SEIAA

SOCIAL AND
ENVIRONMENTAL IMPACT
ACADEMY FOR ARCHITECTS

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INTRODUCTION

The Social and Environmental Impact Academy for Architects (SEIAA) is an Erasmus+ project that was centered around innovative teaching formats, to educate responsible architects that have the skills and knowledge to support a transformation towards a sustainable society. From 2020 until 2023 the University of Liechtenstein (LI), Hasselt University (BE), Bergen School of Architecture (NO) and the Royal Danish Academy (DK) shared their transformative teaching formats, based on which, each of them organized a five-day workshop focusing on the Sustainable Development Goals (SDGs). In the workshops twenty students worked in five mixed groups, each consisting of one student from every university. The workshop program depended on the teaching format of the university as well as the needs of its context. All workshops included a collaboration with actors outside the university campus and took place in real life locations. SEIAA was guided by the following questions:

- How can we as architects and architecture students tackle global challenges?
- How do we get from an output-oriented to an impact-oriented design?
- How do we foster social engagement and self-initiatives in architecture studies?
- How do we build an ecosystem of change-makers to support each other?

Searching for answers to these questions we have built innovative teaching formats that are already being explored and applied at the different partner universities. In the “Pro Bono” module of the University of Liechtenstein, for example, the students initiate and implement small scale interventions and activities for the common good in cooperation with partners, such as associations, municipalities, or schools. In a similar way, and with a focus on a collaboration with local communities, the “Live Projects” of Hasselt University take place on site and lead to more or less temporary interventions, which are handed over to the community at the end of the process. With its close relation to the sea as well as the surrounding mountains, Bergen School of Architecture focuses on the environmental awareness of its students. Spending nights in the forests of an abandoned island, experiencing harsh weather conditions, discovering plants, mushrooms and animals is part of the curriculum and helps the students to gain empathy for our increasingly repressed and hidden environment. A more technological but no less sensitive approach is used by the Royal Danish Academy in its Research and Innovation course where the students often work hands-on, creating 1:1 prototypes in exchange with local craftspeople and companies. All these teaching formats as well as the partner universities will be introduced in more detail in a later part of this booklet. Based on the characteristics and learning goals of these existing teaching formats the following objectives were set for SEIAA:

- to explore and test more effective formats and settings to “teach” sustainability in architecture schools,
- to create a dialogue among architecture faculties and cross-sector stakeholders from different fields,
- to strengthen the responsibility and agency of the participants regarding the creation of resilient communities through architectural investigations,
- to scale the result of the developed project through cooperation with local actors.

In a first phase the universities have shared their innovative teaching formats to educate future architects. The different universities as well as the teaching format that was relevant for the planning of their workshop are shortly explained on the following pages of this booklet. Even though the teaching formats differed in their details they had many aspects in common, such as working on site, collaborating with partners from practice or implementing small scale design interventions. Besides these methodic similarities the teaching formats and workshops were bound together by the framework of the Sustainable Development Goals (SDGs). Depending on the local needs and the partners, the workshops focused on specific SDGs. Furthermore, the workshops followed a similar structure. An input phase, where the students were provided with information from teachers and different stakeholders and through site visits. A concept phase where local needs were translated together with teachers and in collaboration with relevant stakeholders. An implementation phase, where prototypes and strategies were tested one to one and in real life locations. And a final reflection phase, where the design process as well as the result were presented and discussed with teachers, researchers, and local stakeholders. Each of the four workshops is documented in one of the booklets of this compendium.

THE WORKSHOPS

The workshop series was opened by the University of Liechtenstein in May 2022. Under the title “Mediating Limits to Building” the workshop participants explored the potentials and challenges of sufficiency as a sustainability strategy for the design and use of the built environment. With the aim to plan and implement a “sufficiency lesson” at two regional high schools the workshop participants explored the social and environmental impact from an educational perspective. Exploring the relation of built structures and daily life practices the students analyzed how they could not only promote a sustainable use of the built

environment through their design measures, but also through actively mediating such a use to the future generation of architects and clients, the high school teenagers.
The second workshop took place at Hasselt University in July 2022. Following the motto “Re-wilding the Garden City” and in exchange with a local community committee the students searched for ways to foster social interactions in selected neighborhoods in Winterslag, a settlement of Genk (BE). This time the workshop participants took on a social perspective on the topic, exploring how a community can be integrated in a design process to actively participate in the design of their built surrounding. Through more or less temporary interventions, such as hammocks, sitting opportunities or 1:1 chalk plans, the students showed ways to activate lost spaces and stimulate social interactions among community members.

Shifting from a social to a more environmental perspective, the third workshop at Bergen School of Architecture in August 2022 was centered around the life underwater and how to gain empathy for all those beings who usually elude our perception.
In a multifaceted dialogue with a marine biologist, a dancer, a city planner, an artist and a curator, the students developed proposals of how the city could “meet” the sea in a more empathic way. Instead of expanding the city further into the sea, diminishing and endangering life underwater, the students came up with ideas that suggested a more harmonic co-existence.

The fourth and last workshop took place in Copenhagen at the Royal Danish Academy in June 2023. This time the social and environmental impact was approached from a more industrial and technological side. Investigating the requirements of a circular economy for architecture, the students designed a stage for a nearby event location from used building parts of timber and bricks. Instead of choosing materials and building parts based on their designs, the students were challenged to design based on the limited

available resources, which they did not know in advance. Furthermore, they needed to develop joints between different materials that consider their properties and lifespans and can be dismantled easily.

The workshop at the Royal Danish Academy was followed by the UIA Congress in Copenhagen, the world's largest event on sustainable architecture and centered around the 17 Sustainable Development Goals. This provided an ideal chance to present the learnings of the Erasmus+ project SEIAA to a bigger audience and expand the network for future cooperations. As part of "Resilient Communities", one out of six panels, a narrative essay on SEIAA was accepted for publication and presentation at the congress. In addition, the SEIAA team organized a side-event with the title "Four Course – Discourse", a mix of traditional food from the location of the four partner universities and short inputs, discussions and interventions on the outcomes and learning outcomes from the workshops. As one of the highlights of the Erasmus+ project, the UIA Congress also marked the end of an inspiring three year cooperation with the University of Liechtenstein, Hasselt University, Bergen School of Architecture, and the Royal Danish Academy, four architecture schools across Europe, with different approaches and settings but a common goal:
To educate responsible architects and social entrepreneurs that are motivated and equipped to work towards a more sustainable and equitable future.

FOUR APPROACHES

	APPROACH 01	APPROACH 02
University	University of Liechtenstein	Hasselt University
Location	Vaduz (LI)	Winterslag (BE)
Title	Mediating Limits to Building	Re-Wilding the Garden City
Date	2022 May 02 – 06	2022 July 04 – 08
Perspective	Educational	Social
Partner	High Schools	Community
Output	High School Lessons	Temporary Interventions
Keyword	Sufficiency	Participation

APPROACH

03

Bergen School of Architecture

Bergen (NO)

Dancing with Trout

2022 August 01 – 05

Environmental

Municipality

Design Proposals

Empathy

APPROACH

04

Royal Danish Academy

Copenhagen (DK)

Building Circularly

2023 June 26 – 30

Industrial

Companies

Circular Designs

Circular Economy

FOCUS AREAS OF THE WORKSHOPS REGARDING THE 17 SDGS.

17 SDGS – ONE COMMON GROUND

The 17 Sustainable Development Goals of the United Nations formed a common framework for the planning and implementation of the academies at the different partner universities. Depending on existing teaching formats, research focus and the environment of the respective university the focus of the academies lie in different SDGs. Instead of forcefully trying to cover all the SDGs in the limited timeframe of four one-week academies, we aimed to raise awareness among the partner universities, which SDGs lie within our possibilities, which ones are neglected and require further attention, and which ones reach beyond our scope. As outlined in the Dhaka Declaration architects can impact all the 17 SDGs and not only the obvious SDG 11: Sustainable Cities and Communities. Thus, it was also relevant to examine the complex connections and dependencies of the individual goals, which are often in contradiction with each other. The inclusion of various stakeholders allowed to perceive topics from different perspectives, thereby considering different SDGs. Hence, the aim was not only to act according to the requirements for the fulfillment of one specific SDG, but to negotiate different interests and find sustainable compromises.

UNIVERSITY OF LIECHTENSTEIN

The University of Liechtenstein is an institute of research, undergraduate and graduate education, continuing education, specialized in growing knowledge generating concrete projects for a sustainable and responsible future. We achieve this by focusing on (1) digitization and innovation, (2) spatial development and sustainability and (3) social responsibility and relevance at the Liechtenstein School of Architecture, Liechtenstein Business School, and Liechtenstein Business Law School.

UNIVERSITY OF LIECHTENSTEIN. Photo: University of Liechtenstein

LIECHTENSTEIN SCHOOL OF ARCHITECTURE

The Liechtenstein School of Architecture is a center of intellectual encounter, focused on critical and creative thinking as well as personal development. We educate independent thinkers and team-oriented architects, who help to create a more sustainable environment and society.

Considering the urgent challenges of limited energy resources, the scarcity of land, and constraints of material resources, the Liechtenstein School of Architecture concentrates on topics of spatial development and sustainability in five focal areas: Urban Design & Spatial Development, Urbanism & Society, Sustainable Design, Craft & Structure and Built Heritage & Upcycling.

Small and personal: Currently, around 200 students study at the Liechtenstein School of Architecture.

The faculty-to-student ratio in design studios is 1 to 10.

Project-based learning: Project-based learning is the core of our curriculum. In our design studios, students work intensively on an architectural project. All coursework aims to complement and enrich work conducted in the studio.

Interdisciplinary: Design studios are co-taught by leading experts from many academic and professional disciplines, encouraging design proposals that are intrinsically interdisciplinary.

ARCHITECTURE ATELIER. Photo: Stephanie Büchel

PRO BONO

DESIGN FOR THE COMMON GOOD

Questions of social and ecological responsibility are playing an increasingly central role in the curricula of European schools of architecture. In what way can we support our students in becoming active designers of social and ecological change?
These were the questions we asked ourselves at the Liechtenstein School of Architecture when developing a new curriculum, which was introduced in the 2019/20 winter semester. The Liechtenstein School of Architecture sees itself as a space for personal development and encounters between students, as a place for critical creative thinking. The aim is to train independent architects who are able to work in a team and who can shape a sustainable society and environment on their own initiative.

PARTICIPATORY APPROACH. Photo: Mustafa Karaaslan

The activities of the Liechtenstein School of Architecture are bundled within the “Pro-Bono” teaching format and a contribution is made to the implementation of the 17 sustainability goals of the UN Agenda 2030.

Young, committed students try to meet the challenges of our time in a solution-oriented manner in order to make the world more socially and ecologically sustainable. Together with partners from practice, they initiate and plan projects for the benefit of society, implement them and contribute to sustainable development in regional and international contexts. Thereby the students acquire skills that go far beyond pure architecture studies: they take on managerial responsibility and work in co-creative settings with partners from other areas. At the same time, they learn how to independently manage and evaluate projects and communication strategies with different stakeholders. They are thus prepared for future managerial tasks with social added value.

INVOLVING THE STUDENT COMMUNITY. Photo: Roberto VIllaseñor

HASSELT UNIVERSITY

Hasselt University is a young and dynamic institution, located in Limburg in Belgium, in a green environment at a junction of many European cultures. UHasselt's guiding belief is that we can serve the community best by being a civic university. Civic universities use the region as a 'living laboratory' and a source of inspiration for education and research. Civic universities are deeply devoted to the region they are part of – but they cherish strong connections with the world as well.

FACULTY OF ARCHITECTURE AND ARTS

The Faculty of Architecture and Arts fully supports the civic ambitions of Hasselt University. We train architects and interior architects to critically design, research and manage spatial interventions to serve the community in a sustainable way. "Head in the clouds, feet on the ground" is our motto.

HASSELT UNIVERSITY. Photo: Team fac ARK

Main characteristics of our education are: a personal approach in small groups of 15 students for practical course work, societal relevance of the course content, international orientation of staff and students, and a strong integration of academic research.
The Faculty of Architecture and Arts stimulates, organizes and supports academic and artistic research in 2 research groups: ArcK (for architecture and interior architecture) and MAD (for the arts). Within ArcK, fundamental and applied research on the built environment is conducted. In a multidisciplinary team we work on important societal challenges, such as a purposeful and adaptive reuse of our heritage, the inclusion of diverse groups in spatial transformation processes, critical reflection on and contribution to the environmental impact of our built environment, inclusive design, design for wellbeing and experience and so on.
The research domain Spatial Capacity Building, for example, conducts research into how we can support collectives of citizens, local organizations and local and supra-local governments in jointly reflecting on spatial transformation processes that take place in their everyday environment in order to then start working on these processes with them.

DESIGN STUDIO ATMOSPHERE. Photo: Team fac ARK

LIVE PROJECT

WORKING ON SITE

A compulsory course for graduating students in architecture and interior architecture at the Faculty of Architecture and Arts is the Live Project course.
In a Live Project, students and supervisors step into a design process together with local residents, policy makers, associations, to think about possible futures of a certain place or a spatial issue. A Live Project can vary in scale and the extent to which the question has been defined in advance, but the approach is always to support the public debate on future developments through critical design research. Architecture is a means and not an end.

LIVE PROJECTS IN GODSHEIDE, BELGIUM. Photos: Team Live Projects

We will work 'on site' for two weeks to clarify the question and potential solutions by means of interviews, mappings, designs and construction and make them tangible by means of more or less temporary 'prototypes'. These prototypes are handed over to the local stakeholders during a closing event. In those two weeks, people listen, walk, sketch, build, film, pitch, dance, cook, but what, how and where we are going to make an intervention is always the result of this collective learning process.

LIVE PROJECTS IN GODSHEIDE, BELGIUM. Photos: Team Live Projects

BERGEN SCHOOL OF ARCHITECTURE

The Bergen School of Architecture (BAS) provides training architects with the opportunity to think critically and be mindful of their responsibility in helping shape society. The education at BAS aims to cultivate professional values that respect individuals, society and our surroundings. With an emphasis on using participatory processes to understand and facilitate relationships between people and place, we seek to contribute to our local area and city, as well as engage local and national authorities.
Both as students, during the courses, and once fully qualified, architects from BAS should be able to challenge their clients and projects by taking an approach to architecture that is global in outlook, responsible and socially conscious.

BERGEN SCHOOL OF ARCHITECTURE. Photo: Bergen School of Architecture

Through tackling issues of sustainability we challenge perspectives in discourse regarding climate change and resource management, exploring what it means to be responsible and professional, in situations where diversity and living conditions are at stake, both in local and universal contexts.
The formative architectural approach at BAS is based on the concept of Open Form as formulated by Oskar Hansen at the Warsaw Academy of Fine Arts and developed in Norway by his student, the Founding Rector, Svein Hatløy. The original curriculum was built around the idea of making individuals take responsibility and providing space for users as contributing members of society. Open Form has often been taught through the exploration of enabling, democratic and participatory architectural structures.
For BAS it is also important to revisit the concept of sustainability as it relates to needs, historical contexts, the natural environment, resources, energy and climate, while also promoting and supporting a notion that is more strongly rooted in the needs of society. Within this framework the school also aims to widen people's understanding of innovation, so that the knowledge of pioneering projects perhaps relating to reuse, user participation and regional building traditions amongst others can be used to challenge the current focus on green growth.

DESIGN STUDIO PRESENTATIONS. Photo: Bergen School of Architecture

HANDS-ON WORKSHOP

The school encourages approaches to community development and architecture that create a framework for actively inclusive processes in relation to the place, users and action. In recent years, courses have looked at topics like democracy in terms of transparency, security and user participation in major urban transformation processes that can affect peoples sense of belonging. The school shall continue to put the spotlight on the fundamental values of collaboration and participation.

When the school bought the silo on the quay at Sandviken, one of its main hopes was that the building would become a venue for spatially exploring real-life situations and different interactions between the school, the neighbourhood, the wider landscape and the general public. Since the move, students have continuously been involved in building the school through projects of all sizes, both on their own initiative and in the course of various modules.

RESTORATION OF OLD COASTAL FISHING CABINS AT SOLUND DURING THE FIRST COURSE IN THE FIRST ACADEMIC YEAR.
Photo: Bergen School of Architecture

It has become a place of learning where students are challenged, and one that can be developed through new exploratory ventures.
Architecture is transcendental and universal, but also tied to a particular place and local. The school's ambition is to give students the tools they need to practise as architects; to engage them with contemporary culture and society. The course should be contemporary and relevant to society, and prepare students for a professional life in which their expertise will be an important prerequisite for their ability to make independent and thoughtful contributions that add technical integrity to the development of society. How we live, how and in what contexts we develop venues for social interaction and how we relate to the landscape and nature are all important questions that students must grapple with. Courses at BAS are module-based and have a strong practical focus. Students must deal with real-life situations and work within natural, historic and social constraints.

EXAMPLE OF SECOND YEAR DESIGN AND BUILD: EGGET – A PUBLIC CABIN IN BERGEN FOR CHILDREN & FAMILIES. Photo: Espen Folgerø

ROYAL DANISH ACADEMY

As an architect, your work involves the creation of new spatially and sensuously interesting solutions for society as a whole. The education is supported by practice, research and, not least, by artistic development. Based on issue-oriented tuition, we strengthen our students' academic, artistic, and professional skills.

Education as an architect enables you to work in a wide variety of jobs in the fields of planning, architecture and design. You might start your own business, or you might find employment in an architecture or design firm, in industry or in private and public companies. Or you might work in one of the many other new contexts, which our educational and research fields are constantly helping to open up. You will be equipped to work with ethics, aesthetics, function, technology, culture, environment, and society in tackling professional architectural tasks.

WORING IN THE DESIGN STUDIO. Photo: Royal Danish Academy

You will be ready for a national and international career in the profession's various fields of work. This includes practice, research and development, dissemination and tuition.

INTENSIVE EDUCATIONAL PROGRAMMES

The Royal Danish Academy of Fine Arts, School of Architecture offers four Bachelor programmes and nine Master programmes. You follow a single programme during your undergraduate education and a single programme during your graduate education. We provide intensive specialisation, enabling you to develop an educational profile that matches both your expectations and those of the industry.
The programme you follow is based in an institute, which becomes your home base for your Bachelor and Master courses. Here, at the drawing board, in the workshop and in project supervision, you enjoy close contact with teachers, researchers, international guest lecturers, as well as mentors and inspiring practitioners.

THE ROYAL DANISH ACADEMY. Photo: Royal Danish Academy

RESEARCH AND INNOVATION COURSE

Settlement, Ecology and Tectonics take point of departure in the fact that we currently face an ecological crisis, which requires a rethinking of the way we manage our natural resources. The architects of the future must be able to design robust architecture, which creates a close relationship between settlement, ecology and tectonics. Based on an architectural approach, which incorporates critical analysis and experimental practice, this programme teaches students to translate political, social, cultural and technological issues into architectural solutions. The city, settlement and the tectonic logic of structures are the focal point of the studies, in which projects are shaped to form part of a greater circuit of resources, always with totality in mind.

1:1 MODEL BY FREDERIK PAARUP, JONATAN MØLLER LARSEN, SIGNE JUUL CLEVIN AND SIMON MCNAIR.
Photo: Research and Innovation Course 2020.

The students must become adaptable and ready to produce architectural designs that deal with the multitude of problems concerning the environmental crisis. As such the architectural work is approached in many ways, sometimes starting with classical discussion about programming and site, other times in sustainable materials and techniques, or in quantitative approaches like LCA. The students train in finding architectural potentials in all aspects of tectonics and in all types of societal problems. Some assignments are dealt with in one-to-one / hands-on methods and others with more conventional methods, like sketching, modeling etc.

WORKING HANDS-ON. Photo: Cornelia Faisst

WAY FORWARD

IMPACT ACADEMY BASICS

In this chapter we try to evaluate the learning outcomes of the Social and Environmental Impact Academy for Architects and formulate a didactic basis for an implementation of similar teaching formats. The outlined instructions are based on the findings of our academies as well as on established concepts, such as education for sustainable development, education for a sufficient lifestyle or transformative education and research. Our academies and these concepts have many aspects in common and vary only in their focus areas and in the consistency of the understanding of sustainability. Education for a sufficient lifestyle, for example, was developed based on the learnings from education for sustainable development, following the claims that sustainability is too often understood as something outside the responsibility of the individual person. The following paragraphs provide insights regarding the key characteristics of these concepts, the learning goals, suitable learning environments and evaluation criteria.

TOWARDS A TRANSFORMATIVE EDUCATION

To perceive the urgently required social transformation as a design task and to prevent it from becoming a catastrophe, a transformative “literacy” is needed that allows us to understand transformation processes and use our actions to actively shape them (Schneidewind & Singer-Brodowski, 2013). Future architects must be aware of the consequences of their design decisions. They must recognize the large social and environmental impact that the construction sector has on the environment, but also the enormous potential and responsibility that comes along with. This requires a new sort of architect and thereby a new sort of architecture education.

Referring to a concept by Pellaud (2011), Schneider (2013, p.13) summarizes the requirements of an education for sustainable development: recognizing the complexity of the desired transformation, promoting new, the complexity acknowledging ways of thinking, the trans- and interdisciplinary treatment of different subject areas, the promotion of self-confident learners, as well as the development of concrete implementation examples. This requires design tasks to be understood in a wider context that, for example, also consider "invisible" stakeholders, such as the underwater life in the Bergen Sea. That in turn requires architects to cooperate with experts from other fields to gain the required knowledge. Through such cooperations students already start to build up a network for future activities. Collecting experiences by contributing to the implementation of built interventions during the studies provides students with a feeling of self-efficacy that is important in tackling seemingly insurmountable challenges such as climate change.

The numerous competency models presented by Schneider (2013) largely have in common that they empower learners to think ahead and in context, to develop and implement solutions together, to deal with conflicts, contradictions, and ambivalences in a solution-oriented manner, to develop empathy towards fellow human beings and the natural environment, in order to act responsibly with regard to ensuring intra- and intergenerational justice and motivate others to do the same. Based on our experiences from the academies we can only underline the importance of these competencies. Therefore, we recommend leaving the comfort zone of the university campus, to face the complexity of sustainability by including relevant stakeholders, which do not rarely come along with conflicting perspectives, to gain empathy for other humans and creatures by listening to each other's needs, working together on a common project and taking our time to carefully consider those beings which often remain hidden from us. Sustainability in that sense is not

WORKING TOGETHER. Photo: Mustafa Karaaslan

a final condition, but a continuous process that demands an ongoing dialogue to find satisfying compromises for all concerned.

INTEGRATION IN (HIGH) SCHOOL

How can we as architects and architecture students tackle global challenges? To answer the most basic question of our Erasmus+ project, we have focused on a step-by-step approach, as suggested by Herweg et. al. (2016, p. 19). In the beginning we tried to determine possible points of contact between our profession and sustainable development. Here, for example, the 17 Sustainable Development Goals (SDGs) of the United Nations can be used. In the case of architecture, the Dhaka Declaration already provides as a translation of the generally phrased SDGs and can serve as a starting point to examine possible fields of intervention. This is to gain an increased awareness of the interdependence of the single goals and far-reaching impact of the construction sector rather than assigning specific goals to a design task. Possible contributions should then be differentiated into system, target, and transformative knowledge. This, again, is less about a clear assignment and more about obtaining a better understanding of the connecting points through the assignment process.

In a next step, the authors propose to determine the competences that should be promoted through education for sustainable development. A subdivision into knowledge, ability, will, as well as a distinction between subject and interdisciplinary skills can be helpful. Finally, the intensity and type of the learning process must be determined. Herweg et. al. (2016, 18, 25) based on Bateson (1972) and Sterling (2001) distinguish three levels of intensity: conformational, reformative and transformative learning. The former stands for the usual imparting of knowledge through theories within the boundaries of one's own discipline. This is education "about" sustainable development. The authors refer to this as "screwing" sustainable development into individual lessons.

In contrast, reformative learning is about "building" sustainability into individual courses, which should lead to education "for" sustainable development. The focus here is not only on imparting knowledge, but also on critically questioning existing conventions and values. The highest intensity is achieved through transformative learning, which is not just about screwing or building sustainable development into individual lessons or courses but redesigning entire study programs to lead to education "as" sustainable development. Thereby, the personal world view and the disciplinary self-image are changed in favor of sustainable development and knowledge, responsibility and actions are aligned accordingly. Even though five-day workshops can only serve as an excursion into the field of sustainable development, they were still planned and implemented according to the requirements for transformative learning. Sustainability was perceived beyond the boundaries of architecture and urban planning as the tasks included perspectives from other fields, such as high school children, community committees, scientists, or artists. We also tried to align the design tasks with our behavior, considering the social and environmental impact of the ways we travelled to and during the workshops or the meals we cooked. Nevertheless, we recommend using longer formats or ideally direct the whole curriculum to also leave a sustainable impact on the students.

LEARNING GOALS

At the beginning of our collaboration, we asked ourselves how we could get from an output-oriented to an impact design? Trying to answer this question, we refer to Wittmayer and Hölscher (2017, p. 44) who emphasize the relevance of differentiating knowledge regarding its impact. They distinguish between concrete results (output), direct effects (outcome) and longer-term social effects (impact). While the development of an action strategy, for example, represents an output, the development of the action competence based on it, the inspiration of third

TAKING ACTION. Photo: Workshop Team

GAINING EMPATHY. Photo: Randi Grov Berger

parties or the initiation of concrete actions are to be described as outcomes and the dissemination and gradual anchoring of the changed behavior on a social scale as impact. An outcome and especially an impact is difficult to measure or to trace back to its origin. We also admit that such goals usually demand a much longer time frame than a five-day workshop. However, working on real life projects and in cooperation with local stakeholders certainly increases the chance to reach beyond the usual output that catches dust in a cellar as soon as the semester has ended. Thereby knowledge is disseminated among the involved stakeholders and public debates can be initiated through real life interventions.

Following Rogers and Tough (1996), Schild, Leng et al. (2020) define the learning goals of an education for a sufficient lifestyle on four different levels: the cognitive, emotional, motivational and actional level. Thus, the learning goals are divided into the categories of knowing, feeling, wanting, and doing. The learners not only expand their understanding of sustainability (cognitive level), they also feel responsible (emotional level) and are motivated (motivational level) to work towards sustainable development through their actions (actional level). We consider this distinction as crucial as it responds to one of our initial questions: How do we foster social engagement and self-initiatives in architectural studies? The usual frontal lessons for a knowledge transfer on a cognitive level are essential, but we argue that they should be complemented by other methods that allow a knowledge transfer on other levels, too. The visit of salmon industries near Bergen or the mountains of waste in a recycling center in Switzerland, for example, touched some of the participants on an emotional level that made them rethink their consumption. The motivational talk of changemaker Anna Heringer or the visit of Martin Rauch's rammed earth company, in turn, showed students that architects can be more than service providers and initiate sustainable changes. In Winterslag (BE), the students even took action and implemented small scale interventions to

initiate sustainable transformations. All four levels should be considered. They might not all demand the same amount of time and their relation to each other must be carefully determined. Students should neither get a feeling of helplessness from an overload on an emotional level nor become naïve by only receiving good stories from sustainability pioneers.

Ultimately, the aim of an education for a sufficient lifestyle is to enable learners to understand the connections between their lives and sustainable development and the synergies between sufficiency and a good life, thereby awakening in them a longing for a good life for everyone, now and in the future (2020, p. 48). We can only underline this aim, which played a key role in the first academy in Liechtenstein. Architects are designing as well as using the built environment. This double role must be enhanced through an architectural education that sharpens the students' understanding for the interdependence between built structures and daily life practices.

Referring more to the term of knowledge, Schneidewind and Singer-Brodowski (2013) distinguish between system, target, and transformative knowledge. System knowledge is what we can find out about an existing situation. The target knowledge is what we envision for the analyzed situation. The transformative knowledge, finally, is how we can initiate a transformation towards our vision. In architecture studies we tend to create big visions and utopias that are thought-provoking and inspiring. We do not want to remove the creation of sustainable utopias from the curriculum, but we ask for an increased focus on small steps that can have a sustainable impact now and not in ten years when the time for the utopia might be too late. Otherwise, we only accumulate an "inert sustainability knowledge", to borrow the words of Schneidewind and Singer-Brodowski (2013), which would at best lead to changed patterns of thought, but hardly in changed patterns of action.

WORKING HANDS-ON. Photo: Kristin Cuhra

LEARNING ENVIRONMENTS

Describing the appropriate learning environment for transformative architecture education, learning locations and formats, the relationship between learners and teachers and the role of the teachers are discussed as followed. Therefore, we refer again to Schild, Leng et al. (2020) regarding an education for a sufficient lifestyle. Suitable learning locations can be found outside of the school environment, where a connection to everyday life and personal habits can be experienced and discussed. We recommend this as an essential addition to the learning on campus. We argue that the real-life experience often leaves a bigger impact on students than abstract theories. This, however, requires students to be trained in observing and documenting their daily life practices in relation to the built environment, but also in putting oneself in the position of other beings to experience the world from another perspective. Empathic and mindful exercises can stimulate such competences and should be part of (architecture) education.

In-school learning locations should be designed to promote community as far as possible to promote discussion and cooperation between learners (Schild et al., 2020, p. 62). As far as the time frame is concerned, those teaching formats that allow a longer and intensive examination of the topic, such as project days, block weeks or (interdisciplinary) semester projects (Schild et al., 2020, p. 64) are particularly suitable. Learners are given enough time to “try out” sustainability instead of just talking about it. As previously outlined, this was a relevant aspect for our workshops too. We could have avoided several conflicts and discussions by separating the mediated workshop contents from our actions during and beyond the teaching schedule, but we tried to be authentic in what we said and what we did. This did not mean, for example, that we forbade participants to travel to the workshops by plane, but we encouraged them to use other means of transportation, even if this meant a 36-hour journey. Surprisingly, it was often such

rather unpleasant sides that made students rethink their impact the most and that stayed with them as a memory of some sort of climate activism.
Instead of serving learning content in the form of frontal teaching and as a "finished package", we aimed for a joint construction of knowledge by learners and teachers. Learning was less the result of successful knowledge transfer, but rather an active process of knowledge construction controlled by the students themselves (Schneidewind & Singer-Brodowski, 2013, p. 138) whereby the students build a close relationship with their environment and with other actors. We argue that this is a key element to help students building up a network of changemakers to answer the last of our initial questions. Students should be pushed out of the comfort zone of their university campus to initiate small scale projects and activities in cooperation with local actors and to respond to local needs in relation to urgent topics such as climate change, biodiversity loss or inclusive design. Therefore, the task of the teachers should shift from pure knowledge transfer to accompanying, promoting, and advising students in their learning process, respecting the shared knowledge construction.

PERFORMANCE EVALUATION

Hattie (2010) and Herweg et. al (2016, p. 26) summarize the following three claims for university teaching. Firstly, a transparent communication of performance expectations to the students through the formulation of concrete learning outcomes and assessment criteria at the beginning of the course; secondly, the application of activating teaching strategies through which the students acquire knowledge themselves and reflect on how they learn best; and thirdly, a continuous, prompt, and informative feedback on the learning process of the students. Admittedly, the performance appraisal played a small probably too small, role in our case. Workshops, especially when they take place in another country, are sometimes almost regarded as holidays and are not taken as seriously as classes at one's own university.

However, this is a general statement and has nothing to do with the transformative teaching methods that we have used. We recommend that a performance appraisal is carried out in a differentiated manner despite difficult conditions, due to group work or the lack of examinations. Continuous exchange with the students, self-reflective learning diagnoses such as portfolios, learning diaries, process logs and reflection papers (Schild et al., 2020, p. 65) can facilitate a performance assessment. At the end of each workshop there was also a presentation in which the individual groups explained their work process and the results. Thereby, the assessment was not only made by the teachers, but also by other involved actors, the fellow students, and the students themselves. This also corresponds with the recommendations of Schild et al. (2020, p. 65) to supplement grades with comments or discussions, to prevent the assessment from being perceived as a reward or a punishment, but rather as a tool to improve the learning process.

TOWARDS A LIVED SUSTAINABILITY

To conclude our reflections and recommendations, we do not suggest to get rid of tried and tested teaching methods and redesign architecture curricula. Teaching formats such as the design studios and classic lectures have their justification. However, transformative and classic teaching formats should complement each other, which probably requires a greater emphasis on transformative teaching formats in many curricula. Aspiring architects should already have the opportunity to implement small projects and activities for the benefit of the environment and society, in order to experience self-efficacy that encourages them to take on the major challenges of climate change and increasing social disparity. This allows them to make important contacts with “like-minded people” during their studies and gradually build up a network of changemakers. We appeal for an urgently needed expansion of an “imagined” sustainability through a “lived” one, which requires an increased consistency of taught content and lived practices.

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IMPACT MANIFESTO

TOWARDS CONSISTENCY BETWEEN TAUGHT, STUDIED AND LIVED SUSTAINABILITY IN ARCHITECTURE SCHOOLS!

> Provide more real-life settings where students get in contact with important stakeholders and where designs and planning processes can be implemented and scaled.

> Widen the traditional knowledge transfer on an emotional, motivational and actional level so that students also gain responsibility, motivation, and agency to act.

> Articulate the roles and train the capabilities of teachers to initiate and deal with co-creative and transformative settings.

> Complement system- and target-knowledge with transformative knowledge to empower students to initiate and implement changes themselves.

> Introduce a code of conduct that ensures consistency between taught and lived sustainability in the context of the architecture university and beyond.

Further info and reflections of the students:
uni.li/seiaa

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