities even without allocated funds. This is perhaps more true for students from Norway, who on the onset possess financial means than compared to the Bosnian students. But, in either case, getting involved on a local community project, which does not require additional travel costs, appears to be an attainable task. This conclusion is supported by numerous discussions with students who do not mind investing their time and labour into projects they can benefit from in ways other than financially (e.g. increased knowledge or appreciation by users and professionals).
- l) A feedback, both positive and negative, is important for the planning of new activities, and the question: "**What could have improved the situation and your involvement?**" aimed to reveal points of improvement. Here we can recognise institutional involvement and personal responsibility. For some, presence of the teaching staff or partitioning architects is welcomed and this can be related to the previous answers about the need for guidance and an authority figure. Since the general idea was for the students to organise themselves, institutional involvement was vaguely present, and all responsibility was transferred to them, which meant that they had to deal with more obligations than usual. However, one cannot claim that the cooperation between students would have been better if it had been organised by teaching staff. After all, one of the goals of joint activities was not to "shield" students from, but to expose them to real life tasks.
- m) A general conclusion, that can be drawn, from the answers to the question: "**What did you learn and did you apply the learned afterwards (in private life, work, academic matters, etc.)**" is that all students recognise an increase in social intelligence. They see benefits for cooperation in teams and being exposed to other cultures. Problem solving techniques and presentation skills come into focus when working together in a group because of the difference in opinions. Social interactions is therefore important in order to reach a common goal. Claiming ownership over joint activities, in the sense that everybody really participates and gives their share in achieving the ultimate, common goal, is an important task. Other students thought-out joint building activities, improved their practical building skills.
- n) Interaction between students revealed different approaches in tackling architectural issues which can be associated to the school influence or cultural predispositions. Students were exposed to collaborative studios, workshops and practical tasks which are somehow different from the "classical" modes of learning. For this reason, it was important to learn: "**What was the difference in experienced ways and modes of learning?**". The traditional form of evaluation in terms of grading was replaced with public appreciation in some activities. For the students accustomed to receiving grades from an early age this was a close encounter to what they can expect once they begin practising architecture.

- o) It does not come as a surprise that all students responded positively to the question: “**Did this experience help you in linking your knowledge to the reality or different subjects?**”. After all, in an educational process, it is expected that students link what they learn to real life tasks and build upon the existing knowledge. Teaching others and learning from others is always a rewarding process because it reflects on the personal growth. For any student that participated in the HERD programme, the activities represent a reference point in comparison to previous and future endeavours. In either case, there are recognisable strengths as well as weaknesses which have to be taken into account. One of the students has summarised it as follows:

“I think the key is putting energy into finding a truly interesting site with a context and a very clear distribution of responsibility. Trestykker and Hurtigpraksis for example survive on their popularity, quality and word of mouth – If it’s exciting enough that the next year students want to take over the workshop. At the same time, the students want to top the projects from the year before and can work seriously on preparations ahead. A very clear structure and imminent responsibility occurs. In that sense that’s the biggest difference.

The result here is we were presented with a task and context that didn’t feel like make or break in any way and has become sort of “something to do” personally. I say this having organised a student-run architecture workshop after. HERD was more of a cultural exchange in my eyes, than an architectural workshop driven by the importance of the work and activities.” (Burazor & Schwai, Student evaluation of HERD activities, 2017)

A more general conclusion on the importance of 1 to 1 projects and learned lessons can be deduced from the following reflection: “*In the end, it is necessary to emphasise the value of such design & build projects for*

students of architectural and related faculties, since in this way students are going through the whole process from the beginning of the idea, development of the design, organisation of the construction process itself to the final realisation. In doing so, through collaboration with students from other faculties (and other cultural backgrounds), they become acquainted with different approaches in their work, different experiences, overcoming possible communication problems, and gain invaluable new contacts and friendships that could in the future generate new projects worth mentioning.” (Alić, 2017)

On a scale from one to five (1-Poor; 2-Fair; 3-Average; 4-Good; 5-Excellent), 50% of students graded student activities as “good” and 41,7% gave them the highest score. These results support the general notion that student activities were purposeful and well accepted.

Teachers’ Reflections

In January 2018, we collected responses from the academic staff at the AFS which organised and participated in HERD elective courses. Only 6 questions were posed which was enough to capture the essence of collaboration impressions and areas of improvement. Here is the outline of the teacher’s perspectives (Teachers’ Review of HERD Studios, p. 117).

Some of the identified challenges in the process of making new studios were: reluctance to make an additional effort required to create them, fear of losing autonomy and the clash of views (Burazor, Schwai, Zagora, & Ibrišimbegović, 2016, p. 17).

- a. Once the studios were established, other challenges appeared and the question “**In cooperating with other colleagues (in a new setting for running those courses), what would you say were the biggest challenges and what was the main gain of this**

- collaboration? (administrative, content, social, ...)**” was posed in order to pinpoint the difficulties. Based on the answers, there were no significant difficulties apart of those of technical nature which are anyway present with other subjects. The major gain or advantage of collaboration was the interaction with other colleagues which may not always produce a tangible result and is more along the lines of self-development.
- b. In terms of the evaluation of the established courses and whether that collaborative approach should be further implemented, the most important question was: **“Do you see improvement in the students learning, as a result of running this new structure? If yes, which?”** All received answers were affirmative and, furthermore, all of the initially identified shortcomings that were the reasons for a change in the first place seemed to be improved. The workload was optimal, students were motivated and encouraged to see the “bigger picture” and, in the end, after receiving a feedback from several staff members, their confidence increased.
 - c. Again, in the evaluation process, an important feedback is whether there is enough interest to continue with the tested modes of learning. If the answer to the question **“Do you continue to use this collaborative approach or parts of it?”** is negative, then shortcomings have not been resolved. Since all answers were affirmative, it is safe to assume that the collaborative approach brought qualities worth further pursuing.
 - d. Institutional and administrative support are important to foster any change at HEI. In a response to the question **“What else would have been needed to improve your performance and/or the students learning?”**, financial aspects were named as means of improving work. Mainly, this is related to the prototype materials, equipment and travel costs.
 - e. From the answers to the question **“To enforce the holistic part of this approach, meaning the cooperation and dependency of the different subjects to each other, or the pedagogical approach in itself; do you think you could improve by external or additional support? (fresh-up courses, seminars, update in contemporary development, ...)”** one can recognise willingness and the need to engage in further pedagogical activities dedicated to improving teaching skills.
 - f. When planning further activities, it is important to know what type of academic activities most of the staff prefer and use in the application preparations. This was the “hidden agenda” behind the question: **“What do you think is the best and easiest way of collaborating with foreign colleagues and why? (in terms of time use - least effort, language wise, socio-cultural aspects) e.g. joint courses, workshops, paper writing...”** Answers only confirmed that all of the activities outlined in the HERD programme were, from the point of view of the staff, the best way of collaborating.
- On a scale from one to five (1-Poor; 2-Fair; 3-Average; 4-Good; 5-Excellent), 41,7% of teaching staff graded the cooperation in the “HERD studio” as “good” and 57,1% gave the highest score. These results show that, overall, the academic staff was satisfied with their involvement and the involvement of their colleagues.



D

Lessons Learned

D. Lessons Learned

Lessons learned are directly linked to the occurring challenges during the application and implementation stages. Most themes are related to administrative and organisational issues. In the discussion part of the book, most of these challenges were identified and described, but when it comes to structural issues at HEI, it is interesting to realise that “mistakes” are being repeated from one to the next project. More than 12 years ago, staff from the AFS, while working on another project, noted the following: “... *the decision-making process had to have a plenum approach. This method of work takes a lot of time, it generates various of communication between participants of the plenum, and it requires a strong leader within a team. So it was shown that the bottom-up approach only requires an enormous amount of time, and without the top-down part in the decision making, a programme and a plan, which will be for the benefit of all, including the public realm, cannot be produced.*” (Čengić, REFORMAE, 2006, p. 54). Now the question that one may ask is why did the staff at the AFS repeat the same “mistake” of the plenum concept with the HERD programme? The shortest answer is that it is not a mistake and could not have been successful had it been done differently. Imposing and enforcing decisions in the academia is seen as a non-democratic process of a very uncertain outcome. Academic staff take pride in their autonomy within their field of expertise and this is why the bottom-up

approach is more likely to produce results. For this very reason, changes have to be initiated and discussed by the individual teachers, and group them in a more formal “decision-making body” before presenting the case in front of the faculty council (as the official body). This, however, requires mutual acceptance from both parts that the space for discussion rests upon, the informal, and the juridical part at the faculty council. The respective themes and discussions have to be taken in the adequate forum.

It is very difficult to comment on the university structures and decision-making in different countries. The main point here is to highlight the importance of a certain project autonomy in financial and decision-making terms.

As pointed out earlier, another challenging point was and is the involvement of the academic staff in project activities. There is the motivation part, which is different from person to person, and then there is the dedication part. Motivation is a driving mechanism for each person to reach a goal in the project. However, if the “reward” is eliminated from the equation during the process, then it is difficult to keep the staff engaged until the end. An example is when academic staff is tempted with another project that appears during the implementation, and even at

the beginning of the project. Many wish to avoid a long-term commitment, but also: “*The experience is showing that the involvement of external participants has a direct influence on raising the level of responsibility of the local institutions, as well as individuals.*” (Čengić, REFORMAE, 2006, p. 55). This can be attributed to a fact that we tend to value other peoples’ opinions especially when they are objective and coming from persons with well-established references in the field.

The core of this book is about reflecting on an international project and we think it can be used as a positive side effect, although it should not undermine the local staff.

When dealing with programmes that last for several years, it is reasonable to anticipate the “unexpected” circumstances such as: change of the employment, research leave, pregnancy leave, sick leave or even death. Therefore, structural elements have to be flexible enough to accommodate those changing realities. Fortunately, during the HERD programme implementation there were no such serious difficulties, but there were special circumstances, easily explained with one example, the seminars on Jahorina and in Konjic. There, even after months of preparations, a day before the specific event, some of the local staff could not participate. This was also the case with the NTNU staff, when due to extreme weather conditions, planes could not land in Sarajevo and they returned home without attending the HERD conference.

We think this is a normal development and has therewith to be thought of when planning.

Another example of an administrative/legal challenge was the contract which was first signed in December 2014, almost at the end of the first year of implementation. A contract had to be approved on several levels and by the time it came back, we started another school year. This is unacceptable, but, at the same time, it seems unavoidable due to the complexity of procedures in BiH and has to be accounted for when preparing the groundwork (and in that respect when planning the timeframe).

It is important to highlight that although all European projects have eligibility descriptions of these preconditions, which are accepted and agreed on legally, the reality often looks different from the signed contracts on higher levels, meaning that very often the implemented and locally functioning structures “overrule” this legal framework on a day to day business.

On the topic of andragogy and emphasising the importance of learning how to teach, it is important to point out that many architects become members of the teaching staff in BiH straight after they finish university education. The issue here is that they usually do not have practical experience, nor training in andragogy. For many, learning how to teach is a self-proclaimed effort and it often is not financially supported by home institution. In this field, international cooperation on the programme can facilitate this process, not only for newcomers but also for more experienced staff. Ongoing education, lifelong learning, newest developments in related fields, those are all points of interest for the academic staff.

Evaluation of the curriculum, study content and methods have to be considered not only on declarative, but substantial level as well. Who should do this (externally and internally)? How often should it be done? Should the results be binding? How important are the questions each HI has to respond to? From the NTNU experience, the end-result consists of answers on how study programmes evolve and what needs to be changed first.

This is a contextual field. Nevertheless, do we highlight the importance of this evaluation process? In what way is it the local, e.g. Bosnian context? The context depends on the institution, but we see it as a precondition to improve learning activities and urge the local representatives to implement evaluation structures and processes.

Important Learning

Trying to resolve challenges leads to lessons learned, which can be broken down into three main sections: administrative, student and academic staff. However, those points of interest are mutually intertwined and mutually dependant, making them more difficult to separate. So, here are the main remarks on what the good practices are and what should be avoided.

- In order to engage the teaching staff into a project, it is very important to get them to know each other. Considerable effort has to be taken to organise social activities and allow enough time for the academic staff to get to know each other and identify common points of interest. Seminars, courses, excursions and similar activities organised away from home institutions (in order to eliminate every-day distractions) provide a good foundation for socialisation. This is also an important part when planning activities for staff not participating in the project proposal writing. Consider some open “slots” of time and finance.
- Timing of the activities, especially for the students, has to be well thought through. It is best to organise exchange events at the beginning of the semester or during the summer holiday (this again leads to another point, namely the comparison of the academic calendar). Placing them at the end of the semester, which is the climax of regular duties (hand-in assignments and exams) should be avoided because students are overstretched and physically and mentally exhausted.
- For the academic staff, a right balance of short-term and long-term commitments has to be created. There has to be enough flexibility to accommodate the situations when members of the academic staff take a leave from work (e.g. maternity leave, sabbatical, exchange opportunity). In the exchange part it is important to accommodate different possibilities in terms of the duration of exchange. For some of the academic staff, primarily younger generations, it is not a problem to leave the country for a longer period (even a semester), but for the other (mainly due to family obligations), even one week can be too much. Hence, based on the staff structure and their teaching duties, perhaps the best course of action is to have a more frequent exchange, but for a shorter period of time. This is supported by the fact that for most of the HE institutions in BiH, absence of a single person for a longer period is a serious challenge for the teaching process at home institution, due to understaffing. We think it is important to trigger the involved interests, then their time usage and flexibility will follow automatically.
- Depending on the structure of the projects, when it comes to student exchange, similar issues arise and they have to be discussed prior: whether it is best to send more students for a shorter period of time or only few but on full scholarships. The answer is in the nature of the respective international programme and whether the scientific component is strongly present. One example is to provide PhD candidates with the tools and other means of making a research. Our experience is that a long-term student exchange is dealt with through other programmes (Erasmus+ mobility, for example). It is also easier to deal with shorter exchanges in terms of student credits.
- It has to be ensured that the administrative personnel are allocated to the project, or time recourses freed, to deal with all the paper work and support the project coordinators. On a largescale project, it is crucial to designate the personnel for these different tasks and to train them in project planning. Very often, this is forgotten, due to too much focus being on scientific themes before others.

- Authority over the decision-making in a project has to be transferred to the project leader, or an external project steering group. It is extremely difficult to run a project on a day to day basis in a setting where one has to wait for a long time for an approval from councils, for instance, even for even the smallest change. Here, trust and common understanding of goals for an academic leadership and the single, involved employee is important.

Future Activities

Even before the current programme is finished, it is important to think about further activities which can support the already-established cooperation and build upon the accomplished results. During the latest phases of the HERD project, further steps were conducted in order to secure funding for the next projects. The most obvious source is the EU funding, such as Erasmus+ programmes, which support education, training, youth and sport. In general, there are two programmes for which partner institutions can apply, and this is to do with the capacity building at receiving parties and mobility of staff and students.

ERASMUS+ Mobility

In November 2016, based upon the initiative of the NTNU academic staff¹⁹ that participated in HERD activities, a series of meetings were organised in order to discuss an application for ERASMUS+ programmes. Prior to those official meetings, on behalf of the AFS, a 5 member-team²⁰ was formed with the task of engaging

in the preparatory activities. On behalf of the AGGFBL, there were 3 participants conveying their thoughts²¹.

After discussions and analysis of previous successful applications, several conclusions were drawn, most important being:

- Colleague Dženana Bijedić will, together with Senaida Halilović, be in charge of the application preparatory activities.
- The headline title is “Practice-based Research and Education”.
- The third partner from BiH is the “Džemal Bijedić” University, Mostar.
- It is proposed that the second partner from the EU be the Faculty of Architecture from Ljubljana and several proposals for a third partner will be set up after consultations with colleagues from Mostar and Slovenia.
- It was agreed that two applications will be made, first “Mobility” and second “Capacity Building”.
- The dynamics for completion of certain phases of the application has been made to comply with the application deadline in February 2017.

Those conclusions were presented in the form of a report submitted to the AFS dean to ensure that further steps are taken. In the beginning of 2017, the NTNU had applied for an Erasmus+ mobility grant as part of a plan to secure initial funds for the teaching staff exchange that will enable them to prepare further cooperative activities, as for example an Erasmus+ capacity building

Burazor, assistant professor, Dženana Bijedić, associate professor and senior teaching assistant Senaida Halilović and Emina Alić, MA.

19 Professor Hans Nerve Skotte, professor Steffen Wellinger and professor Markus Schwai.

20 AFS: Erdin Salihović, associate professor, Mladen

21 AGGFBL: Malina Čvoro, assistant professor, Darija Gajić, assistant professor, and Milica Malešević, senior teaching assistant

application. This is a more complex application and description, and involves more participating institutions. According to the CBHE Summary of 1st Call Results (ERASMUS+ presentation, 2016), average consortium size is 12 partners and an average budget being 880.000€, which indicates the complexity of the application content. The success rate for the Western Balkans region was 23%, showing the odds of possible securing funding (ERASMUS+ presentation, 2016).

ERASMUS+ mobility 2017-2018 application

With this short description, we will give the reader an introduction to the successful “mobility” application to the Erasmus+ programme, and also show the ongoing cooperation as a continuation of the already-initiated.

Partner institutions in Bosnia and Herzegovina are the University of Banja Luka (UBL) and the University of Sarajevo (UNSA), and the subject area for the proposed mobility project is architecture. The project will engage both academic staff and students of the involved faculties: Faculty of Architecture (AFS), Faculty of Architecture and Civil Engineering (AGGFBL) and Faculty of Architecture at NTNU.

The aim of the project is to enhance mutual knowledge generation through staff and student exchange. The project is meant to strengthen the already-existing collaboration between the NTNU and the Western Balkans.

The proposed mobility will create a new platform for exchanging approaches on teaching and understanding the contemporary development in architecture and urbanism in Bosnia and Herzegovina. Not only by transferring and replicating the high-tech and expensive solutions sought in Norway, but also through rethinking the way architecture and urban development is conceived and implemented and thus contextualised. This is meant to be done by fostering the existing contact and by establishing new partnerships between the involved institutions. The NTNU’s experience with the HERD programme has proved this to be possible.

University of Sarajevo has a long-lasting cooperation with dozens of universities around the globe and expects in due course *to intensify mobility and make it possible for students and members of staff to demonstrate their qualities on an international scale and to improve themselves through such contacts*²². International cooperation serves as a reliable platform for benchmarking between universities and hence help to identify possible points of improvement. This is why mobility programmes are amongst key features of a strategic action plan at the Faculty of Architecture in Sarajevo. Currently, there are three mobility programmes in place for this year, and positive effects of the international cooperation can be seen on several levels. Plans for further cooperation along the lines of capacity building are based upon the established relations between individuals and the first step in this process is to secure staff mobility.

The latest project between the involved partner universities (AFS), Sarajevo, NTNU, Trondheim and AGFBL, Banja Luka) is an ongoing activity (HERD/ Energy 2013-2016), and as mentioned under *F.1.1. Relevance of the Strategy*, the last activities will be finished during the spring of 2017. The overall objective for this project was and is to contribute towards a sustainable future by fostering attitudes, generating knowledge and applying modes of learning, recognising the impact of energy efficiency in architecture and urbanism. One central result of the HERD programme was a new and wider recognition of students’ capabilities and capacities, especially in the Balkan institutions. Hence, the importance in nurturing these also in future and to establish, implement and institutionalise new activities. The activities, which enable students to learn within and outside the curriculum, through for example, student-driven workshops and activities as student media.

²² http://unsa.ba/s/index.php?option=com_content&task=blogcategory&id=121&Itemid=176

ERASMUS+ Mobility 2017-2018 Results

Once the mobility grant was received, we were left with the challenge of how to implement. It is far from saying that the implementation plan was not thought-through, but was more along the lines of “lets cross that bridge once we come to it”. Additionally, what was applied for was not received and plans had to be adjusted. Out of 18 trips that were planned for the academic staff, only 6 were approved. Student exchange also came under funding cuts and the student scholarships came down from 32 to only 13.

A practical challenge that we faced immediately was linked to the duration of exchange of 3 months. For the students from Bosnia and Herzegovina, this period of time is too long, and they face a problem of losing the entire school year on the basis of missing classes. According to the faculty regulations for the students at the University of Sarajevo, they could only miss 3 lectures or practical classes (i.e. three weeks of absence) which meant that if they left country for three months they would fail the semester and, subsequently, the entire school year. This is a huge decision for students to make and could not be taken lightly. In order to solve this problem, we had to look for possibilities between curriculums which could provide us with solutions so that students could come to Norway, finish their obligations, receive the required 30 ECTS credits for the entire semester, and then return to Bosnia for the final

semester. In order to do this, we have to look at the study programmes and examine the specificities and find compatibility between the student programmes. The solution was that the professor at the NTNU will offer a subject with 15 ECTS credits which would be equivalent to some obligatory subject in Bosnia and Herzegovina, and the rest of the credits will come from the elective subjects.

The timeline of the student exchange had to be overlapped with the duration of the semester at both institutions, minimum duration of the exchange and the possibility to work together on a common assignment (Figure 29).

Alternative to this proposal appeared a few months afterwards when a decision at the AFS faculty council was passed to allow students to follow subjects “vertically” (i.e. from several years) instead only “horizontally” (within the same school year). This would allow foreign students to collect ECTS credits from different semesters based on their interests and availability of teachers that will make an extra effort to adopt to the English language.

From this mobility application, lessons learned were that one has to go beyond the general planning and engage into a more detailed planning to prevent overlaps. Second, there has to be enough flexibility in the case of not securing all the required funds.

1st month	2nd month		3rd month		4th month	5th month	6th month	
AUGUST	SEPTEMBER		OCTOBER		NOVEMBER	DECEMBER		JANUARY
	0,5 month NTNU	0,5 month NTNU	1 month NTNU	1 month NTNU			NTNU CLOSED	7. january starts
traineeship/ language	students meet	students meet	STUDENTS WORK TOGETHER AT AFS		1 month AFS students	1 month AFS students		1 month AFS

Figure 29 – Proposal for the student exchange realisation (Authors)

ERASMUS+ Capacity Building Ideas

A comparison between several Erasmus+ capacity building projects in the region shows that there is a need to improve the curriculum and many institutions are applying for the EU funding. It is important that the application goals are in line with regional and strategic direction of the ERASMUS+ capacity building and based on real needs. These three applications were analysed and served as a valuable input to discuss possibilities for application:

- a. “Creating the Network of Knowledge Labs for Sustainable and Resilient Environments / **KLABS**”
 - b. “Development of Master Curricula for Natural Disasters Risk Management in Western Balkans Countries / **NatRisk Web**”
 - c. “REady for BUSiness - Integrating and Validating Practical Entrepreneurship Skills in Engineering and ICT Studies” **REBUS**
- a. “Creating the Network of Knowledge Labs for Sustainable and Resilient Environments / **KLABS**”

In 2016, a proposal from the AGGFBL for the new master study programme was submitted to the Ministry of Education and Culture for the approval. The ministry subsequently formed a commission for licencing of the study programme, and this task was delegated to the AFS teachers²³. In relation to this chapter, there are two points of interest. The first is that this study programme is based on the international cooperation (facilitated by ERASMUS+ project), and the second one is the structure of ECTS credits thought the one-year programme (Figure 30).

²³ Erdin Salihović, PhD; Dženan Bijedić, PhD and Mladen Burazor, PhD.

This is another example of how international cooperation programme can facilitate the curriculum development in HE in the case of education architects and civil engineers. The main point of interest is the “*Integral design; architecture, city, landscape*”, and structure-wise there are general, obligatory and elective subjects (Arvanitidis, Aleksandra ; KLABS, 2016). These elective subjects are formed into “common” groups and have 9 ECTS credits. Here, parallel to the elective HERD studios can be easily drawn and based on the outcomes of the HERD studios, the proposed structure should guarantee a sound transfer of knowledge.

- b. “The Development of Master Curricula for Natural Disasters Risk Management in Western Balkan Countries / **NatRisk Web**”

This application was drawn as a response to flooding which occurred in the WB region, namely Croatia, Serbia and Bosnia and Herzegovina. In 2014, record flooding was recorded in BiH, causing severe damage and casualties. So, the wider objective of this project was education of experts for prevention and management of natural disasters in the Western Balkans (WB) region, according to the national and EU policies.

More specific goals were development and implementation of methodology for identification of natural disasters and prevention and subsequently dealing with consequences. This would lead to a new, advanced curricula for master’s studies in Natural Disasters Risk Management (NDRM). Third, the aim was to develop a training platform for the public sector and citizens to prepare them for the various natural disasters. University of Sarajevo, obliged to: “... *develop and implement new master study programme at the Faculty of Civil Engineering and participate in development and implementation of trainings in NDRM for citizens and public sector. Great contribution to the study of natural disasters can be given through studying the impact of urbanization and spatial planning to the built environment and the frequency of occurrence of natural disasters. In this regard, special attention will be paid to the use of modern techniques and tools in the*

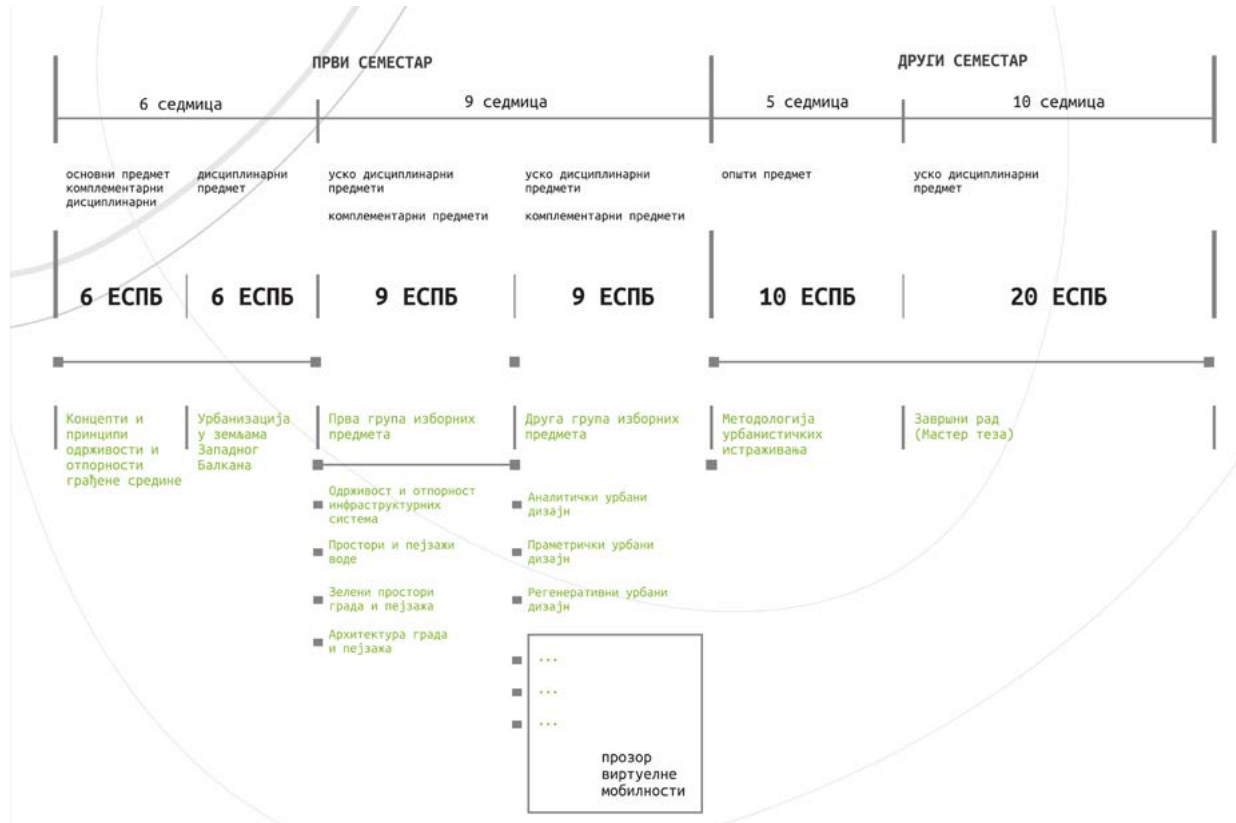


Figure 30 – ECTS structure of the proposed master course at AGGFBL – KLABS project (Arvanitidis, Aleksandra; KLABS, 2016)

teaching and learning process. Due to the frequency of floods, landslides and torrents, especially attention will be paid to exploration of the causes as well as methods of prevention and rehabilitation. Also, great importance will be given to the study of climate change impacts on water resources and the environment in general. The problem of earthquakes will be also part of the study programme.” (NatRisk WeB, 2015, p. 25)

- c. “REady for BUSiness - Integrating and Validating Practical Entrepreneurship Skills in Engineering and ICT Studies” **REBUS**

The Sarajevo Faculty of Mechanical Engineering was in charge of the preparations and submission of this project proposal on behalf of UNSA. The significance was that this was one of the first projects where UNSA was the project applicant and leading partner with the responsibility to manage the entire project and

report to the commission. The intention of the project was to enhance entrepreneurship competence and entrepreneurial attitudes of graduates of the ICT, engineering and other technical studies and project proposal was developed: “... based on recognized needs of the Western Balkan countries and Russia, where there is obvious preference towards public institution employments even within the most creative parts of the students’ population, that has high entrepreneurial potentials. The issue is discussed between several partners’ institutions and it was concluded that the same issue exists in all partnering countries and that it is strongly influencing slow development of local economies. That has born the idea to create a consortium with partners from developed EU countries included that would help in achieving major change in the countries’ orientation towards the entrepreneurship. It was commonly concluded that the universities need to gradually build own entrepreneurship dimension where the entrepreneurship mentality of their students has to be supported, orientation to provision of innovative goods and services needs to be included into the engineering courses curricula and business start-ups have to be encouraged.” (REBUS, 2015)

With the proposed “Practice-based Research and Education” project application (Future Activities, p. 103), the aim was to modernise HE in the form of linking theoretical and practical approaches in the process of improvement of the study curriculums and establishing an interaction between formal and practical education in the field of architecture and urban planning in the WB institutions. Specifically aiming at improving competences and capacity building of HEIs and alignment of their study programmes with the labour needs in WB countries. A lifelong learning platform was perceived as a solid base to achieve these goals.

Lifelong Learning

For a long time, there has been a need to introduce lifelong learning programmes at the AFS, but unfortunately, to date, we have no concrete results in this field. The need for this kind of additional education exists because there are several interested parties. There are architects who have graduated a long time ago and since then there has been a need for refinement or re-qualification due to work change. In addition to these, students from other faculties and art academies can expand their knowledge by attending LLL courses, and the teaching staff is obliged to constant training.

It needs to be emphasised that there is no common platform for the implementation of BIM in the educational system in BiH when it comes to the construction sector. The UNSA students, students at the faculties of construction, mechanical or electrical engineering, do not have a common subject to prepare for the implementation of the BIM²⁴ solutions in practice. For this reason, most of them do not use the advantages of BIM in practice, or if they do, then it is difficult for them to find colleagues from other professions that would be compatible with the process of drafting the project documentation. It is therefore necessary to devise a systemic solution that would still be subject to this type of collaboration in the phase of studies. Parallel to this process, older generations of engineers will have the opportunity to engage in current, global standards of design documentation through the LLL process.

As far as legal framework is concerned, in the current Law on Higher Education (Zakon o visokom obrazovanju KS, 2017, p. 2), there is a basis for the non-cyclical forms of education that are being carried out within the lifelong learning programme. Why does this process not happen by itself and why is the ERASMUS + or some other external financing aspect needed? The

answer is “capacity building” because it is necessary first to animate and provide free education to the faculty staff in order to create a “knowledge base” for dissemination to other users (students and staff from the real sector). In the forthcoming phase, when building the necessary infrastructure (equipment procurement and the teaching staff training), this process is then self-sustainable, because then LLL can be run on a commercial basis. A written proposal has been submitted for approval with an in-depth description of the “themes and subjects of education”, “necessary equipment”, “education area”, “staff” and the “budget”. The official application is yet to be completed.

Concluding Remarks

Our intention was to expose the reader to an entire process from the conception of an international cooperation programme until its completion. Most importantly, the aim was to point out all challenging aspects and discuss ways to overcome them. We see this book as an honest attempt to help any individual in higher education to prepare new and better projects. Gathered data, surveys, a series of interviews and the personal experience of the authors, substantiate the part of reflections on the passed activities.

This book covers all important segments of an international cooperation, which serve as empirical data. Observations, induction, deduction, testing, interviewing and evaluation methods were used to reach certain conclusions, but the most important one is that an international cooperation programme offers the best possible platform for the improvement of an HEI. Those programmes offer possibilities to obtain the necessary equipment, exchange staff and consequently, exchange knowledge and experience.

Also, on the regional level, they serve as a platform for further training of the academic staff and this all leads to capacity building at an HEI. For all the named reasons, HEI, especially those in the Western Balkans region should increase their efforts in preparing new applications.

This publication is the result of an ongoing process. We are very much aware of missing links/parts in evaluating architecture education. This is why we encourage the reader to make their own explorations, maybe based on the here written, but as an attempt to complete the knowledgebase.

APPENDIX

The Trondheim Workshop Questionnaire

Gender

Female Male

Age-group: 0-10 10-20 20-30 30-40
40-50 50-60 60+

Do you like to spend time in the OLAV TRYGGVASSONS
GATE (street) on a scale from 1 to 6, where 1 is very little
and 6 is very much?

5 6 1 2 3 4

What kind of transportation did you use to come here?

Bus Car Bicycle
Taxi Walking

What do you consider “negative” being in this street?

- Few trees
- Traffic noise
- Opening hours of the shops
- Little variation in activities
- Other: _____

What would make you use this street more?

- Better shopping possibilities

- Working place
- Coffee shops
- Green areas nearby
- Better transportation system
- Playgrounds
- Art installations
- Other: _____

What is your favourite place/ area in the centre of
Trondheim?

Mark your place on the map and write some
words about the reason.

What do you think will make more people move to the
city centre (of Trondheim)?

- More public places
- Safer streets
- Lower prices
- More schools and kindergartens
- Other: _____

Students' Review of HERD Activities

SYSTEMATISED RESULTS OF THE IN-DEPTH QUESTIONING

How did the live studio approach work for you?

It was my first studio during the study, it works very well, it was an excellent way of learning.

For me it was like practical extension of all things that i was learning in arch school

A vague question.

Motivating and very interesting.

The live studio workshops gave us a lot of challenges. Solving them together and learning to understand the system of another area of the world was quite difficult, but then we also learned a lot about practical problem solving.

Good.

I think it was a great learning experience.

A new mode of cooperation with an interesting way in terms of destination.

A beautiful experience,

I find Live Studio and workshops in general to be a good way to distance yourself from the everyday life of the university and reflect on the profession we are studying for. There is a sort of urgency to keeping a schedule and building on site. It teaches you to make quicker decisions and to prioritise smarter.

Good.

Was there a difference in working together with different colleagues (foreign/ domestic)?

I didn't see a big difference between working with foreign or domestic colleagues. There were some language barriers, but only because I don't feel too comfortable talking in English and explaining my thoughts and ideas in a foreign language. We all approach architecture the same way.

No.

Not at all! It was like a very nice fusion of all our differences and similarities.

Yes, the language and distance in the first period did give some challenges.

There was no difference.

Different people have different approaches to given tasks. In this way we can learn by each other and become better architects. Learning about other cultures always is a good approach to make architecture, as it expands the way of thinking about the given tasks.

We had some communication problems as we were trying to work together while being in different countries.

Yes, it was very clear that the foreign students had very little experience with tools and that their approach to both learning how to use them and working hard in general was not as implemented as amongst the domestic students attending the workshop.

Different but challenging.

Not really.

I personally enjoy being placed in a group that you don't pick yourself. It's more reflective of the job market, with the exception of starting your own office. The university has a tendency to have a certain group of people working together throughout the years, so I really value when groups are mixed up.

Essentially everything was the same. Maybe the difference in lifestyle.

Did you learn or understand the mutual dependencies of the different parts in architecture to each other (e.g. housing typology is dependent on location, prices, size of family; building material is dependent on climate...)?

Knowledge about the location is very important when designing anything.

Yes.

We had a very quality insight on this topic... especially how building materials depend on different climate zones, or how housing typology changes when it comes to cultural differences.

Yes.

Yes.

Making architecture always depends on the relationship to the building environment.

Norway has a climate that allows, and a culture of, building in wood, and can therefore, learn domestic cultures about this way of building.

On the other hand, Bosnians have a much warmer climate, and the culture of building therefore gives more massive structures, which Norwegians could have learned more about.

Then there was the practicality of making a workshop together, and by the given time we had to approach the workshop in a practical way. It would have been great to have had some more time, and really investigate the possibilities of different structures in a given environment.

Yes, to some extent.

Partly maybe, but this isn't what comes to mind first when reflecting over the workshop I attended.

I learn and understand but saw in person what are the differences.

Yes, that was always clear to us I think even before the workshop.

Yes (the answer to the first question) and no (with regards to the things like housing typology and prices).

Not everything, but a lot of fundamentals.

Was there a difference in working together with foreign or domestic colleagues? If so, name it.

No.

Not at all! It was like a very nice fusion of all our differences and similarities.

As mentioned. Yes. Language and distance. Later, when together, culture too.

Norwegian students have a more practical approach to designing, while Bosnians have a more esthetical way of approaching the design.

As mentioned before.

I have already answered this question.

There is a difference in the approach, but nothing that would limit us.

Yes, the main difference is in thinking, approach and the concept itself. But that is the thing that I've learned the most, to communicate with colleagues of opposite opinions.

Cultural differences in communication and "warmth" are one aspect. Another is that the different schools, as expected, have different backgrounds and focus areas. The NTNU students had the upper hand when it came to the building experience.

When they work then they work.

What new did you have to learn regarding the organisational matters?

Keeping track of everything, delegating the responsibilities and keeping track of the accounting.

How to work with

Co-working, being part of a TEAM, I learned to find a better solution through discussions.

How to plan well in advance and that Skype is not always your good friend.

It is important to have a more experienced colleague in team.

A whole lot. Norwegians seem to have a more "democratic" approach to making decisions, while Bosnians try to discuss and sell their way of doing things. It is very important to have some decision makers in the team, like organising the workshop with someone that can pull the strings and make decisions in order to get things done.

We had to try to find a way to cooperate in the design process using technological solutions as we were not at the same location physically.

It matters a lot! We didn't really succeed in my opinion. Too many opinions and no "final decision-maker" was a problem almost every day.

Organisation is the reason why you enter into such workshops.

Not much, our task was pretty practical, so the main thing was building a good communication between our teammates.

The more you organise the more you get prepared for possible problems that come up. It's mostly becoming more self-assured and assertive.

To keep a focus point. To use time more effectively. To work with more people.

What where the main contextual challenges (local municipality, climate, socio-cultural differences)?

Not enough knowledge about the site, and not being able to visit the site during the planning. Socio-cultural differences.

For me, the main contextual challenges were climate, socio-cultural differences, but I find the feedback from public (citizens) really positive.

Socio-cultural.

I find socio-cultural differences a bit challenging.

One challenge is that things that have to go through local municipalities take a lot of

time. Building a temporary structure doesn't require that much of the life span of the built environment but has another approach to the functions (making shading for sun, and a place to stay, etc.).

Socio-cultural differences when it came to organisation and working methods.

Socio-cultural differences, in the sense that the local guys' expectations, was quite different than ours.

Every situation was a challenge for itself.

Conceptual thinking.

Probably climate. Coincidentally Norway was very cold and Sarajevo was very hot when the two workshops took place. So you had to deal with that in terms of clothing and sunscreens and so forth.

Different habits, but in a positive way.

How did the cooperation with other people (with different culture and language) work? What was the main asset and difficulty?

The biggest asset was being able to learn from each other. It was difficult to explain the ideas we had and get an understanding of what the goal with the process was.

It was OK.

Maybe to find common ground when it comes to all our differences, once we established what we really want to do and to react, everything just falls in the right place.

English and beer. Difficulty came when someone did not speak English.

The cooperation was good.

It worked out quite well. But there seems to be a difference in the way of structuring things, so it was very important that some students had the authority of making things happen, so that we could finish building by the deadline.

We might have had slightly different approaches to the project, which I think made us reflect upon our own perceptions. Language worked well, partly because one in our group spoke the local language.

It was okay during the workshop, but it wasn't very functional before the workshop. Bad Wi-Fi and very little communication made it a surprise to us all when we came to the site and found out what we were supposed to build.

It is imperative that you do not bother with the knowledge of languages or previously acquired knowledge.

The main asset I guess was the different approach which led to a compromise and an interesting concept in the end.

It went well. I've made several good friends. It wasn't difficult at all, but this is a very subjective thing. The difficulty while working is mostly showing someone that hasn't done something before, how to do that thing. And that is pretty universal. I don't think culture and language played any role in practical building tasks. When we did field work in Norway on the other hand, Norwegians did have an obvious advantage of speaking the native language when interviewing people in the street.

It was great. Differences in lifestyle.

How do you feel that you were prepared for the work (through your education so far)? Compare your situation before and after.

Since the workshop was inspired by the workshop we did in our first year at the NTNU, I felt well prepared for the work that was to come.

I think we were prepared, because work at the "well known" projects of housing and cultural and historical objects which we used to work earlier, so studio was only an upgrade of it.

Actually, for me, this experience was just the

perfect peace in my educational mosaic... It came as a clean confirmation of my work and everything that I have learned so far.

Well prepared, ended up with only more experience.

Because of the lack of practical experience and knowledge before the workshop, there was a big improvement in practical skills.

I felt much prepared, but it was a great thing to have learned something about working in a team, and how one could make decisions and get things done. Otherwise we would not have been finished by the deadline. It was a nice way of learning about how things can be done, and really observe the process of designing in a team.

I think I was well prepared, but mainly due to other live build projects.

I don't think that my education had prepared me very much. Organising the site, being part of decision-making and delegating work isn't something we do in school a lot, but after the workshop I feel more comfortable with these aspects.

Contentedly.

We weren't that prepared...the workshop that we participated in wasn't how I imagined it.

I was well enough prepared. I'd been to several other workshops already.

It was kinda knowledge without practice. Much more confident after.

What field of knowledge did they gain new (that you did not have before)?

Organisation maybe...

We did the whole project, whole aspects of the project actually, (urbanism, construction, energy value of it) and that was for the first time, understanding the same project from the few different sides.

Maybe this practical part, I always missed interaction with other people (sharing different types of knowledge, way of thinking, working... some new socio-cultural energy fusion).

How to work in international teams.

Practical skills, how to work with larger groups.

Building in hot climates has more and perhaps better alternatives than building in wood, but you always understand more of your craftsmanship and building details when you have to explain them and teach other people about them. Then we learned a lot about building in another social culture, with difficulties and opportunities this can give to the design process.

Working in a different political and cultural setting.

I don't understand the question.

Nothing new, just more compassion in work.

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I learned more about the country and people I visited than about building or architecture in general. The tasks were as said very similar to workshops/tasks I'd already done before.

A lot about sustainability.

What was the main challenge (overall)?

Language differences and time – having to fit everything into your schedule.

Finish it well.

Hmm... The main challenge would be overcoming everything you know so far and giving opportunity for new ideas.

Timeframe and poor planning.

To cooperate with new, unfamiliar colleagues / team members.

Organising the workshop in a country and working with people that don't understand your language. Then it was very nice to have some local "expertise" to help out through the process. This was very difficult, but then we also learned a lot about how things are done in another country.

Communication in the design process.

Communication before the workshop and organising the work during the workshop.

To find a compromise between cultures, in terms of (non) work.

Integrating different ideas and creative thinking in order to have a good result in the end.

Time constraints, switching up tasks so that everyone could try a bit of everything. At times it felt like there were too many cooks in the kitchen.

To learn new techniques and finish what was planned.

Would you repeat the same without financing? Why or not?

I think so, because I find it positive that we could meet people from other cultures and work with them. The social aspect was important for me as well.

Yes, it was great experience.

I would do it, why not.

We need money for the equipment and materials we used.

Probably yes, if cost of traveling /

accommodation is acceptable. Also, the decision might depend on how interesting project is.

I could repeat the same without financing, but then materials and tools would have to be financed in some way. Starting a workshop from scratch costs a lot of money but having the "essentials" is quite different. As to learning outcome and experiencing another culture I would most definitely want to do this again, but it would perhaps be easier to have an opportunity of making the design together, and not via skype. The outcome would be different then, and probably better suited to the building culture, resources and the way of structuring in the built environment.

Without financing it would be very expensive to travel, however in my local community I might repeat something similar.

Without financing I would still think it was a great opportunity, but because of my student economy I would not be able to join.

I would repeat but with financing. There is no strict new knowledge, so in keeping with it, I would invest in something more concrete.

I would if I had a chance.

It depends on the destination and the cost. We already do a travel per semester in architecture and it's a toll on a student's budget.

Maybe.

What could have improved the situation and your involvement?

If the task had been taken more seriously, and better planned beforehand. I think the result would have been much better, and something to be very proud of.

One studio should continue during two semesters, because I think it deserves much more time than we had.

Nothing, maybe some more lectures from other established architects.

Better planning.

Better time organisation during the studio work and workshop.

Better time to organise before we started the workshop, and better knowledge to the way things work in the domestic country.

A common design period where we were in physically the same place.

More communication with the foreign participants, and fewer students in total (unless the buildings to be built are more ambitious).

A stricter schedule and more accurate tasks.

Our professors being there.

Like with every workshop, the most important thing is the task at hand. As long as that is high quality and the organisers strive to improve it every year, it's good.

I personally felt the tasks themselves weren't of that high standard/unlike anything we'd already done in the first semester at the NTNU.

More knowledge. Better communication skills.

What did you learn and did you apply the learned afterwards (in private life, work, academic matters, etc.)?

Cooperation with different people from other country, work in team, presentation skills. that all help me now in my present work.

I learned a lot, it regards more when it comes to working in groups and sharing ideas and interacting with students from different countries and arch schools.

Learned to be more aware of different social concepts. Yes.

Some information that was used in studio work helped me in designing approach later, during

the work on projects.

I applied the way of structuring a group of people, and making decisions in a democratic way. Everybody should have the possibility of saying what they mean, and then someone has to try to catch the essence of the discussions and come up with a possible solution to the problem, and way of giving specific tasks to people in order to get things done in a good way.

I think I always learn something about working as a group and working with people that are different from me when working with these kinds of projects. It's hard to pin point exactly what, but the experience itself will affect the way I cooperate with others in the future.

Using tools better, joining in on discussions, finding the necessary knowledge/resources to make things happen, delegating work and communicating with colleagues better.

I understand now that there is another logic angle of looking at any situation.

Communication and working on different ideas with my colleagues.

In private life, yes. I made friends and still keep in touch with them. Academically, that translates to business contacts. Otherwise practiced a bit more carpentry and interviewing/ user involvement.

Sustainability.

and tested by the users. (building workshop)

Learning by doing would say the most about this way of organising a workshop.

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I don't understand the question.

Differences were from the way of living to the way of understanding and finding solutions for every task.

Foreign students were focused more on the concept and creative thinking, while Sarajevo students had to keep up with their way of thinking.

The NTNU students had built several projects already. The foreign students had no prior experience with that, except the ones that had specifically sought out.

Communication was relaxed. No ex-cathedra.

What was the difference in the experienced ways and modes of learning?

More practical work, that we don't have in "official" modes of learning.

Upgrading everything I had already known.

I don't understand the question.

There was no final grading, which is what we are used to have in our school/faculty. What was built remained there to be evaluated, judged

Teachers' Review of HERD Studios

SYSTEMATISED RESULTS OF THE IN-DEPTH QUESTIONING

<p>In cooperating with other colleagues (in a new setting for running those courses), what would you say were the biggest challenges and what was the main gain of this collaboration (administrative, content, social,...)?</p>	<p>There were no major challenges. The cooperation with other colleagues was pleasant, intriguing and inspiring due to an intense exchange of opinions. The main goal was to find a way to teach architecture as an integrated system.</p>	<p>Do you see improvement in the student learning, as a result of running this new structure? If yes, which?</p>	<p>Yes. Student projects seemed to be much more “persuasive” in terms of a general design approach and concept development.</p>
	<p>The biggest challenge was forming an integrated syllabus for the “Contemporary Spatial Concepts, Design and Prototype”, in which teachers from three AF UNSA chairs participated, together with the industrial sector representatives and external associates specialising in the field.</p>		<p>Organising a comprehensive studio containing more ECTS credits is an optimal direction towards a transformation of the existing curriculum. Students have expressed satisfaction with the results, but also with the learning outcomes, for they had an opportunity while working on their semestral task to meet real challenges of the profession (from defining the project programme, limitations in the selection of materials, technological and financial limits, etc.). A special focus was placed on energy efficiency of the designed prefabricated objects.</p>
	<p>The main challenges included technical issues, such as the spatial requirements; the Faculty of Architecture requires more labs for an interactive collaboration between the students and the academic staff, as well as a modelling workshop (e.g. where to store the working models). Social challenges were less complex, as they depended upon a good organisational scheme and coordination between the academic staff. The syllabus was prepared well in advance and it was presented to both students and academic staff.</p>		<p>Significant improvements can be seen in accomplishments of good and excellent students, while the results in average and below average students did not vary from the results they would obtain in regular classes. The results depended on the ability of students to benefit from good time management and to use the possibility of focusing on one theme/project, and viewing it from different design and engineering perspectives.</p>
	<p>Different methodology of teaching architectural design --> studio workshop</p>		<p>Yes, they feel more relaxed and have more time to focus on one project.</p>
	<p>Main goals were achieved through personal and institutional contact, that this yielded further collaborations (student exchanges, books), as well as pushing the classes towards a more integral approach. There were not really challenges but I believe that the staff exchange (assistants and professors) should have been more profound.</p>		<p>Overall, most of the improvements were in student confidence - they became aware that it is possible to think in a complex and integral way.</p>
	<p>The biggest challenge was to setup a new working environment and come up with a satisfying syllabus for studio workshops. But the main gain was actually the holistic approach to each architectural project with the collaboration of different departments to produce complete design from scratch.</p>		<p>Yes, of course, and that’s the creative thinking improvement with complete process in mind. Students are actually starting to realise that each designing problem could be solved in many different ways, and every individual throughout the process could come up with an idea that inspires others to modify their starting point view.</p>
<p>The main goal of this collaboration was the exchange of experience, active participation, as well as to benefit from the expertise from other academic staff.</p>	<p>Yes, there was an improvement as a result of an integrated design approach. The students gained practical knowledge from the industry and went through all phases in architectural design by answering real project demands.</p>		

Do you continue to use this collaborative approach or parts of it?	Yes, definitely.
	The third generation of students already participated in the “Contemporary Spatial concepts, Design and Prototype” studio, and the tested matrix continues to be applied, whereby academic staff from three different chairs is coordinated and cooperates together with the real sector representatives and external associates.
	Yes. We have managed to establish a continuity in organising the “Contemporary Spatial Concept, Design and Prototype” studio that was first launched within the Herd project framework. This semester we are finalising its 3rd edition.
	Yes, we do in our master programme --> a form of studio
	In our studio courses we use similar collaboration whenever an opportunity arises.
	Yes, we continued our collaboration as it proved to be better than partial thinking.
	Yes.

What else would have been needed to improve your performance and/or the students learning?	Organised site visits regarding the built examples, intense collaboration with the people from practice, an organised system of online lecturing (as an additional teaching method).
	Sadly, all has been left to the individual engagement of the professor in charge of the subject and their private connections. A more ambitious curriculum demands an institutional and financial support (from organising transport for students, visits to industrial systems, to building models and prototypes).
	The studio might be further improved by integrating more mobility /collaboration with partner universities from abroad (e.g. guest lectures), as well as with further collaboration with companies from the industrial sector (e.g. prototype production).
	Studio with more credits and more collaborators.
	Joint courses.
	Better equipment in workshops, and also more accessible collaboration spaces where we can dedicate our free time to improve lectures and our teaching skills as well.
	More time; more collaboration with architects and experts from the industry; organising an architectural competition.

To enforce the holistic part of this approach, meaning the cooperation and dependency of the different subjects to each other, or the pedagogical approach in itself; do you think you could improve by external or additional support (fresh-up courses, seminars, update in contemporary development, etc.)?	Yes... informal education, such as seminars, independent lectures and workshops, online tutorials and video lectures would be more than welcome.
	Improvements are certainly possible in the context of the aforementioned limitations, especially regarding the participation of external associates (the previous question).
	Continuous additional education would certainly contribute to upgrading the pedagogic approaches of our academic staff.
	Of course, colleagues and the guest lecturer are a great support.
	I most certainly believe that courses should be improved by using internal capacity and of course with additional support (technical aspects, specialised courses and lectures).
	Yes, as I mentioned in the previous comment, we need to improve our teaching skills and dedicate our creativity to lectures. There are so many skills we could still share with students, from sketching to model making, and from conceptual thinking to building materialisation process.
	Yes certainly, there is a need for collaboration with the industry, architects, companies, experts etc.

What do you think is the best and easiest way of collaborating with foreign colleagues and why (in terms of time use – least effort, language-wise, socio-cultural aspects) e.g. joint courses, workshops, paper writing?	Any way of collaboration is welcome. Joint courses and workshops are probably the most interesting way, because they imply real-time discussions and exchange of opinion.
	I am of the opinion that the already-tested method is a good direction to follow. Hence, forming syllabi together, joint workshops with presentations, and the final conference with the results published.
	Short-term exchanges (of one up to two weeks duration), which might be repeated in cycles (each semester or each academic year) are probably the best way to organise academic mobility.
	Workshops, paper writing.
	Workshops with joint lectures seems to work best, since it is time condensed and everyone is committed at the time.
	Joint courses and collaboration in written papers for scientific conferences, also joint lectures, so teachers could exchange their skills and improve on a personal level.
	Workshops, temporary collaboration which does not take too much time as the workload is quite high.

Overall, how satisfied were you with the cooperation on the “HERD” studio?	5
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